REVIEW and RECOMMENDATIONS FOR THE PROMOTION OF CONTRACTS WITH HISTORICALLY BLACK COLLEGES and UNIVERSITIES BY THE ASIA AND NEAR EAST BUREAU OF THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

VOLUME I

- Executive Summary
- Recommendations
- The ANE Experience
- Other U.S. Agency Approaches

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VOLUME I: Review and Recommendations

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Foreword

The AID marketplace is somewhat different from the federal procurement and grant systems generally. It combines the complexity of the typical systems with added elements peculiar to international trade and diplomacy. These differences require special insights on marketing, foreign customs, international logistics, bureaucratic language, administrative procedures and laws before substantive matters can be addressed. Therefore, strategies for increasing the HBCU opportunities associated with AID must be of a highly diversified and sophisticated order.

It is understandably ambitious therefore to seek in a limited study of this type a definitive solution. Nevertheless, what follows can be commended as a sound, if not totally comprehensive, summary statement of the needs and possible approaches. Taken together they can be pinpointed toward greater AID/ANE success in the fulfillment of both its general mission and that of increased HBCU participation therein. As such, this report should be helpful to both the AID and HBCU communities for its additional perspectives on an already widely explored, if not fully understood, question of important public policy.

EXECUTIVE SUMMARY

The Assignment

This report is the product of a seven month contract to review the various means and methods available to increase the participation of Historically Black Colleges and Universities (HBCUs) in the program activity of the Asia and Near East Bureau (ANE) within the United States Agency for International Development. The Bureau's charge to the contractor, DAC International, Inc., was to examine similarly purposed past and current efforts within the Agency as well as elsewhere in the Federal government to formulate recommendations for Bureau improvements in the future.

While special attention was to be given to long and short term training, the examination was also to include other areas such as project design, evaluation, research and technical assistance. As part of this effort, illustrative profiles on selected

institutions and individuals were also to be developed as an additional reference for specific assignments.

The Bureau emphasized an interest in a summary analysis of the findings of our study of HBCU participation in ANE Bureau programs with special emphasis on

- assessment of the effects of existing mechanisms and procedures on increased HBCU participation in ANE programs;
- analysis of how the Bureau's structure encourages or discourages such participation; and
- recommendations for changes which would facilitate the increase of HBCU participation in Bureau programs.

The Problem

The nature of the ANE portfolio represents a substantial challenge. Although a formal obligation exists to consider HBCUs throughout the entire process of project definition and development, typically the work on essential elements occurs at so many levels throughout the Bureau that it is difficult to assure an even measure of awareness on HBCU objectives throughout. Initially, certain projects tend to be shaped at the mission level by program officers with little or no knowledge of HBCU policies, capabilities, or interests. This lack of awareness persists in spite of routine communications with the field and the sustained marketing efforts by individual HBCUs as well as their trade organization, the National Association for Equal Opportunity in Higher Education (NAFEO).

While substantial resources and very studied efforts have been expended in recent years to prepare comprehensive materials on HBCU potentials in development related fields, scarce evidence exists that these materials are being effectively used in the missions. Coupled with the highly decentralized decision making structure of ANE in the awarding of grants and contracts, the lack of awareness of HBCUs offers slight hope for improvement absent a strengthened central mandate to the missions from the Bureau's highest level in AID/Washington. Indeed the HBCU mandate requires both flow-down requirements to and oversight of the missions if they are to be effectively held accountable on a country-by-country basis.

The Findings

The principal explanations offered for the differences in the performance of other Regional Bureaus vis a vis ANE in HBCU participation have been:

1. ANE has a uniquely decentralized decision making process;
2. Most of ANE funds come from the Economic Support Funds not covered by the Gray Amendment provisions that include HBCUs;
3. The advanced status of ANE countries exceeds that of other regions and therefore generates more demanding institutional capacities less likely to be found in HBCUs; and
4. The historical and cultural affinities are lacking between HBCUs and the population groups of ANE countries.

A careful examination of each of these elements show them to be more apparent than real. Instead the essential points of difference may be the degree of special emphasis, effort, and follow-up given to HBCU priorities.

While it is true that certain regional Bureaus within the Agency operate major training projects though contracts let and managed from Washington, such as the Caribbean and Latin American Scholarship Program (CLASP) and the African Human Resources Development Assistance (HRDA), it is also fair to say that these are exceptions rather than the rule for most contract activities. Here it must be remembered that most of the AID resources are devoted to program design, evaluation, technical assistance and research on a country specific basis prepared in the field regardless of region. This is not to deny the special ANE magnitude of country specific training programs, however. The very fact that the size of ANE countries' portfolios are large enough to justify substantial delegations of contract authority to the field, only highlights the importance of effective AID/W oversight to assure HBCU policy compliance either directly or through prime contractors.

Significantly, the most direct policy initiative to date for enhancing HBCU involvement, the Gray Amendment to the Foreign Assistance Act which sets a ten percent involvement goal, has been statutorily limited to Development Assistance and the Sahel funding sources. This has meant that the substantially larger proportion of

Foreign Assistance Funds from the Economic Support Fund at work in ANE has not been directly affected.

Here it is significant to note that just as its1981 predecessor Executive Order has had little effect, few if any implementing policies have been developed within the Bureau based on the broader reach of the current President's Executive Order 12677, which has the exclusive purpose of calling for policy reforms to enhance HBCU participation throughout the Administration without the dilution of its purposes with minority- and women-owned business issues. This same Executive Order calls for the systematic development of annual plans of the policies and actions taken by each Executive agency.

Similarly the belief that the ANE countries are somehow qualitatively different than those with greater HBCU training and technical assistance experience remains unsupported. While ANE countries may be linguistically and culturally diversified, such beliefs belie the recurring themes of agricultural and rural development, health and human services, small scale enterprise and self help efforts which are common to most AID work world-wide and therefore emphasize the very elements that serve as the hallmarks of the HBCU mission and experience. And while the absolute numbers of participants who are specialized graduate students from ANE countries might be greater, the proportional fields of concentration continue to be within the major areas of HBCU competency at the graduate as well as undergraduate levels.

Furthermore, it is important to note that certain HBCUs also offer a diversification of experience, curricula and staff to meet the whole range of specialty interests, not to mention the potential to develop further special programs with the support of institutional development resources.

While it is historically true that most HBCUs have been introduced to the matters of development through the African, Caribbean and Latin American theaters, recent evidence shows heightened interest as well as success both in Middle Eastern as well as Asian countries. In the past several years NAFEO has spent a disproportionate amount of resources taking substantial delegations throughout the ANE region, with follow-up visits resulting in formal cooperative agreements and commitments. In none of these instances has a mission shown a special commitment to offer support or

follow-up. Indeed, this continues to be so in the largest recipient country in the ANE Region in spite of numerous and lengthy visitations and contact.

This trend can possibly be corrected by the substantial presence of Asian and Near Eastern Faculty members on HBCU campuses to assist in the fine-tuning of proposals and project design instruments.

Certain departures shall be required in any case both on the part of the central policies of the ANE Bureau as well as its personnel in the field along with increased effectiveness in the marketing strategies and efforts of the HBCU individually and collectively.

The above difficulties notwithstanding, there is significant opportunity for HBCU participation in the design and implementation of the Bureau's programs and projects. As illustrated in Volume II HBCU Profiles, the companion volume to this report, the strengths and experiences these institutions have gained from their involvement in development assistance activities in the U.S. and in other regions of the world are clearly transferable to the ANE region.

Worthy of special notice, the tradition of the 1890 land-grant institutions, particularly with respect to research and extension activities for the rural poor and small-scale farmers, is wholly consistent with the highest priorities of Agriculture and Rural Development, which has the largest portfolio within the ANE Bureau.

The imperative issue is, therefore, the development of institutional policies, and procedures by which to assure HBCU involvement in the Bureau's activities. As the Bureau's experience with Title XII institutions suggests, mainstreaming new participating institutions, does not occur based on decent intentions alone. Specific policy and administrative interventions are required to further policy adherence and performance accountability.

In FY 1988 the Bureau's obligations with HBCUs were as follows:

- $107,000 grant to Howard University under the centrally-funded Improving the Efficiency of Education Systems project;
- $100,000 support grant to Howard University to develop a short course on Vitamin A assessment techniques in collaboration with Helen Keller International;

- $51,787 subcontract to Virginia State University on the Nepal Agricultural Research and Production project;
- $47,000 grant to Texas Southern University under the centrally-funded Basic Research and Implementation in Development Education Systems project; and
- $15,000 grant to North Carolina A&T State University to develop a training workshop on the use of micro computers in agricultural policy decision-making.

The Bureau's FY 1988 goal for placement of participants at HBCUs was 288; the actual number placed was 59 and it is not known how many of these were for long term or short term training.

While FY 1989 figures have yet to be prepared it is known that a major competitive award of $25 million has been made for work in the field of child survival in Egypt to a consortium in which Atlanta University was the lead institution.

There may be additional HBCU contracts and procurements as subcontractors, but at present the Bureau's mechanisms for the identification of such transactions has yet to be perfected.

The Recommendations

The initiatives developed from the underlying study can be summarized in groupings describable as policy, strategy, and technique improvements.

Proposed **policy improvements** include the following:

(1) The ANE Bureau's Assistant Administrator (AA) should issue a positively worded HBCU action memorandum referencing The President's Executive Order No. 12677 as well as the Gray Amendment as the bases for urgency. Such a pronouncement should detail the types of efforts called for both in the Bureau's AID/Washington offices and in the missions for activities under both the Economic Support Fund and Development Assistance Funds.

(2) Each program division in AID/Washington should be charged by the AA with the responsibility of contributing specific action elements for inclusion in the

annual plan called for by the President's Executive Order for all executive agencies including AID and the Department of State.

(3) Each mission should be required to identify those elements in their multi-year congressional presentations which offer HBCU opportunities either as prime contractors, joint venturers, sub-contractors or individual team participants.

(4) Profit making prime contractors should be given a one percent profit incentive or penalty by Contracting Officers based on meeting their proposal's goal for HBCU participation.

(5) Non-profit prime contractors should be given competitive points by Contracting Officers for the volume of work committed to HBCUs as joint venturers and sub-contractors in each ANE transaction.

(6) A three year pilot program should be initiated for each of the Bureau's major missions in Egypt, Pakistan, The Philippines, and Indonesia for an HBCU negotiated or restricted competition for at least one procurement a year within the ceiling amount of $100,000 permitted by the Federal Acquisition Regulations for restricted procurements to assure mutual familiarization of the missions and HBCUs with the opportunities and capabilities in their respective portfolios.

(7) NAFEO under its cooperative agreement with AID/Washington should be involved in collaboration with the respective program offices and missions in the review of Project Identification Documents and Project Papers to help identify and pre-qualify HBCUs early-on for the negotiation of component activities or Agency certification for sub-contract to would-be bidders and prime contractors.

The **strategy improvements** include the following:

(1) The policy pronouncement of Assistant Administrator needs to be coupled with a two to three day regional workshop for all of the designated Gray Amendment representatives in the field as well as the mission officers with oversight responsibility for the educational programs to address the Why, How, When, and Who of HBCU enhancement.

(2) Each mission should be made aware of not only the special 100 HBCU institutional descriptions and 1,000 professional profiles prepared by NAFEO in recent years, but the way in which parallel information can be also accessed through the microfilm library on U.S. institutions of higher education at each USIA or consular office. The latter report prepared and periodically updated by the University of Michigan should definitively end the excuse for not having appropriate HBCU information.

(3) The AID Fellows program should be required to assure participation by HBCU faculty in each year of its awards. Such a device can serve to not only inform Agency personnel on HBCUs, but facilitate the transfer of invaluable background information on how the Bureau works in ways too subtle for written description.

(4) The Bureau should identify resources which can supplement the cost of sending HBCU reconnaissance and marketing teams into the field for first-hand exposure to mission programs and personnel.

(5) NAFEO representatives should be invited to attend and make presentations before the mission directors conferences to underscore the priority of HBCU participation in ANE programs both as institutions and through individual faculty involvement.

(6) The Bureau should facilitate the free dissemination of Commerce Business Daily information to all designated foreign assistance campus coordinators and NAFEO designated liaison officers along with current information on all recent awards to prime contractors where additional subcontract activity is likely to result, complete with the names and addresses of the individuals who are to be contacted.

The following recommendations are made for **technique improvements** to increase HBCU participation in ANE programs and projects:

(1) Career information in the field of foreign assistance should be presented as an additional means to stimulate faculty and institutional participation in Bureau programs.

(2) University linkage projects should be fostered between HBCUs and majority institutions in the United States as well as with host country institutions.

(3) Regional workshops should be held for HBCUs to receive and share information on the types of curricula and organizational modifications which might enable institutions to be more competitive in foreign participant training as well as ANE related research.

(4) More ANE foreign service officers should be loaned to HBCUs to be adjunct professors as well as technical assistance agents to improve the institutional capacity to perform complex project design, evaluation, technical assistance, and research projects.

(5) Incentives should be provided to 8(a) program graduates which have been successful in marketing AID world-wide to collaborate with HBCUs in the pursuit and performance of sheltered market procurements consistent with the Federal Acquisition Regulations.

(6) Greater efforts should be made to assure the interface of major prime contractors with HBCUs by ANE underwritten faculty and staff exchanges including technical assistance on how the two communities might mutually benefit from their respective areas of expertise.

The rationale and bases for the recommendations summarized above are laid out in greater detail in the technical discussion which follows. Further variations in these recommendations are also presented as part of the following text along with the suggestion of immediate next steps for consideration to continue the Bureau's forward momentum.

I. OVERVIEW, METHODOLOGY AND ORGANIZATION OF REPORT

The underlying objective of the Asia/Near East Bureau's initiative should be the implementation of means to harness the valuable experience of the HBCUs in the United States as well as abroad in successfully meeting the problems of development. Toward this end it is important that HBCUs are positively perceive by the bureau as sources of educational and research strength in the development areas relevant to both their present experience and success as well as future capacities for growth.

In the spring of 1989 President George Bush issued Executive Order No. 12677 to "strengthen the capacity of HBCUs to provide quality education, and to increase (their) opportunities to participate in and benefit from Federal programs, . . . (based on) measurable objectives ...." In taking this action he was supplanting the 1981 decree of his predecessor in Executive Order No. 12320 directing the Secretary of Education to designate selected executive departments and agencies to develop programs "designed to achieve a significant increase in the participation by historically black colleges and universities in Federally sponsored programs... saying they should seek to identify, reduce and eliminate barriers which may have unfairly resulted in reduced participation in, and reduced benefits from, Federally sponsored programs...."

Subsequently, agencies, including the Department of State and the Agency for International Development (AID) were charged with establishing annual plans to increase the ability of historically black colleges and universities (HBCUs) to participate in federally sponsored programs of every description. Significantly no distinction was made in identifying the twenty-seven executive agencies based on domestic or international spheres of activity.

Legislatively Congressman William H. Gray III sponsored an amendment to the Continuing Resolution affecting Foreign Assistance for FY 1984 which provided that, "except to the extent that the Administrator of the Agency for International Development determines otherwise," not less than 10 percent of Development Assistance and Sahel Development funds should be made available only for activities of economically and socially disadvantaged enterprises, **historically black colleges and universities**, and private and voluntary organizations which are controlled by individuals who are Black Americans, Hispanic Americans or Native Americans, or who are economically and socially disadvantaged.

The Gray Amendment has been included with every AID appropriation since FY 1984. It applies to AID direct contracts, grants, cooperative agreements, as well as host country contracts.

It does not apply to sensitive assistance and acquisition activities financed with the Economic Support Fund (ESF) which comprise the vast majority of the USAID Budget. ESF provides economic assistance to address economic, structural and development problems in countries of particular security and political interest to the United States. Significantly each of the major recipients of ESF namely Egypt, Indonesia, Israel, Jordan, Pakistan and the Philippines fall within the ANE bureau.

A "direct contract" is a procurement instrument that is used when the principal purpose is to acquire specific goods or services of direct benefit or use to AID in support of AID-financed programs or projects. Direct contracts include those awarded by AID/Washington and overseas USAID field missions.

A "host country contract" is one between an agency of the recipient country, and a third party institution, firm or individual, whereby the host government undertakes to provide the supervision required to carry out an AID approved project. Such a contract is eligible for financing by AID provided the host country contracting procedures and resultant contract are acceptable to AID.

And while it is commonly said that host government contracts are beyond the direct reach of AID because the selection criteria are set locally, the fact of the matter is that mission personnel are frequently the source of the recommendation of the American vendors

and service providers to be considered. The missions are also responsible for audit controls to see that all appropriate provisions of U.S. laws have been met.

Objectives and Scope

To date, the ANE Bureau's efforts have been unsatisfactory even to itself. The present research project was accordingly undertaken in response to the Asia and Near East Bureau's efforts "to find a way to become more active with HBCUs and increase Bureau participation with these universities."

To that end, an assessment of the Bureau's program priorities including technical assistance activities, academic and technical training was undertaken, and illustrative HBCUs with institutional capabilities in those priority areas were identified. In addition, illustrative individual HBCU faculty members were to be categorized for consideration on future design and/or evaluation teams.

The objective of the above exercise was to identify exemplary HBCUs with clear capability and experience, albeit not necessarily in the Asia and Near East region, for use in the Bureau's priority areas. Recommendations as to interventions the Bureau can implement to achieve its objective of increased HBCU participation were also to be made.

The underlying principle was that the recommendations would take into account the HBCU mandate, the Bureau's priorities, the Agency's mission and applicable procurement regulations, as well as the informal techniques available within the Bureau's authority to act.

As the research was conducted over the course of seven months, extensive discussions were held with ANE Bureau officials, including technical, project, and contracting officers. Interviews were conducted with other regional and central bureau officials for Africa, Latin America and the Caribbean, as well as Board for International Food and Agricultural Development (BIFAD), Science & Technology/Research and University Relations (S&T/RUR), and the Office of Women in Development. Discussions also occured within the professional ranks of DAC International and other contractors with extensive experience in participant training as well as the other programs of AID generally.

A review of available ANE Bureau programming documents, including selected project papers, was made. The Congressional Presentations for fiscal years 1988 and 1989, as well as other Agency publications, such as policy papers and occasional papers. Literature including publications of the American Council on Education relating to the objectives of the project was reviewed. The ACE's Accredited Institutions of Postsecondary Education, 1988-89 was also helpful.

Discussions were held with cognizant officials for comparable HBCU programs at selected federal departments and agencies, such as the U.S. Department of Agriculture (USDA), Department of Energy, and Department of the Interior. These agencies were selected because they have developed programs with selected HBCUs that have had the effect of strengthening HBCUs' capability to participate in development assistance activities paralleled in the ANE Bureau's priority program areas.

Seminars and workshops were attended, sponsored by the Office of International Training of the Bureau for Science & Technology, S&T/RUR, BIFAD, USDA and the International Science and Education Council. In addition, a regional seminar and annual workshops sponsored by the National Assocation for Equal Opportunity in Higher Education were observed. And a small number of site visits were made to nearby HBCUs consistent with the limited budget and time constraints for the study.

Organization of the Report

The technical body of the report which follows is organized in five sections. Section I, above, gave the overview and methodology of the report. Section II focuses on the characteristics of the ANE

Bureau, including general participant training programs and the Bureau's HBCU involvement. Section III focuses on the Agency-wide experience with HBCUs. Section IV provides a comparable profile of HBCU programs implemented by selected federal departments and agencies. Section V extends the recommendations itemized in the Executive Summary by which to increase HBCU involvement including the next steps to be taken to continue the momentum of the current effort.

II. BUREAU FOR ASIA AND NEAR EAST

An assessment of the priority technical assistance and training needs of the Bureau for Asia and Near East (ANE) was undertaken to identify those areas that offer significant opportunities for increased involvement of Historically Black Colleges and Universities (HBCUs). Due to administrative and budgetary constraints, program priorities identified herein are strictly based on discussions with AID/Washington and a review of available program

planning documents; input from field missions may reveal changes in program priorities.*/

Agriculture and Rural Development

The focus of the Agriculture and Rural Development (ARD), the largest portfolio in the Bureau, is the role of agriculture in contributing to sustained growth in economic development in the 1990s and beyond. Accordingly, its projects and programs are oriented toward more than agriculture production; they include the diversity and dynamics of the economies of subregions, the impact of program and policy decisions, etc. The differing economic factors include per capita income and gross domestic product (GDP) annual growth, agriculture's contribution to GDP, and changes in agriculture's contribution. Among others ARD's program priorities are:

*/ See Appendix, ANE Project List, FY 1988, for a listing of all projects. Information of project status is contained in the project implementation reports (PIR) prepared by the Office of Project Development (ANE/PD). For information on projects proposed for the next fiscal year, the Congressional Presentation, Annex II, Asia and Near East, issued in February is the most readily accessible resouce document.

- o Technology innovation (production & processing)
- o Crop diversification
- o Infrastructure and management
- o Pricing policy
- o Trade and market development
- o Natural resources management
- o Human and institutional development (e.g., the sustainability and revitalization of second generation institutions).

This policy reorientation is reflected in technical assistance projects, as well as training needs.**/ Participants receive academic (primarily at the graduate level) and technical training in the areas of agricultural economics and finance, agricultural planning and research, natural resouce management, irrigation management, horticulture and cereals research.

The objective of the rural development program is to improve the economic, social, cultural and life expectations of rural poor, including small-scale farmers, tenants, sharecroppers, landless workers and their families by increasing their access to income-producing opportunities and social services.

**/ See Education and Human Resources Division, which follows for a discussion of participant training.

The following projects, described in the FY 1989 Congressional Presentation, are merely illustrative of the breadth of ARD projects.

Asia

Bangladesh Agricultural Research II Project. The project provides assistance to the Bangladesh Government to develop more productive crop varieties and cultivation practices by strengthening the institutional capacity necessary for technological advances and by decentralizing research to regional substations and to farmers' fields. The goal of the project is to increase domestic food production, small farm income and rural employment.

Indonesia Agriculture and Rural Sector Support Program. This program is designed to support a policy agenda which includes the creation of conditions conducive to expanding and diversifying the agricultural sector, including the improvement of the environment for agricultural processing and trade, as well as reductions in pesticide and fertilizer subsidies; and planning for and initiation of steps to expand the efficiency of domestic financial markets.

Nepal Rapti Development Project. This project implements AID's strategy for increasing rural incomes and consumption through production increases and better management of physical infrastructure and natural resources. The project is expanding availability of technologies to increase agricultural, livestock and forestry production in the five districts of the Rapti Zone.

Near East

Morocco Cereals Marketing Reform Project. The objective of this project is to address certain policy reforms in cereals marketing through analysis, dialogue and discrete capital investments. Deregulation of domestic markets, rationalization of price supports for wheat, privatization of parastatal grain marketing cooperatives and developing adequate rural grain storage facilities are among the primary objectives of this policy-oriented project.

Oman Water Resources Development Project. Project funds are used for water resources planning and the provision of improved water and wastewater facilities in smaller towns and villages.

Tunisia Irrigation Technology Adjustment Project. The goal of this project is to provide farmers with technical assistance designed to achieve greater on-farm water efficiency.

Yemen Agricultural Development Support Program. One of the few Title XII projects in the Division's portfolio, this program includes sectoral planning and management; development and dissemination of agricultural technologies; improvement of the supply and distribution of inputs and the development of key institutional and human resources.

In FY 1988 ARD's involvement with HBCUs was limited to a $15,000 grant to North Carolina A&T State University to develop a training workshop on the use of micro-computers in agricultural policy decision-making, and a $51,787 award to Virginia State University as subcontractor on the Nepal Agricultural Research and Production Project. (Virginia State is projected to receive approximately $420,000 over the five-year life of the project.)

In FY 1989 a representative from the National Association for Equal Opportunity in Higher Education (NAFEO) was invited to attend the regional agricultural and rural development officers conference in Rabat, Morocco. Also in FY 1989, a Title XII collaborative assistance contract (See Board for International Food and Agricultural Development,referenced in greater detail later,) is being negotiated for the Bangladesh Higher Agricultural Education project. The prime contractor, the Consortium for International Development, has proposed Tuskegee University as a subcontractor.

Education and Human Resources

Education and Human Resources is the cognizant division for implementing the Bureau's basic education and general participant training strategy. In addition, EHR is responsible for overseeing the Gray Amendment requirements vis-a-vis HBCUs, particularly with respect to participant placements. The degree of attention paid to the requirements of Executive Order No. 12677, however, was not clear.

BASIC EDUCATION

As enunciated in an A.I.D. Policy Paper, Basic Education and Technical Training, issued December 1982:

> "The development of human resources (or "human capital") is vital to the growth of overall productivity and the efficient use of physical capital.... Accordingly, increasing the efficiency and improving the distribution of basic education and skills training - that is, schooling for children 6-14, vocational education and functional skills training for adolescents and self-employed adults, and technical skills training for wage employment - are among the priorities of A.I.D.'s assistance programs
>
> "In assisting LDC efforts to improve education and

training systems, A.I.D. will focus its attention on increasing (1) the efficiency with which education resources are used, (2) the quantitative and qualitative outputs of education and training investments, and (3) the effectiveness of the education and training systems in supporting economic and social development objectives...."

The Division has the smallest portfolio within the Bureau, which reflects the overall decline in Agency support for basic education. In FY 1988 less than two percent of the Agency's bilateral assistance was allocated to improve the primary and secondary education systems of host countries. The following is an overview of selected basic education projects in the Bureau as outlined in the FY 1989 Congressional Presentation.

Asia

Indonesia Education Policy and Planning Project. The aim of this project is the improvement of the Government of Indonesia's educational planning and policy making. A policy research agenda, reflecting the results of AID's Education Sector Review, emphasizes cost effectiveness topics including the privatization of vocational training programs and the decentralization of education planning and programming.

Nepal Radio Education Teacher Training II. Under this pilot program, radio broadcasts are utilized as a cost effective tool by which to improve the knowledge and skills of primary school teachers. As of 1987, more than 7,000 teachers had participated in training via radio.

Pakistan Primary Education Development Project. Funded in June 1989 for completion May 1999, the 280 million dollar project is aimed at strengthening the capacities for basic education in two provinces. It includes the goals of doubled general enrollment and quadruple female enrollment, improved quality of education, the creation of separate educational directorates in each province with maximum private sector involvement in the construction of new buildings.

Near East

Egypt Basic Education Project. The principal objective of this project is to increase primary school enrollments by financing construction of 1,300 schools in rural areas currently underserved.

Yemen Educational Development Support Project. Funds are provided under this project to support an assessment of the primary education curriculum, the development of learning objectives and to conduct research into the causes of educational deficiency. A cross-sectoral evaluation of the participant

training program will be conducted in FY 1989 to assess program effectiveness and identify the areas that need strengthening.

In addition to the above projects, there are several centrally funded basic education projects, two of which, Improving the Efficiency of Education Systems (IEES) and Basic Research and Implementation in Developing Education Systems (BRIDGES), have had limited HBCU involvement, Howard University and Texas Southern University, respectively.***/

Under the IEES project, LDCs, including Indonesia, Nepal and Yemen, receive technical assistance to help them make better allocations of their education budgets and strengthen their capabilities for educational planning, management and research.

In FY 1988 Howard University was awarded a subgrant in the amount of $107,000.

***/ The S&T/HR Portfolio Directory, issued January 1989 by the Bureau for Science and Technology's Human Resources Directorate contains a current listing of centrally funded education projects.

The BRIDGES project is designed to (1) increase children's access to schooling; (2) reduce dropout and repetition rates; (3) improve the amount and quality of what is learned in school; (4) optimize use of fiscal and educational resources and (5) improve educational planning. Technical assistance has been provided to ANE countries, including Egypt, Indonesia, Pakistan, Sri Lanka and Thailand. In FY 1989 Texas Southern University received a subgrant in the amount of $47,000 to provide short term technical advisors in Sri Lanka and Thailand, who conducted research in educational administration and teacher training in public schools.

GENERAL PARTICIPANT TRAINING

A number of general participant training projects are being implemented throughout the ANE region. A participant is a foreign national whose education or training is funded and/or sponsored by AID and takes place outside of his/her country. Participant training is the human resources development component of a development project which may also include technical assistance and commodities procurement. As such it is a component of the entire activity of a project which trains nationals outside their home country to fulfill the host country's human resources development objectives. AID Handbook 10, presents the details on the regulation of Participant Training.

Most of these projects involve training for managers and technicians in analytical and technical skills, and strengthening the management capabilities of host country public and private institutions. Both academic and technical training is provided at a myriad of U.S. institutions, ranging from the most selective academic institutions to private sector training institutes.***/

Academic Participants are those who are enrolled in academic institutions with the objective of obtaining an academic degree, i.e., A.A., B.A., B.S., M.A., M.S. and Ph.D. Approximately 95% of the Bureau's academic participants receive graduate training. Technical Participants are those whose training does not have an academic degree as an objective; training may be short courses, on-the-job training, observation tours or university courses without the objective of a degree.

The following is an illustrative listing of the types of instruments used to implement the general participant training programs.

***/ Report of Participants In-Training During Fiscal 1988, U.S. Training only as of October 1, 1989. S&T/Office of International Training.

Asia

Indonesia General Participant Training II. Under the terms of this host country contract, the Midwestern University Consortium for International Activities (MUCIA) provides technical assistance to the general placement office housed within the National Planning Bureau of the Government of Indonesia (GOI). The contract was originally awarded in 1985 and was recently renewed through FY 1992. The number of participants placed annually averaged between 250-300; it is anticipated a similar number will be placed through FY 1992.

Pakistan Development Support Training II. The Academy for Educational Development's (AED) five-year contract was extended in FY 1989 by USAID/Islamabad for an additional three years. This is a rather unique arrangement in that AED handles 95% of all Pakistani placements (the sole exceptions are those placed pursuant to a cooperative agreement with the University of Illinois, which predates AED's contract). Circa 1983, AED has placed approximately 3500 participants, more than 50% of whom received technical training; 918 academic and 1265 technical participants are proposed for FY 1990.

Near East

Egypt Development Training. Private contractors as well as the Embassy of Egypt handle all participant placements. In FY 1988 93 academic and 777 technical participants were placed. For FY 1989 102 academic and 922 technical participants are expected. Thereafter, 120 academic and 1155 technical participants are proposed for FY 1990.

PARTICIPANT PLACEMENTS

In both semesters FY 1988, 17,891 participants were in training in the U.S. Agency-wide, of which 7,325 were from the ANE region, representing 41% of the total number of Agency placements. Fifty-seven percent (4,190) and forty-three percent (3,135) were academic and technical participants, respectively. The following tables, compiled by ANE/TR/HR, show the distribution of ANE participants by fields of study in FY 1988:

FIELDS OF STUDY OF NEAR EAST PARTICIPANTS IN THE U.S. FY 1988

FIELD	ACAD	TECH	NO.	%
Industry*	1,239	363	1,602	43%
Agriculture	473	295	768	21%
Public Administration	354	230	584	16%
Health, Family Planning	188	276	464	12%
Education	124	68	192	5%
Housing, Comm. Develop.	23	12	35	.09%
Urban Planning	5	20	25	.07%
Transportation	1	13	14	.04%
Misc.	20	35	55	2%
TOTALS	2,427	1,332	3,759	100%

FIELD	ACAD	TECH	NO.	%
Agriculture	495	676	1,171	33%
Industry*	480	276	756	21%
Public Administration	409	506	915	26%
Health, Family Planning	193	154	347	10%
Education	80	83	163	5%
Housing, Comm. Develop.	32	23	55	2%
Labor	3	35	38	1%
Urban Planning	16	13	29	.08%
Transportation	2	6	8	.02%
Misc.	53	28	81	2%
TOTALS	1,763	1,800**	3,563**	100%

* The types of training include mining and minerals, power, communications, manufacturing and processing, fertilizer production, pesticides and other plant chemicals, food processing and fortification, food storage and refrigeration, service industries, engineering and construction, marketing and distribution, industrial management and industrial training.

** Figures have not been reconciled against total numbers given.

As stated, EHR is charged with ensuring compliance with Agency directives vis-a-vis placement of participants at HBCUs. There are over 105 participant training programming agents Agency-wide, nine of which place or manage 75 percent of all academic participants. For the ANE region, five placement contractors-AED; America-Mideast Educational and Training Services, Inc. (AMIDEAST); Midwestern University Consortium for International Activities (MUCIA); Partners for International Education and Training (PIET); and U.S. Department of Agriculture (USDA) under a Resources Support Services Agreement (RSSA), arrange more than 50 percent of both academic and technical placements (A RSSA is an agreement with another U.S. government agency for specific services or support; the USDA RSSA is with AID/OTT.)

On October 6, 1986, OP Administrative Memorandum 86-5 (See Appendices) was issued directing that the following provision be included in each direct contract in which the contractor is responsible for the placement of ten (10) or more participants:

> "The Contractor agrees that not less than ten percent (10%) of the foreign nationals selected for placement on or after January 1, 1987 at U.S. educational institutions shall be in programs offered by the Historically Black Colleges and Universities (HBCUs)."****/

Accordingly, all appropriate contracts were so amended and contracts entered into subsequent to October 6, 1986, contain this provision. In furtherance of that directive, AID/OIT HBCU committee establishes goals for HBCU participant placement for each fiscal year. The goals once established apply to academic or technical participants. Thus, a participant placed in a two-year master's program carries the same weight as a participant on a three-week observational study tour; for reporting purposes, they are indistinguishable.

In FY 1988 the goal for the ANE region was 288; the actual number placed was 59, more than doubling the number of HBCU placements in FY 1987. In FY 1989 the target number of placements at HBCUs is 350. (See Appendices)

None of the above mentioned placement contractors has met the ten percent goal despite their repeatedly asserted policy of providing at least three alternatives for academic placements, one of which an HBCU, where appropriate. The principal impediments to increased HBCU academic placements are:

- A limited number of project decision makers are aware that HBCUs offer graduate programs;

- The collected information on HBCU capabilities is not systematically maintained and passed on from one office to another nor from one incumbent to the next. As a specific example, even the course offerings of HBCUs seem to be unknown quantities in the region in spite of repeated disseminations of the academic profiles provided by NAFEO;

- A high percentage of participants are "pre-placed," through the collaboration of USAID project and training officers and host country officials to previously identified institutions, or "pre-selected" based on the fact that a participant has already been accepted at a particular institution; and

- All of the private contractors are aware that the Bureau has never invoked any meaningful sanctions for the failure to meet the HBCU goals and there are no prescribed procedures for a fixed timetable during which compliance must be improved. This leads to a laissez-faire approach to the relevant mandates.

With the exception of MUCIA, contractors report final placement decisions made by USAID in collaboration with host country officials; their role is merely ministerial and advisory.***/ MUCIA reports that GOI placement officials are quite knowledgable of U.S. institutions; a high percentage of participants are "pre-placed" and oftentimes a "portfolio" with completed applications for "three to five" institutions is forwarded to MUCIA for mailing. (USAID is "not active" in the selection process.) Accordingly, MUCIA makes very few placement recommendations.

With respect to technical placements, the limited number of short term technical courses offered by HBCUs was cited as a fundamental impediment to increased placements.

***/ See also AID Administration of Training Agreements, Costs and Support Services (GAO/NSIAD-89-43FS). The General Accounting Office found that "participants are usually selected jointly by representatives from their country and the AID mission..." Id. at 1.

Energy and Natural Resources

The basic objectives of ENR's strategy are to (1) formulate sound national energy policies that support sustained economic growth and development; (2) develop cost-effective renewable energy resources, substituting, wherever possible for higher-cost imported oil and energy sources and (3) improve the efficiency of energy use. Adequate and cost-effective sources of energy are preconditions to sustained economic development. Given the impact of domestic consumption on natural resource degradation and depletion, ENR projects have cross-sectoral priorities, including:

- Renewable energy sources (e.g., gas, coal, solar, wind)
- Energy conservation
- Industrial pollution
- Environmental analysis
- Pesticides
- Electric power systems management
- Wildlife and forestry management
- Natural resources utilization and conservation.

Based on discussions with ENR officials, officials from selected executive agencies (See Executive Agencies' Experience with HBCUs, below) and data gathered during the course of the site visits, the following projects, proposed for FY 1990

represent the types of technical assistance needs for which there is demonstrated HBCU capability.

Asia

Indonesia Natural Resource Management. The project will address the problem of natural resources degradation and depletion through the following components:

strengthening natural resources policy analysis and formulation capabilities at the national level; identification of resource degradation problems at the provincial level, and strengthening provincial planning and management capabilities to address these problems; and support for the conservation of globally significant biology reserves by inventorying existing resources and strenghtening reserve management.

Nepal Forestry Sector. This project will focus on training and policy reforms relating to the Forestry Master Plan being developed by the Government of Nepal. It will also help create the planning and organizational capabilities needed to return responsibility for forest management to local communities and private individuals.

Pakistan Forestry Planning and Development. The objective of this project is to increase fuel wood production on private farms and to protect watersheds.

Near East

Morocco Renewable Energy Development. The project assists the national renewable energy center to build a capability to promote and encourage private sector opportunities for water heaters and water pumping systems, using abundant wind and solar resources.

With respect to participant training, there is a greater demand for technical rather than academic training, a sizable proportion of which is regional so as to reduce travel costs. Moreover, it has been determined that selected ANE field officers would be appropriate to assess training needs, with the objective of a more precise approach for upgrading their technical skills.

In FY 1988 the Division had no involvement with HBCUs.

Health, Population and Nutrition.

HPN is distinguished from the other three divisions within the Office of Technical Resources in that its technical assistance and training needs are largely met by centrally funded projects that are planned and managed by the cognizant office

within the Bureau for Science and Technology (S&T).***/ Accordingly, its priorities parallel those of the other regional bureaus namely, child survival (e.g., oral rehydration therapy and expanded program of immunization), particularly in Bangladesh, Egypt, India, Indonesia, Morocco, Nepal, Pakistan and Yemen; child spacing; family planning and nutrition.

There are two regional projects in the pre-implementation stage that offer opportunity for HBCU participation, namely, the substance abuse project and HIV/AIDS prevention project. Pakistan, Thailand, Sri Lanka and the Philippines are targeted for the first phase of the substance abuse project; the Philippines, Thailand, Morocco and Tunisia are targeted for HIV/AIDS prevention (the World Health Organization has taken the lead for AIDS training in Pakistan and India).

***/ For a complete listing of health projects, please consult the "Directory: Office of Health" prepared by the Office of Health/S&T. The "User's Guide to the Office of Health/Office of Population" prepared by the Office of Population/S&T contains a listing of population planning projects. (The Office of Nutrition/S&T is in the process of developing a directory of centrally-funded projects.

All academic training is at the graduate level, mainly in schools of public health, which limits the opportunity for HBCUs since there are no historically black schools of public health. However, the four historically black schools of medicine are paired with schools of public health in joint memoranda of understanding established by the Office of Research and University Relations/S&T, infra. In discussions with the cognizant official in S&T, it is anticipated the JMOU partners will plan joint academic programs which will augment the HBCUs capability in this area.

Short term training is needed in the areas of management of health care delivery systems, alternative models of health delivery systems, AIDS and narcotics awareness, training of trainers, family planning, nutrition and Vitamin A.***/

***/ The Information and Training Division of the Office of Population/S&T distributes a listing of technical course offerings in the areas of population and family planning to all field missions.

In FY 1988 the Division had limited involvement with HBCUs. Howard University was awarded a $100,000 support grant to develop a short course on Vitamin A assessment techniques in collaboration with Helen Keller International.

In FY 1989 Atlanta University was awarded a $25 million contract, of which $10.9 million is for technical assistance, by the Ministry of Health in Egypt to implement the Child Survival Project. This represents the largest single technical assistance contract ever awarded to an HBCU and, indeed, is more than the combined total of all Agency awards to HBCUs in FY 1988. Atlanta University is the lead institution of a consortium tasked with the planning, management and delivery of technical assistance designed to reduce infant, child and maternal mortality and morbidity by instituting immunization programs against the major childhood diseases, tetanus immunization for pregnant mothers, early diagnosis and treatment of acute respiratory infection, appropriate nutrition for mothers and children, child spacing and maternal care services.

Some discussion is currently underway to explore the feasibility of the Drew Postgraduate Medical School developing a short term technical course in AIDS awareness training in collaboration with its JMOU partner, John Hopkins University School of Public Health.

III. AGENCY EXPERIENCE WITH HBCUs

The Agency is very diverse; each regional and central bureau has its own discrete constituency and mandate, program priorities, project and program funding sources and management style.

They also have certain commonalities. Each is subject to E.O. 12677 and the Gray Amendment, and each must comply with Federal Acquisition Regulations and AID Acquisition Regulations requiring fair and open competition in contract letting. With respect to technical assistance activities, each has established an early alert system designed to ensure that the involvement of Gray Amendment entities, including HBCUs, are considered at the earliest possible stage in the project development process. Accordingly, when an overview of the approaches taken to HBCU participation is made by selected bureaus interesting parallels and differences are seen.

Bureau for Africa (AFR)

In 1987 Congress passed a special appropriation for sub-Saharan Africa, the Development Fund for Africa (DFA), the intent of which is to support sustainable, broad-based and market-

oriented economic growth in the region. The four strategic objectives of DFA are as follows:

- o Improving public management of African economies by redefining and reducing the roles of the public sector and increasing its efficiency;

- o Strengthening competitive markets so as to provide a healthy environment for private sector-led growth;

- o Developing the potential for long-term increases in productivity in all sectors; and

- o Improving food security.**/

The Human Resources Development Assistance (HRDA) project, begun in FY 1988, reflects the above strategies. HRDA is a centrally funded project covering 24 countries, the components of which are as follows:

**/ Congressional Presentation, FY 1990, Annex I, Africa.

African Graduate Fellowship Program III under which approximately 400 select participants receive graduate level academic training.

Training of Disadvantaged South Africans under which approximately 80 graduate and undergraduates are trained annually.

Work Force and Skills Training II under which 72 and 1,000, Botswana participants will enroll in courses which are academic and technical respectively, in the United States.

Academic training is primarily at the undergraduate level. There is a discernable shift to the graduate level for those host countries twenty years past independence, whose core staffs need specialized leadership and management training.***/ Academic training is provided in the areas of small and medium-sized

***/ As of this writing, data were not available as to graduate placements at HBCUs. What is of relevance, however, is that the Bureau exceeded its goal, even with an increased need for graduate training.

enterprises; agricultural economics and farm management; farming systems; agribusiness; agriculture engineering; and water and soil conservation.

Of the three regional bureaus, the AFR Bureau has experienced the most success in meeting Agency directives for increased involvement of HBCUs, particularly with respect to participant training. Indeed, in FY 1988 the Bureau exceeded its goal of 153 HBCU placements by 89. This success is in large measure attributable to two distinguishing factors:

- Many of the continent's leaders received their undergraduate training at HBCUs and as a consequence, HBCUs are not unknown quantities and .

- A certain sense of special mission in HBCUs has fostered undeniable historical and cultural affinity with Africans.

This ethnic familiarity and comfort with HBCUs are manifested in the often expressed interest on the part of host country officials that HBCUs be included in the Bureau's programs and projects. That interest, coupled with clearly articulated policy directives and guidelines from the Bureau's senior management, have led to a proactive approach to HBCU participation.

As with the ANE Bureau, the Assistant Administrator, at the beginning of each fiscal year, sends a cable to each mission reiterating the Bureau's commitment to achieving its goals with respect to technical assistance projects as well as training. This cable is followed by quarterly reports which include contract and project number, and dollar amount. The quarterly reports are monitored by the Office of Project Development (AFR/PD) which has functional responsibility for enforcing compliance with Agency and Bureau directives vis-a-vis HBCUs. This regular and routine reporting and monitoring serve to institutionalize consideration of HBCU utilization. At the end of the fiscal year, an assessment of each mission's performance is made and, where appropriate, congratulatory cables are issued.

With respect to technical assistance activities, the early alert system is designed to provide the cognizant project officer in AFR/PD with data as to project activities that have Gray Amendment implications, including HBCU utilization, usually at the pre-Project Implementation Document (PID) stage. (All programming documents must contain a statement as to the potential for involvement of Gray Amendment entities, which includes HBCUs.) The cognizant officer attends all PID review meetings. In a further effort to maximize their utilization,

Gray Amendment entities, including HBCUs, are included on teams in every phase of project development, from feasibility study leading to project design, to implementation and evaluation teams. The cognizant officer in AFR/PD briefs the Assistant Administrator weekly on the status of HBCU participation.

As with the ANE Bureau, all Commerce Business Daily notices include standard language that participation of HBCUs could become a determining factor for selection. This language is reinforced by the above mentioned Assistant Administrator directives, the attitudes of host government officials and an awareness on the part of the prime contractor community of the Bureau's commitment. While these factors have not led to a dramatic increase in the number of prime contracts awarded to HBCUs, they have enabled the Bureau to involve HBCUs, in a substantive capacity, through subcontracting.

In FY 1988, the following subobligations were made to HBCUs:

Cameroon Maternal Child Health/Child Survival. Drew Postgraduate Medical School, a collaboration with the Harvard Institute for International Development, awarded a $2,303,246 subcontract.

Niger Applied Agricultural Research. Alabama A&M University, as subcontractor with Pennsylvania State University, was awarded a $729,301 subcontract.

South Africa Educational Support & Training. As lead institution in a consortium of HBCUs, Florida Memorial College awarded $200,000 cooperative agreement amendment. (Information on subobligations to consortium members, Livingston College, Paul Quinn College, Shaw University and Winston-Salem State University, is not available.)

Zaire Agricultural Policy & Planning. Virginia State University awarded a subcontract with Chemonics International.

Swaziland Cropping Systems Research & Extension. Tennessee State University awarded a $36,039 subcontract with Pennsylvania State University.

The Bureau's experience with HBCUs is instructive in two respects. It teaches that mere goodwill will not achieve measurable results; rather, what is needed are clear direction and commitment, as well as institutuional and routine interventions to ensure substantive involvement of HBCUs.
The second lesson learned is the extent to which HBCUs can strengthen their capabilities and mobilize their resources for new development assistance activities in response to perceived opportunities. A prime example is the Programme Francophone de

Formation et de Consultation en Management established by Clark Atlanta University in 1987. This annual eight-week program, conducted entirely in French, offers intensive training in management and development.

Bureau for Latin America and the Caribbean (LAC)

The LAC Bureau's strategy for addressing the region's development problems focuses on achievement of four broad goals: (1) short-term economic stabilization;(2) basic economic policy reforms leading to rapid, sustained economic growth; (3) a wider sharing of the benefits of growth and (4) the strengthening of democratic institutions and respect for human rights.*/ The Bureau's training programs, particularly the Caribbean and Latin America Scholarship Program (CLASP) and the Regional Technical Aid Center II Project (RTAC), which make up approximately half of the portfolio of the Education and Human Resources Division (EHR), reflect this regional strategy.**/

*/ Congressional Prsentation, Fiscal Year 1989, Annex III, Latin America and the Caribbean.

**/ Overview: Education and Human Resources Development Portfolio, Bureau for Latin America and the Caribbean, Agency for International Development. October 1987.

The focus of RTAC is textbook marketing and distribution. CLASP consists of four regional projects, as follows:

- Central America Peace Scholarships (CAPS) which provide training for participants from Belize, Costa Rica, El Salvador, Guatemala, Honduras and Panama.

- LAC Regional Training Initiative II (LAC II) which provides limited amount of training for participants from the advanced developing countries of the region -- Brazil, Mexico, Paraguay and Uruguay.

- Presidential Training Initiative for the Islands Caribbean (PTIIC) which provides training for participants from the Dominican Republic, Haiti, Jamaica and the nations of the Eastern Caribbean.

- Andean Peace Scholarship Program (APSP) which provides training for participants from Bolivia, Colombia, Ecuador and Peru.

The goals of CLASP are to strengthen the human resources of the region through training in skills essential for social, economic and political development; and to strengthen linkages between the countries of the region and the United States. To this end, academic training, primarily at the undergraduate level, is provided in a myriad of fields, including health,

education, agriculture, mass communications, business, industrial technology and computer sciences. With respect to technical training, CLASP encourages the development of innovative programs that meet the needs of special groups. Through FY 1988, the Bureau has funded 12,000 participants, 70% of whom received technical training, and the remaining 30% academic, again, primarily at the undergraduate level.

As with the AFR Bureau, the LAC Bureau has achieved great success with involving HBCUs in its participant training activities. The Bureau achieved its FY 1988 goal of 459 HBCU placements by taking a proactive role in encouraging its missions to increase HBCU placements. HBCU participation has a rather high profile within the Bureau.

For example, following the APSP conference in October 1988, the Chief of LAC/EHR, the cognizant official responsible for HBCU programs, issued a cable reiterating that "each mission should understand, however, that it bears the ultimate responsibility for seeing that HBCU placements are at a level of 10 per centof total student placement." (See Appendices)

HBCU's high profile is reflected in the concern expressed by conference attendees for qualitative information on HBCUs. In response to that concern, the Bureau directed the APSP placement

contractor to develop institutional profiles for selected HBCUs in the LAC Bureau's priority program areas. As of this writing, implementation of that task is in the very early stage. More recently, the LAC representative reiterated the Bureau's commitment to increasing HBCU participation at the National Training Conference sponsored by the International Science and Education Council (ISEC).

The above training programs are characterized by central funding from AID/Washington, which provides direct policy oversight, reviews field proposals for use of funds and approves funding; AID/Washington manages and closely monitors the programs. The LAC Bureau regularly issues policy guidelines and cables which are incorporated in the country training plan each mission must submit. The training plan details the mission's plan for increasing HBCU participation. Missions that fail to comply are sent a 'reinforcement' cable; continued failure to comply could result in suspension of training funds.

Some missions have taken quite innovative approaches to increasing HBCUs placements. USAID/Guatemala, which in FY 87 only funded short term technical training programs, placed close to 50% of all Peace Scholars in HBCUs. It plans to place approximately 20% of its academic trainees, a new program component, with HBCUs.

The USAID office in Mexico City offers a limited number of scholarships at selected HBCUs under the LAC II program. The goal of LAC II in Mexico is to familiarize current and future Mexican leaders with U.S. institutions, technologies and products. Scientific, technological and management training in support of Mexico's developmental objectives are promoted under this program. Training is open to the private sector, and university and technical school faculty and researchers.

As with the other regional bureaus, the LAC Bureau has experienced far more limited success in involving HBCUs in technical assistance activities. As noted, all Commerce Business Daily notices include boiler plate language encouraging subcontracting with HBCUs. The Bureau is currently "grappling" with mechanisms by which to increase HBCU participation.

In FY 1988, USAID/Dominican Republic, under a collaborative assistance mode agreement with MUCIA, awarded Fort Valley State College $165,000 for project design activities under the Agribusiness Training Project. Southern University was awarded a $30,263 subcontract under the Jamaican Agricultural Education Project. Under the LAC II program, North Carolina Central University was awarded a $50,000 subcontract to provide technical training to rural health workers. Also in FY 1988, the Regional Development Office/Caribbean (RDOC) awarded Lincoln University $9946 for short term technical assistance it provided under the

Caribbean Agricultural Extension Project in collaboration with its joint memorandum of understanding partner, the University of Minnesota.

As with the AFR Bureau, the lesson learned is that intervention and indeed "policing" are required in order to achieve measurable participation of HBCUs. The impact of the Bureau's regular monitoring and enforcement of its policy directives is most clearly evidenced in its success in meeting its HBCU placement goals in FY 1988.

Again, the perception of opportunities is an inducement to HBCUs to strenghten their capabilities; the LAC Bureau is perceived as offering opportunity for involvement. For example, Fort Valley State College, in response to perceived opportunities in the Dominican Republican, used a portion of its program support grant, discussed, infra, to strengthen its faculty Spanish capability.

Board for International Food and Agricultural Development

In December 1975 Congress amended the Foreign Assistance Act of 1961 by enacting Title XII, Famine Prevention and Freedom from Hunger amendment, the intent of which was to marshal the resources of U.S. land-grant, sea-grant and eligible institutions

in solving LDCs' food problems. Title XII directed the President of the United States to "establish a permanent Board for International Food and Agricultural Development (BIFAD) consisting of seven members, not less than four to be selected from the universities," thereby, institutionalizing the participation of underutilized eligible institutions. To that end, BIFAD is charged with assisting AID in mobilizing the institutional resources of eligible institutions, and participating in the planning, development, implementation and monitoring of projects designed for Title XII "set-aside"*/

Field missions are responsible for identifying "Title XII activities at a very early stage in project development." Qualified Title XII activities are "those which have as a primary objective the development of the LDC capacity for related

*/ It should be noted the General Accounting Office, in its report issued April 11, 1989, has determined that the Agency should desist in utilizing the Title XII set-aside procurement mechanism because it is inconsistent with the Competition in Contracting Act of 1984 which requires full and open competition unless restricted competition is "expressly authorized." The Agency in its comments to the report "disagreed with GAO's view." Issues Concerning U.S. University Participation (GAO/NSIAD-89-38).

education and/or extension, the training of participants, the conduct of research, the building or strengthening of related institutional infrastructure, and/or the provision of university advisors to development projects, all in agriculture, aquaculture, nutrition, agroforestry or closely-related fields." Title XII activities may be implemented through contract cooperative agreement or grant involving a single institution and/or a consortium of eligible institions. (See Appendices Policy Directive on Title XII, PD-4.)

If the project is to be implemented through a contract, competition is restricted to Title XII institutions. There are two contracting modes, Collaborative Assistance Mode (CAM) and Standard University Mode (SUM).

The CAM is designed to expedite the procurement process and afford field missions, in collaboration with host countries, a mechanism by which to involve an eligible institution(s) early in the design and implementation of a project. The CAM is characterized by a flexible approach to project design, contracting and project implementation.

Under the SUM, an eligible institution(s) participates in discrete project components, e.g., project plan and design, identified by USAID and the host country. (See Appendices, "Process of Selection: Title XII University Contractors.")

There are twelve 1890 land-grant institutions that actively participate in Title XII programs, either independently or jointly with their respective 1862 partner (see Science & Technology/Research and University Relations, infra). BIFAD provides technical assistance in the early identification and notification of Title XII projects. With respect to its early alert system, BIFAD sponsors semi-annual regional meetings at which representatives from the regional and central bureaus are invited to make in-depth presentations as to ongoing and projected Title XII projects. With the exception of two projects in the Africa Bureau, there are no designated Title XII projects for FY 1989 and FY 1990. Assuming Title XII survives, its impact as a mechanism by which to increase HBCU participation is questionable given the reluctance of USAID missions to designate projects as appropriate for Title XII set-aside, as evidenced by the declining number so designated over the past few fiscal years.

In addition to aggressively advocating for Title XII designation, BIFAD actively encourages "special arrangements" between two or more institutions in the development of joint proposals. (Again, the JMOU permits 1890s and 1862s to act jointly or independently of their JMOU partner.) To that end, projects are reviewed by appropriate BIFAD officials who have extensive knowledge of the capabilities of individual institutions; those with complementary capabilities are encouraged to submit proposals as a team. Currently, teams

consisting of North Carolina A&T State University and Michigan State University, Southern University and Louisianna State University, and Virginia State University and Virginia Polytech Institute & State University are preparing proposals for collaborative research on an agriculture-related project in Senegal.

BIFAD is commited to develop and maintain a registry of eligible institutions that have the "capacity, experience and commitment with respect to international agricultural efforts" consistent with the Agency's program needs. Currently, the most reliable source for information on institutional capabilities is individual staff member's personal knowledge. However, once the Registry of Institutional Resources (RIR) is fully automated and routinely updated, it will provide an institutional mechanism that AWE officials can access to obtain accurate data as to the capabilities of Title XII institutions, including the 1890 land-grant institutions. This data base should bridge the so-called "information gap" on HBCUs, particularly in view of the observation often made during the course of this project that the absence of accurate information is an impediment to further involvement.

Bureau for Science and Technology/Office of Research and University Relations

S&T/RUR has institutionalized several programs in its strategy to increase HBCU participation, including:

- Cooperative Agreement with the National Association for Equal Opportunity in Higher Education (NAFEO). The objectives of Phase II of this five-year agreement are to (1) increase the awareness of AID/W and field missions of E.O. 12320 and the Gray Amendment vis-a-vis HBCUs; (2) enhance HBCUs' understanding of AID's programs, policies, procedures and practices; (3) expand HBCUs' exposure to AID's decentralized organizational structure and experience in LDCs; and (4) strengthen NAFEO's capacity to achieve the objectives of the agreement.

- Research Program for HBCUs. The objectives of this program are two-fold: (1) researchers from HBCUs gain experience in the problems of LDCs, while strenghtening their institutions' capacity in development assistance activities and (2) field missions and host country officials are exposed to and become more familiar with the HBCU capability. To this end, HBCU researchers are invited to submit proposals (not to exceed $100,000) for funding of discrete research projects in the areas of

food and agriculture policy, soil and water management, protection of plants and animals, small animals and aquaculture, farm implements and simple tools, nutrition, health and human resources. The proposals are screened initially by RUR and appropriate AID technical staff; external review is performed by the National Academy of Sciences.

- Joint Career Corps (JCC). JCC is a mechanism by which the exchange of work assignments between university faculty and AID staff is facilitated. Selected tenured faculty are placed at USAID missions and appropriate AID professionals are assigned to teaching, research or other activities with a participating U.S. university.

- AID HBCU Committee. The Committee, which meets on the first Wednesday of every month, is composed of representatives from S&T/RUR, OSDBU/MRC, PRE/PPR, OIT, BIFAD/S, S&T/PO, OIT/RT and AFR, ANE and LAC bureaus. Its mission is to (1) serve as an advocate in the activities of bureaus and missions relating to the participation of HBCUs; (2) advise AID management on ways in which to increase such HBCU participation; (3) engage in activities which increase linkages between AID and HBCUs; (4) provide information on HBCUs and their capabilities to meet specific AID needs and (5) advance the consideration of HBCUs through all

appropriate means.

S&T/RUR has established Joint Memoranda of Understanding (JMOU) in the areas of agriculture and health. The JMOU is not a contractual mechanism, nor does it preclude the partners from acting independently or jointly with other institutions. Rather, it establishes a framework for long term joint planning and implementation of activities, the objectives of which are, the mobilization of institututional resources and the facilitation of increased involvement of selected HBCUs. The JMOUs identify complementarities between an 1890 land-grant institution and its 1862 partner in specified technical areas of concentration.**/

**/ In 1862, the U.S. Congress passed the Morrill Act, which authorized the establishment of a land-grant institution in each state to educate citizens in agriculture, home economics, mechanical arts and other practical professions. Under the conditions of legal separation of the races in the South, blacks were not permitted to attend the original land-grant institutions. Accordingly, in 1890 Congress passed the second Morrill Act, expanding the 1862 system to include historically black institutions.

Program Support Grants (PSG) are awarded to fund the JMOU partners' activities. The funding level for the 1862 partners is tied to their volume of AID business and full time equivalents (FTE), i.e., "regular full-time personnel employed by the university, or personnel for whom the university indicates an intention to continue employment after overseas contract termination." For the 1890s, funding is set at a base of $88,742 for FY 88.***/

PSG funds may be expended in support of ongoing and immediately foreseeable AID contracts, mobilization of institutional resources and core staff development. For example, the director of international food and agricultural development at Tennessee State University (TSU) traveled to Thailand to explore the feasibility of establishing linkages with a local university to conduct research; travel funds were provided by the PSG.

The effectiveness of the JMOU framework as a mechanism by which to facilitate the involvement of HBCUs is evidenced by TSU's collaboration on the Agricultural Development Support

***/ Guidelines for Reporting Dollar Volume of Business and FTE Committments (Title XII Universities Only).

Program in Yemen which is being implemented by the Consortium for International Development (CID). TSU is not a member of CID; its JMOU partnership with New Mexico State University enabled TSU to establish that linkage.

At least twenty percent of PSG funds must be used in support of joint activities, such as faculty exchanges, language training, seminars and workshops, and proposal development. Examples of joint activities include the co-sponsorship by North Carolina A&T State University and Michigan State University of a series of Development Advisory Team (DAT) workshops which provide an extensive array of lectures and dicussions focusing on cross-disciplinary and cross-challenges arising out of development assistance assignments.

Auburn University, the lead institution on a Fisheries Research and Development Project in Indonesia, has included its JMOU partner, University of Arkansas, Pine Bluff (UAPB) as a subcontractor. In addition to their collaboration on technical assistance projects, UAPB and Auburn have instituted a program under which candidates for a master's degree in aquaculture at Auburn conduct research at UAPB.

Another example of the JMOU partners' efforts to strengthen and augment the 1890's capability is the joint degree program in international agriculture and rural development offered by Tuskegee University and Oregon State University.

The program concentrations of the twelve 1890 land-grant institutions and their 1862 partners, individually and jointly are as follows:

Alabama A&M University
- Food Science
- Small Animal Production & Utilization

Kansas State University
- Farming Systems Research/Extension
- Post Harvest Technology in Cereals

Jointly
- Institution Building
- Crop Production
- Rural Planning & Development

Florida A&M University
- Human Nutrition
- Microcomputer Applications to Project Management
- Environmental & Water Quality Development

North Carolina State University
- Improved Soil Management in Humid Tropics
- Agricultural Policy Institutional
- Integrated Crop Protection

Jointly
- Technology Transfer to Limited-Resource Farmers
- Animal Production
- Agribusiness Management

Fort Valley State College
- Small Family Farm Programs
- Small Ruminants

Ohio State University
- Renewable Natural Resources Management
- Agriculture Finance
- Biotechnolgy

Jointly
- Crop and Livestock Systems
- Soil Erosion Control
- Oilseed Production
- Integrated Pest Management
- Animal Health/Vet Preventative Medicine
- Human Nutrition

Lincoln University
- Human Nutrition
- Small Family Farm Programs

University of Minnesota
- Environmental Management in Less Favored Natural Resource Areas
- Food and Agricultural Policy

Jointly
- Crop and Animal Production in Less Favored Natural Resource Areas

North Carolina A&T State University/Michigan State University
- Farming Systems Research
- Agricultural Economics
- Institution Building
- Natural Resources Development and Management
- Alternatives to Farm Employment
- Human Nutrition & Health
- Agricultural Research Management
- Agricultural Engineering

Prairie View A&M University
- Agribusiness Management

Texas A&M University
- Crop Production
- Irrigation & Water Management
- Agricultural Policy
- Agroforestry
- Range Science

Jointly
- Farming Systems
- Agricultural Technology Transfer
- Animal Production

Southern University
- Tropical Crop/Vegetable Production
- Small Animal Production

Louisana State University
- Food & Cereal Crop Technologies
- Agricultural Research Management
- Forestry Conservation & Management

Jointly
- Farming Systems
- Rural Development
- Women in Agriculture

Tennessee State University
Rainfed Crop & Small Animal Production by Limited-Resource Production Units

New Mexico State University
Arid Land Range Management
Crop Production under Irrigated & Dryland Conditions

Jointly
Farming Systems Research & Extension
Crop & Livestock Production in Fragile Environments
Rural Development & Decision Making for Limited-Resource Farmers
Institution Building & Technology Transfer

Tuskegee University/Oregon State University
Agricultural Crop & Livestock Production Systems
Small Farming Systems
Rural Community Development
Animal Health Care Delivery Systems
Institutional Development

University of Arkansas, Pine Bluff
Farming Systems Research/Extension

Auburn University
Inland Fisheries Management Research on Natural Waters, Rivers & Impoundments
Development & Implementation of an International Information & Research Network

Jointly
Aquaculture
Generation of Appropriate Technologies for Developing Countries

University of Maryland, Eastern Shore
Crop Production in Semiarid & Arid Zones

University of Illinois (U-C)
Agricultural Technology Transfer
Agricultural Policy Analysis
Natural/Renewable Resources Management & Utilization

Jointly
Food Legumes & Other Edible Oilseeds
Farming Systems Research

Virginia State University
- Agricultural Credit & Rural Financial Markets
- Farming Systems
- Rural Development

University of Wisconsin (Madison)
- Agricultural/Natural Resource Interactions
- Agricultural Extension & Information Systems

Jointly
- Plant and Animal Production
- Agricultural & Rural Development Policy Analysis

In addition to the JMOU/Agriculture, the four historically black schools of medicine are paired with schools of public health. Their respective program concentrations are as follows:

Drew Postgraduate Medical School
- Planning and Management of Child Survival Projects and Health Programs
- Training and Research on Clinical Aspects of Tropical Medicine

John Hopkins University
- Immunization and Diarrhea Management
- Epidemiological Assessments and Program Evaluation

Jointly
- Determinants of Use of Health and Birth Spacing Services

Howard University
- Primary Health Care/Manpower and Records Development
- Logistics and Supply

University of North Carolina (Chapel Hill)
- Primary Health Care Self-Financing
- Environmental Health
- Family Health
- Manpower Development and Health Education

Jointly
- Maternal/Child Health Organization and Delivery of Services
- Child Spacing and Pregnancy Outcomes
- Nutrition
- Primary Health Care/Prevention Health Interventions
- Policy Planning/Administration and Fiscal Management

Meharry Medical College

- Maternal and Child Health Care Medicine
- Primary Health Care
- Nutrition
- Training of Mid-level and Paraprofessional Health Workers
- Health Delivery at the Village Level

Columbia University

- Health Services Operations Research
- Community-Based Delivery of Maternal/Child Health Care and Primary Health Care
- Development Law and Policy Regarding Health Care and Status of Women
- Health Research Methodology

Jointly

- Community-Based Delivery of Maternal/Child Health Care Planning and Primary Health Care
- Health Services Operations Research
- Development Law and Policy Regarding Health Care and the Status of Women

Morehouse School of Medicine

- Maternal/Child Health (Primary Health Care)
- Women in Health

Tulane University

- Health and Management Information Systems
- Maternal/Child Health (Primary Health Care
- Tropical Medicine
- Epidemiology (Planning, Evaluation and Methodology)
- Nutrition Intervention
- Health Education

Jointly

- Primary Health Care
- Planning, Management and Evaluation
- Diarrheal Diseases and Oral Rehydration Therapy

IV. EXECUTIVE AGENCIES' EXPERIENCE WITH HBCUs

E.O. 12677 mandates 27 executive agencies to develop programs and initiatives to achieve a significant increase in the participation of HBCUs in federally sponsored programs. With the exception of the Department of Defense and the National Science Foundation, there is no provision for an HBCU set-aside. Accordingly, the efforts undertaken by the subject agencies to institutionalize the involvement of HBCUs were done in compliance with the Federal Acquisition Regulations (FAR). The HBCU programs implemented by the agencies were selected for two principal reasons: (1) they are examples of the types of programs an executive agency can design, consistent with FAR guidelines, to institutionalize the participation of HBCUs and (2) while responding to domestic needs, they have had the effect of strengthening HBCUs' capability to participate in development assistance activities in ANE Bureau's priority program areas.

In discussions with officials of the selected agencies, the observation was made, again and again, that the determinating factor as to whether a program will be successful is the extent to which senior policymakers are committed to the letter and spirit of E.O. 12677, and have evidenced that commitment by issuing clearly articulated directives. The initiatives outlined below were preceded by explicit statements from the respective Secretary enunciating his commitment to E.O. 12677.

U.S. Department of Agriculture

The relationship between the U.S. Department of Agriculture (USDA) and the 1890 land-grant institutions can be characterized as a partnership under which the 1890s have been brought into the mainstream of agriculture research, particularly in the areas of alternative crop production, agricultural competitiveness and profitability, small-scale farmers, natural resources conservation and management, rural development and revitalization, water quality and human nutrition, all of which are priority program areas for the ANE Bureau.

Research activities at the 1890s are funded under the Evans-Allen Research Program, which is administered by the Cooperative State Research Service (CSRS) in coordination with the institutions' Agricultural Experiment Station. Research funds are also provided by Agricultural Cooperative Service, Agricultural Research Service and Soil Conservation Service. USDA has funded such activites as the International Dairy Goat Research Center at Prairie View A&M University.

A clear indicator of USDA's commitment to increase HBCU participation is the USDA/1890 Initiative, which resulted from recommendations made to the then-Secretary at an 1890 Symposium

cosponsored by USDA to foster communication between the 1890s and USDA agencies. The then-Deputy Secretary was directed to organize a task force whose mission is two-fold: 1) strengthen linkages between USDA and the 1890s and 2) strengthen institutional capacity. To this end, USDA plans to establish field offices at the land-grant institutions to be staffed by USDA personnel on IPA, who will, i.a., provide technical assistance in the areas of curriculum development and new approaches to small scale and limited-resource farmers. Again, while the initiative is in response to a domestic constituency, it will have the effect of strengthening the 1890s' capability for international activities.

Department of Energy

As with USDA, the objective of the Department of Energy's (DOE) Office of Minority Economic Impact (MI), the cognizant HBCU office within DOE, is to forge a partnership with appropriate HBCUs by which they are afforded an opportunity to participate in all energy-related activities of the DOE, including research, development and demonstration, and training programs. To this end, the Minority Educational Institutions Assistance Program (MEIAP) was developed to strengthen selected HBCUs' capabilities. The components of MEIAP of relevance to the ANE Bureau are as follows:

- Infrastructure Support. Funds are provided to strenghten the capabilities of HBCUs in energy research, development and demonstrations through the systematic development of energy research capabilities with the objective of developing self-sustaining centers such as the Center for Energy Research and Training (CERT) at North Carolina A&T State University. CERT has conducted research in the areas of, i.a., energy conservation and alternative energy sources, both of which are priority program areas for ANE/ENR.

- Technical Support. Assistance is provided in developing linkages with DOE national laboratories, faculty exchanges and obtaining laboratory support to initiate energy-related technology programs. Again, a domestic focus that serves to strengthen the institution's international capabilities.

- Minority Institution Research Travel (MIRT). The objective of MIRT is to increase the level of participation of selected HBCUs in DOE research and collaborative research efforts by providing travel support to appropriate faculty members to visit government laboratories, research institutes, industrial organizations and other universities for discussion and planning related to energy related research, including skill and technique improvement, information

exchange, and utilization of equipment and other resources. These HBCU faculty members could serve as a nucleus for future ANE/ENR design and evaluation teams. See Recommendations, infra.

- Private Sector Linkages. Under this program, grants are provided for the development of programs that support the initiation or expansion of advanced degree programs in energy-related disciplines and joint research activities. This program clearly impacts the institution's capability vis-a-vis ANE/ENR's technical assistance and participant training activities.

In addition to the above program components, the Minority Energy Information Clearinghouse within MI maintains a data base on both institutional and individual capability. The data base is currently being updated by DOE's Oak Ridge Operations Office; by FY 1990 an "HBCU menu" will be added to DOE's University On-Line Exchange Service (DOEINFO). Once on-line, an ANE/ENR project officer who needs information as to HBCU capability in the area of, e.g., electric power systems management could either request the Clearinghouse to conduct a search of its data base, or he could access the data base directly with the appropriate communications software and modem.

DOE encourages formal linkages between HBCUs and its contractors, e.g., Fort Valley College and Lawrence Livermore National Laboratory. The Department's Office of Fossil Energy, which is responsible for research and development programs involving coal, petroleum and gas, i.e., alternative energy sources, recently signed a Memorandum of Understanding (MOU) with thirteen HBCUs, including Alabama A&M University, Atlanta University Center, University of Maryland, Eastern Shore, North Carolina A&T State University, Southern University, Texas Southern University and Tuskegee University. The MOU provides a framework by which the parties thereto will collaborate in fossil research, technology development and transfer projects. The Pittsburgh Energy Technology Center will coordinate all HBCU activities covered under the MOU.

Department of the Interior

The Department of the Interior's (DOI) mission, as the nation's principal conservation agency, is to i.a., foster the wisest use of land and water resources, protecting fish and wildlife, and preserving the environment parallels Administrator Alan Woods' observation that the "Agency's central objectives of promoting economic expansion and improving human welfare in developing countries are critically dependent on the sustainable use of natural

resources."***/ Accordingly, programs developed pursuant to DOI's mandate are directly relevant to the priority program areas of ENR.

The HBCU Programs Office, the cognizant office within DOI's, is equipped with a full complement of mechanisms by which to achieve its objectives of: 1) curricula development; 2) institutional capacity building (which capacity is transferable to development assistance activities) and 3) increased private sector linkages with selected HBCUs. To this end, DOI has implemented a number of programs with HBCUs, including:

- A Barrier Island Research and Training Collaborative. MOU designed to create a framework for joint planning and initiation of projects and programs to strengthen and extend the capacity of appropriate HBCUs to participate in and compete for research, education and training opportunities concerning coastal processes and management of Barrier Island. The priority research areas include interference with natural shoreline processes, backbeach and dune resource deterioration, recreational use impacts, coastal wildlife

***/ USAID Highlights, Winter 1989.

management problems, fire suppression and energy development impacts. The HBCU parties to the MOU include Southern University (Baton Rouge) and the University of Maryland, Eastern Shore (UMES); the State University of New Jersey (Rutgers) is the lead institution.

- Cooperative Agreement. Under the terms of this agreement, the Fish and Wildlife Service (FWS) developed the wildlife research and training program at Grambling State University. FWS also provided limited assistance to the University of Arkansas, Pine Bluff in the development of its wildlife management curriculum.

- Cooperative Agreement. Under the terms of this agreement, the Minerals Management Service awarded the UMES a three-year grant to study marine productivity and environmental sensitivity of the Outer Continental Shelf planning area.

- Memorandum of Understanding. The Office of Surface Mining Reclamation and Enforcement recently entered into a MOU with seven HBCUs, including Alabama A&M University and UMES, under which the capabilities of the HBCUs will be utilized to develop research and training programs, the objective of which is the protection of citizens and the environment from the adverse effects of past and present surface and underground coal mining operations.

V. RECOMMENDATIONS

The underlying objective of the Bureau's HBCU initiatives should be the institutionalization of their involvement in its programs and projects so that consideration of HBCUs is not perceived as burdensome, with no logical nexus to development priorities, to already overburdened field officers. The issue then becomes the design and implementation of procedures and mechanisms that will, over time, ensure that HBCUs are mainstreamed into the Bureau's activities.

The recommendations are based on the experience of other bureaus within the Agency, the experience of the HBCUs as relayed during the course of the site visits, as well as observations made by participants at various AID-sponsored or focused workshops and seminars. Further, they are consistent with the programs other bureaus within the Agency have implemented to facilitate the participation of previously underutilized or underrepresented groups, as reflected in the Title XII set-aside mechanism and the linkages program with small colleges of agriculture (See Appendices).

The underlying thrust of the recommendations is to bridge the "information gap" which was cited by numerous ANE officials as a fundamental impediment to increased HBCU involvement. (The companion volume to this report, Volume II, provides qualitative information on selected HBCUs.) To that end, it is recommended that a pilot HBCU program be implemented in selected mission(s).

The objective of the pilot program is simple: the generation of "success stories" that will render HBCUs less of an unknown quantity in the region. Moreover, it can serve as a prototype for developing an HBCU program in other missions. In light of the ever changing mission portfolios, identification of appropriate mission(s) should follow portfolio reviews of selected missions. (See Conclusions and Next Steps, below.) Factors to be considered in identifying mission(s), include the size of the projects, and whether project activity is an add-on to exisiting projects. Obviously, it is far more problematic to involve HBCUs in on-going activities than those projects that are in an early stage of development, such as the feasibility study or design stages.

The following recommendations, focusing on policy, technical assistance activities and participant training, are applicable to all ANE missions. Again, the underlying assumption is that proactive measures must be undertaken until such time as HBCUs are mainstreamed into the Bureau's activities.

Policy

- A directive should be issued by the Assistant Administrator reiterating the Bureau's commitment to achieving the objectives of E.O. No. 12677 and the Gray Amendment vis-a-vis HBCUs. Given the high turnover of senior management and

functional officers, it is important that periodic reminders of the Bureau's commitment be received, and that that policy is reflected in all program planning documents submitted by missions, including Country Development Strategy Papers, Project Implementation Documents, Project Papers and Action Plans.

The experience of the other regional bureaus, as well as federal agencies whose program priorities parallel those of the Bureau, and whose constituencies are otherwise disparate, is that the issuance of clearly articulated policy guidelines from senior management is the condition precedent to the design and implementation of effective HBCU programs.

- The Bureau should promote field awareness of the JMOU mechanism as a framework for collaboration, by encouraging joint enterprises, using mission's field discretion, discussed below, to award contracts not to exceed $100,000,.

- The annual work plan for those employees with functional responsibility for HBCUs, e.g., project officers who must certify in the PID that due consideration has been given to

the potential involvement of HBCUs, and appropriate program and contracting officers, should include specific benchmarks against which their job performance will be evaluated, and that evaluation included in their Performance Evaluation Report.

Technical Assistance Activities

Increased utilization of this field authority can expedite HBCU invlovement in project and program-related activities such as feasablility studies and portfolio reviews to identify discrete programs appropriate for HBCU involvement.

o The mandate for full and open competition is a fundamental impediment to increasing HBCU participation. As stated above, exceptions to competition must be expressly authorized by Subpart 6.3 of the Federal Acquisition Regulations (FAR). Other than Full and Open Competition, or fall within one of the AID-specific exceptions authorized in Section 706.302-70 of the AID Acquisition Regulations (AIDAR)

FAR 6.302 provides the statutory authority for other than full and open competition, e.g., only one responsible source or unusuall and compelling urgency, none of which

circumstances are applicable. AIDAR 706.302-70(b) authorizes other than full and open competition for "an award of $100,000 or less by an overseas contracting activity," the so-called field authority exception. See AID Handbook 14, Procurement Regulations.

- As the figures reported for HBCU involvement in technical assistance activities suggest, the subcontracting mechanism alone does not ensure increased participation. Moreover, given the fluidity of funding decisions, funds may not be available to support severable components of a project.

Accordingly, the Bureau, through its project and contracting officers, who have "front line" responsibility for ensuring every consideration has been given to participation by Gray Amendment entities, which includes HBCUs (AID Handbook 3, Project Assistance), should informally encourage its prime contractors to enter into technical teaming arrangements with HBCUs. This subtle "exhortation" is currently being done by AFR and LAC bureaus and DIFAD.

One way in which this can be accomplished is by providing a list of HBCUs that request bid packages in response to Commerce Business Daily (CBD) notices. Lists of prospective bidders are already compiled and sent on a

seemingly ad hoc basis. It is recommended that this process be routinized for all CBD notices. (This, of course, presumes more aggressive marketing on the part of HBCUs.)

o While contracts represent the usual legal relationship for the acquisition of goods or services by AID, it is "appropriate to use assistance instruments when emphasis is placed on promotion of the independent capacity, integrity and quality of the entity or the programs supported...." There are several types of assistance instruments, including cooperative agreements, program support grants and specific support grants. AID Handbook 13, Grants.

A specific support grant is a grant which supports all of or a portion of a discrete program proposed by an organization or an individual, for a short period of time, from, three to six months, or a longer period, up to, two years. The types of specific support grants, include:

- Individual program support -- conferences, special training, and small-scale demonstrations;

- Institutional development -- support of a specific program for expansion or strengthening of an organization;

- Program development -- support of core staff, travel or other needs of the grantee in developing new programs and

- Program support -- support of a broad-scale program usually in more than one country or region-wide.

The Federal Grant and Cooperative Agreement Act of 1977 "...encourages competition, where deemed appropriate, in the award of grants and cooperative agreements." A grant or cooperative agreeement shall be considered to have been awarded on a competitive basis if the award was made after consideration of applications from two or more potential recipients submitted in response to an invitation for applications (IFA) which are prepared by technical office in collaboration with the grant officer. Competition is not required for assistance awards based on an unsolicited application when the project office certifies that it was indeed unsolicited, and is unique, innovative or proprietary, and acceptance would be fair, reasonable and would represent appropriate use of AID funds to support or stimulate a public purpose.

Accordingly, awards to HBCUs can be made competitively by preparing an IFA precisely tailored to HBCU capabilities, or noncompetitively in response to unsolicited proposals. For example, a grant may be awarded to the Cooperative

Institute for International Policies Research and Education, a consortium of HBCUs, including, i.a., Alabama A&M University, Atlanta University, North Carolina A&T State University and Prairie View A&M University, to promote their involvement in project design and evaluation teams. Or, a grant may be awarded to individual HBCU faculty members to fund familiarization trips to increase their exposure to USAID's programs and project activities. Such exposure is, by far, the best way to understand the formal and informal ways in which missions operate. The International Health Consultant Registry maintained by the Morehouse School of Medicine, Office of International Health Programs and DOE's Minority Energy Information Clearinghouse are referral sources for individual faculty members.

The Gray Amendment representative at selected missions should receive clear guidance and technical assistance as to his role as an advocate for greater utilization of HBCUs (Conclusion and Next Steps, infra). To that end, the representative should be appointed to the Project Committee as early in the project development stage as practicable. The representative, along with the project and contracting officers, will ensure appropriate organizational responsibility and accountability consistent with the early alert system (See Appendices).

In FY 1988 the Bureau's obligations with HBUCs were as follows:

- $107,000 grant to Howard University under the centrally-funded Improving the Efficiency of Education Systems project;

- $100,000 support grant to Howard University to develop a short course on Vitamin A assessment techniques in collaboration with Helen Keller International;

- $51,787 subcontract to Virginia State University on the Nepal Agricultural Research and Production project;

- $47,000 grant to Texas Southern University under the centrally-funded Basic Research and Implementation in Developing Education Systems project; and

- $15,000 grant to North Carolina A&T State University to develop a training workshop on the use of microcomputers in agricultural policy decision-making.

The Bureau's FY 1988 goal for placement of participants at HBCUs was 288; the actual number placed was 59.

The designated Gray Amendment representatives are as follows:

Asia	**Near East**
USAID/Dhaka	USAID/Cairo
Dhaka, BANGLADESH	Cairo, EGYPT
Patricia Ramsey	Frank Miller
USAID/New Delhi	USAID/Amman
New Delhi, INDIA	Amman, JORDAN
Michael Snyder	William McKInney
USAID/Jakarta	USAID/Rabat
Jakarta, INDONESIA	Rabat, MOROCCO
Desmond O'Riordan	James A. Anderson
USAID/Kathmandu	USAID/Muscat
Kathmandu, NEPAL	Muscat, OMAN
Timm Harris	Vacant
USAID/Islamabad	USAID/Tunis
Islamabad, PAKISTAN	Tunis, TUNISIA
Grant Morrill	Johanna Kool
USAID/Manila	USAID/Sanaa
Manila, PHILLIPINES	Sanaa, YEMEN
Dominic A. D'Antonio	Samra Al Shaibani

USAID/Bangkok

Bangkok, THAILAND

Willy Baum

Participant Training

The Bureau should issue enforcement reminders to appropriate placement contractors that "no less than 10 percent of academic or technical placements made by the contractor on or after January 1, 1987, be in programs offered by HBCUs." In view of the sheer number of participants proposed for FY 1990 (See Appendices), many of whom are placed under general development training projects, closer monitoring of contractors should prove effective.

It is critical that field missions are reminded of this Agency directive because the final authority rests with USAIDS. As the General Accounting Office found in its recent report on participant training cited above, "participants are usually selected jointly by representatives from their country and the AID mission." Accordingly, a reminder similar to that issued by the LAC Bureau would be appropriate. (See Appendices)

To be sure, there are very real programming constraints that impact the Bureau's ability to meet the ten percent goal for academic placements, for which there is a greater need for graduate training than AFR and LAC bureaus. The need for innovative approaches was implicitly recognized in the cable sent to ANE mission directors on October 28, 1986 by the then-Assistant Administrator in which she found it "difficult...to accept that a better showing cannot be made by ANE." (See Appendices)

An example of an innovative placement is the joint degree program designed by JMOU partners Tuskegee University and Oregon State University, where Ph.D. candidates receive their Masters at Tuskegee and their Ph.D. at Oregon State, would result in more academic placements at HBCUs. To date, one candidate has enrolled in the animal science program.

The use of creative interventions manageable given that three contractors handle more than fifty percent of the Bureau's placements, AED, PIET and USDA, one of which, AED, handles approximately 95% of the placements for Pakistan. In FY 1990 918 academic and 1265 technical participants are proposed for Pakistan.

With respect to technical training, the limited number of technical courses offered by HBCUs has been cited as an impediment to increased placement. Accordingly, greater utilization of assistance instruments to fund the design of AID-specific courses would be appropriate. In FY 1988, North Carolina A&T State University, with the support and collaboration of ARD, designed a four-week workshop which focuses on developing proficiency in the use of microcomputers in agricultural policy analysis in LDCs. (See Appendices to Volume II for information on short course offerings by selected HBUCUs.)

Conclusions And Next Steps

As the Agency's experience with Title XII, and more recently, the linkages program for small colleges of agriculture (non-Title XII institutions) demonstrates, there is no single mechanism that will ensure the mainstreaming of heretofore underutilized or underrepresented groups in the Agency's projects and programs. While each target group has different and indeed distinguishing characteristics from HBCUs, they all require clear policy and administrative interventions to institutionalize their involvement in the Agency's activities. Routinization of HBCU participation will ensure the program's effectiveness is not wholly dependent on the good will and initiative of individual ANE Bureau officials and officers.

The following activities are proposed as next steps towards the institutionalization of the participation of HBCUs in the Bureau's projects and programs:

1. Internal Review. The final report and companion volume of institutional profiles should be widely distributed throughout the Bureau and field missions, particularly to the Gray Amendment representatives, project officers, training officers and contracting officers.

2. External Review. The two volumes should also be provided to selected HBCUs, particularly the land-grant institutions and schools of medicine, for their information and review.

3. Technical Assistance. The Gray Amendment representatives should be provided with training and orientation regarding their role as HBCU advocates.

4. Portfolio Review. As a result of the internal review, missions appropriate for the recommended pilot program will have been identified. Subsequently, a review of those missions' portfolios should be undertaken by a consortium of HBCUs or individual HBCU faculty members funded by a specific support grant.

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VOLUME II

- Institutional Profiles
- Selected Faculty Sketches
- Relevant Course Offerings
- Research Projects/Agricultural & Health Directors
- Media Highlights

Prepared By:
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INTRODUCTION

The "Institutional Profiles of Selected Historically Black Colleges and Universities" (HBCUs) were compiled pursuant to contract with the Bureau for Asia and Near East (ANE) of the Agency for International Development (AID) under which DAC International, Inc. (DAC) was tasked with:

- o assessing the ANE Bureau's priority academic and technical training needs;
- o acquiring qualitative information on HBCU graduate programs; and
- o determining short course availabilities at HBCUs or capability to develop new courses.

In addition, DAC was tasked with identifying HBCU faculty working in the Bureau's priority technical areas with overseas and/or project design/evaluation experience, who would be considered for inclusion on future project design and evaluation teams, needs asssessments and related field activities.

To that end, data were reviewed to make a preliminary identification of HBCUs whose capabilities paralleled the Bureau's priorities. The data were derived from a number of sources, including, i.a., interviews with AID officials knowledgeable of HBCU capabilities and reports compiled by selected executive departments and agencies, e.g., U.S. Department of Agriculture, Department of Energy, Department of Health and Human Services and the Department of the Interior.

Scope and Methodology

In an effort to maximize the short term impact of the project, a determination was made to focus on those HBCUs whose development assistance experience in other geographical regions is, in large measure, transferable to the ANE region. Accordingly, this report profiles the four historically black medical schools, and selected land-grant institutions and private universities.

It should be noted the institutions profiled are not inclusive of HBCUs with demonstrated experience in the ANE Bureau's priority program areas; rather, they are representative of the breadth of experience HBCUs offer. Budgetary constraints precluded making site visits to HBCUs with international capability such as Florida A&M Universiity, Lincoln University and Virginia State University. Further, administrative constraints, namely, Office of Management and Budget's strictures regarding data collection, severely impacted collection of qualitative data in the absence of actual site visits. However, to the extent such data were otherwise acquired, the HBCU is profiled herein.

Again, in order to optimze the project's impact, those institutions with whose capabilities the Bureau should be familiar are not included, e.g., Howard University which has had more involvement with the Bureau than any other HBCU. The Dean of the School of Agricultural Sciences of the University of Maryland, Eastern Shore (UMES), recently attended the regional meeting of the Bureau's agricultural and rural development officers and presumably provided qualitative information on that institution. Given both Howard's and UMES' proximity to AID, those schools have a comparative advantage over other HBCUs with respect to marketing their capabilities. See also the Academy for Educational Development's report on Virginia State University's international capabilities.

Organization of the Profiles

The profiles contain the following information: name, address and telephone number of the contact person, normally the director of international programs; institutional accreditation and specialized accreditation, where appropriate. The profiles include a brief history of the institution; graduate program(s) and technical course(s) offered in the ANE Bureau's priority program areas; foreign language capability and research facilities. The fields of specialization are those areas in which the institution has the capability to develop AID-specific technical courses. (Appendix I contains a listing of selected HBCU technical course offerings.) A statement as to the institution's international capability and selected technical assistance and research projects is also included. Where available, curricula vitae of selected HBCU faculty members are provided.

For additional information and follow-up, the director of international agricultural programs at the land-grant institutions is the cognizant official sensitive to the need for timely response and, further, is positioned to mobilize campus resources, where appropriate. It is recommended that initital contact is made through that office for all AID projects and programs, agricultural as well as non-agricultural. See Appendices III and IV for a listing of directors of international agricultural programs and directors of international health programs, respectively.

The information contained in the report was submitted by the institutions and, except for editing to fit the format of the report, is presented verbatim.

A Word About Accreditation

Accreditation is one of the primary methods for maintaining standards of education in the United States; indeed, it is the ultimate asssessment of the quality of an institution and its academic training programs. Through the accrediting process, the cognizant accrediting body evaluates and recognizes an institution, or program of study, as meeting certain predetermined and established standards, and issues a public statement to this effect.[1/]

Prior to the 1930s, accrediting decisions turned on merely meeting quantitative standards such as size and preparation of faculty, numbers of books in libraries, laboratory facilities and administrative personnel. This approach was subsequently repudiated in the first major study of accreditation sponsored by the North Central Association of Colleges and Secondary Schools. That study led to a revision in the basic approach to accreditation, that is, a fundamental shift from mere quantitative standards to evaluating an institution in terms of its stated purposes as articulated in its mission statement.

There are two basic types of educational accreditation, institutional and specialized or programmatic. Institutional accreditation normally applies to an entire institution, indicating that each of its parts is contributing to the achievement of an institution's objectives. Specialized or programmatic accreditation normally applies to the evaluation of programs, departments or schools which usually are parts of a total collegiate or other postsecondary institution.

The U.S. Department of Education publishes a directory of nationally recognized accrediting agencies and associations. With respect to institutional accreditation, all HBCUs are duly accredited by their cognizant regional association, which association is recognized by the Secretary of Education (Secretary).

With respect to specialized accreditation of academic programs offered in the Asia and Near East Bureau's priority program areas, the American Medical Association, Council on Education for Public Health, Society of American Foresters, the Accreditation Board for Engineering and Technology, and the American Veterinary Medical Association, are the only accrediting bodies recognized by the Secretary to be reliable authorities as to the quality of training offered by educational institutions and programs. Those HBCUs that offer programs within these specialities have specialized accreditation.

1/ See "Accreditation: Its Purposes and Uses," an occasional paper, published by The Council on Postsecondary Accreditation. 1979. See also "Nationally Recognized Accrediting Agencies and Associations," published by the U.S. Department of Education, Office of Postsecondary Education, Higher Education Management Services. October 1988.

Cf. the American Society of Agronomy and the American Agricultural Economics Association which purport to "rank" programs within their respective specialities. However, neither organization is recognized by the Secretary of Education as reliable authorities concerning the quality of education or training. Indeed, no recognized accrediting body ranks institutions; ranking is based on academic reputation, *i.e.*, hearsay, generally understood within a given profession.

CLARK ATLANTA UNIVERSITY

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240 James P. Brawley Drive, S.W.
Atlanta, GA 30314
Telephone: (404) 653-8595

President: Thomas W. Cole, Jr., Ph.D.
Vice President for Research and International Programs: Kofi B. Bota, Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools; Professional Accreditation: Business, Librarianship, Social Work.

BACKGROUND: Clark College, a private four-year coeducational liberal arts college, was founded in 1969, by the Freedman's Aid Society of the Methodist Church. The College offers twenty-two majors through sixteen academic departments.

Atlanta University (AU) was founded in 1867 by the American Missionary Society In 1929, the University joined with Morehouse College and Spelman Colleges, both of which are HBCUs, to form the Atlanta University System, focusing its resources on graduate and professional education.

Approximately thirty percent of the graduate student enrollment is comprised of international students, the largest proportion of which are from Thailand studying computer sciences. There are sizable numbers of graduate students from Bangladesh, China, India, Iran, Iraq, Malaysia, Pakistan and Saudia Arabia.

On June 24, 1988 the Boards of Trustees of Clark and AU approved a Consolidation Agreement providing that effective July 1, 1988, Clark College and Atlanta University would operate under a joint Board of Trustees. By July 1, 1989, pending approval by the Southern Association of Colleges and Schools, the formal consolidation under the name of Clark Atlanta University will be effected.

GRADUATE PROGRAMS:

School of Arts and Science

Ph.D., Public Administration and International Affairs (concentrations: issues of development, international development education and planning, international relations, project development, management).

Master, International Affairs
Master of Public Administration

School of Business
Master of Business Administration (concentrations: decision sciences/ information systems, finance and marketing)

School of Education:*
Ph.Ed., Educational Leadership
Ph.D., Counseling and Human Development

M.A., Counseling and Human Development
M.A., Curriculum
M.A., Educational Leadership
M.A., Exceptional Student Education

Postgraduate Program, Educational Specialist

* Degree candidates may study in any of the following fields: administration and supervision, counseling and human development, early childhood education, middle grades education, secondary education, reading, exceptional student education and educational psychology.

TECHNICAL COURSES: Programme Francophone de Formation et de Consultation en Management (management training programs for senior level civil servants from Francophone African countries and Haiti conducted entirely in French).

Seminaire de Formation des Conseillers-Formateurs en Management et en Entreprenariat pour Cadres-Femme d'Afrique et des Caraibes (women's management institute focusing on entrepreneurial and managerial skills development also conducted entirely in French).

FOREIGN LANGUAGES: French, Spanish, Italian, Portuguese, Flemish, Arabic, Hausa, Krio, Kikongo, Lingala and Kiswahili.

FIELDS OF SPECIALIZATION: Management training (public sector and health services); financial management; public administration (natural resources management); development administration and management; public policy; drinking water supply and sanitation; financing of water supply and sanitation projects; development administration; population and migration; science and technology for development; education for development; women in development; alternative energy sources and energy conservation.

CAPABILITY STATEMENT: The capabilities of the University in international affairs and development are varied and strong. They include socio-cultural studies, political and economic analysis, the organization of international conferences and symposia, major research proposals development, and consulting and contracting with national and international agencies.

Recognizing that problem-defining and problem-solving strategies cannot be studied adequately in a single discipline, a number of institutes and centers have been established to stimulate interdisciplinary scholarship and public service. Activites of these institutes and centers include basic and applied research, seminars, conferences, workshops and continuing education programs.

The Institute for International Affairs and Development (IIAD)

The IIAD was established to direct, facilitate and coordinate international academic, research and development assistance programs and activities at the University. Under its auspices, the University has organized several major international symposia, developed a management training program for Francophone Africa, established collaborative research relationships, faculty exchanges and technical assistance programs with universities in Burundi, Cameroon, Guinea, Lesotho, Morocco, Nigeria and Swaziland.

Selected Technical Assistance and Research Projects

The Child Surival Project (Egypt). Under this host country contract with the Ministry of Health, the University serves as the prime contractor to strenghten the capacity of the existing national health care delivery system. It is anticipated the following interventions will reduce infant, child and maternal mortality and morbidity: immunization programs against the major childhood diseases, tetanus immunization for pregnant mothers, early diagnosis and treatment of acute respiratory infection, appropriate nutrition for mothers and children, child spacing and maternal care services.

Water and Sanitation for Health (WASH) III Project (1988-1993). Serve as a subcontractor on this five-year AID-financed project, the purpose of which is to provide multidisciplinary technical assistance, including health and community participation, institutional and human resource development, financing, operations and maintenance, and engineering needed for identification, development, design, implementation and evaluation of water supply and sanitation projects, programs and activities in developing countries.

Regional Seminars on the Management of Health Services in Africa (World Health Organization). In collaboration with the Morehouse School of Medicine and the Centers for Disease Control, developed program designed to: i) train trainers in the management of health services; ii) retrain senior and middle level personnel of African ministries of health and related agencies in management and iii) produce materials for use by trainers and consultants in the management of health services in Africa.

Programme Francophone de Formation et de Consultation en Management. This annual eight-week program of intensive training in management and development, conducted entirely in French, is funded in part by AID. It is designed for senior level civil servants in Francophone African countries and Haiti, who are trained in American-style management techniques.

International Symposium on Water Supply and Sanitation in Africa (1987). This AID symposium brought together water supply and sanitation experts and professionals, government officials, representatives of international donor agencies and private voluntary organizations to examine in detail the progress made and obstacles encountered in meeting the International Drinking Water and Supply and Sanitation Decade goals in Africa. In both plenary and concurrent sessions, participants exchanged experiences and insights from a wide variety of projects and debated linkages between water supply and sanitation and other sectors of development.

Swaziland Manpower Development Project (1985). The University served as a subcontractor on this project, the purposes of which were to: i) expand the capacity of selected Swazis and Swazi public and private institutions to independently plan and direct development activities and ii) encourage an increased level of informed participation by the general Swazi population in a variety of activities.

Solar Energy Workshops (1979). In collaboration with the Georgia Institute of Technology and the International Solar Energy Society, planned and implemented two major workshops on solar energy and biomass development in Africa. The workshops brought together selected representatives from those African countries that are most affected by critical energy problems resulting from increased energy costs, population growth and deforestation. The workshops concentrated on the status of ongoing solar and other alternative energy activities in each country represented, with particular attention given to documenting efforts to introduce solar energy technology into the village or rural communities and identifying social, cultural or ecological conditions that may have contributed to the success or failure of such efforts.

Investigation of Women's Practices and Preferences in Village Household Sanitation (Cameroon). This is a study of sociocultural practices and preferences relative to household sanitation technology and activites in selected rural villages. The study suggests that sanitation technology selection, as well as health education design, should reflect knowledge of the sociocultural practices and preferences of targeted populations. It is anticipated that the results of this study will be useful to policy makers, village health workers, engineers, health educators, as well as other allied health professionals and social scientists.

Development Impact of Public Sector Management Training (Nigeria). The purpose of this research is to evaluate -- in terms of needs and performance -- a public sector management training program for executive, administrative and technical employees, the objective of which is to strengthen the training program and, in turn, the administration of development in the research region and beyond.

Estimating the Willingness to Pay for Water and Sanitation Services: A Referendum (Ghana). The main objective of this project is to use the referendum procedure to quantitatively estimate the willingness to pay for water in selected communities.

Family Nucleation and Fertility Decline in Tropical Africa (Nigeria). A pilot study of family nucleation as a possible factor in Africa's prospective fertility transition was carried out with focus group interviews in southeastern Nigeria.

CHARLES R. DREW UNIVERSITY OF MEDICINE AND SCIENCE

International Health Institute
8401 Colesville Road
Suite 303
Silver Spring, MD 20910
Telephone: (301) 585-4500

President: Walter F. Leavell, M.D.
Director of International Health Programs: Rosalyn C. King, Pharm.D., M.P.H.

ACCREDITATION: Liaison Committee on Medical Education.

BACKGROUND: The Charles R. Drew University of Medicine and Science, founded in 1966, is an historically black medical school. Its mission is to conduct medical education and research in the context of service to a defined population, and to train persons to provide care with competence and compassion to underserved populations.

The International Health Institute (IHI) was founded in 1979 as an extension of Drew's dedication to competence and compassion in providing health care to underserved populations. Through the development and management of both long and short term technical assistance projects in developing countries, IHI works to further the University's involvement in and delivery of health promotion and disease prevention activities on a global basis.

IHI seeks to fulfill its commitment to improving the health status of the underserved through its linkages with other academic institutions, including its joint memorandum of understanding partner, Johns Hopkins University School of Hygiene and Public Health, government agencies, and various public and private international health organizations. The Institute undertakes activities in the areas of research, training and technical assistance.

GRADUATE PROGRAMS: Drew has fifteen graduate or residency training programs in eleven clinical departments.

FIELDS OF SPECIALIZATION: Infant mortality (perinatology and neonatology); intentional injury and death; cancer prevention and control; hypertension; aging; mental health and substance abuse; acquired immune deficiency syndrome (AIDS); planning and management of child survival projects and health programs; and training and research on clinical aspects of tropical medicine.

CAPABILITY STATEMENT: In 1979 the University initiated its program for international health. The guiding conceptual framework was that the American inner city was a microcosm of developing countries, and that the strategies and skills developed in heath care delivery to domestic underserved groups was transferable overseas.

Drew has demonstrated its capacity to manage the human and financial resources needed for successful implementation of long term projects as exemplified by the recently completed AID-funded Health Planning and Information project in Kenya. Over the five-year life of the project, funded at $2,014,783, Drew fielded fifteen consultants (four long term and eleven short term) for a total of 114 person-months.

An integral component of the Kenya project was the strenghtening of the capacity of selected host country officials to: i) develop a national health planning service; ii) improve the national health information system and iii) administer procurement system. Drew managed and coordinated all phases of training, institution building and procurement of commodities.

Selected Technical Assistance, Training and Research Projects

Cameroon Maternal and Child Health Project. As part of its dedication and commitment to improving the health and well being of mothers and children, IHI has participated in various child projects with expanded programme of immunization (EPI) components. IHI is a subcontractor with the Harvard Institute of International Development responsible for providing two provincial coordinators to spearhead the EPI and other child survival strategies of the project.

The goal of the project is to improve and expand the regular, ogoing EPI system in the existing health facilities of two provinces in Cameroon. By the end of the project, it is anticipated that 85% of children with access to health facilities will be fully immunized by age 12 months, and 75% of women presenting for prenatal care will have received at least two doses of tetanus toxoid vaccine before delivery.

Swaziland Primary Health Care Project. As a subcontractor under this five-year project, the objective of which is the improvement of primary health care delivery, IHI is responsible for managing the training of Swazi nationals in the U.S. or in a third country. IHI's input includes 30 person-months of short term consultants, a full time clinic management advisor based in Swaziland and one part time participant training coordinator in the U.S.

Egypt Materials Supply and Management Project. A procurement specialist from IHI assisted USAID/Cairo and Mehalla Hospital in developing specifications for various medical, laboratory, and other equipment and supplies for the purpose of soliciting and accepting pricing proposals. Training was provided in the operation and maintenance of the equipment ordered.

Kenya Health Planning and Information Project (HPIP). IHI provided long and short term technical assistance to the Ministry of Health, and to a lesser extent the Ministry of Economic Planning and Development, for the purpose of strengthening institutional capacity to plan and implement health sector programs and policies with emphasis on expanding health services delivery to rural populations.

Kenya Integrated Rural Health/Family Planning (IRH/FP) Feasiblity Study. As part of the above mentioned HPIP, IHI provided technical assistance to the Government of Kenya for the development and implementation of the country's IRH/FP project. The project resulted in the writing of the IRH/FP implementation plan, which formed the basis for the expansion of rural health services.

Costa Rica Health System Administration Reform. Assistance was provided to USAID/San Jose in the development of the Project Identification Document (PID) which outlined a technical assistance project to improve the cost effectiveness and management capabilities of Costa Rica's Social Security Institute.

Indonesia Health Development Planning and Management Project (HDPM). IHI provided a team of three consultants to perform the mid-project evaluation of the progress, management and performance of the HDPM project being implemented by Johns Hopkins University and the University of Indonesia. The HDPM project focused on improving the capabilities of the Government of Indonesia to plan and manage health sector resources.

Primary Health Care Operations Research (PRICOR) Mid-project Evaluation. A four-member IHI team conducted the evaluation at PRICOR headquarters. The PRICOR project supports host country and collaborative operations research in four areas, i.e., community finances, community health workers, community participation and organization, and logistics, procurement and distribution of essential drugs and supplies for primary health care, designed to improve primary health care delivery.

Applied Diarrheal Disease Research Project. This project aims to reduce morbidity and mortality of young children in developing countries by adapting technologies for the control and prevention of diarrhea. IHI, as a subgrantee to Harvard University and Johns Hopkins University, will provide technical assistance in the areas of epidemiology, institutional analysis, health surveys and women in development programs.

Public Health Implications of Average Serum Concentrations of Rifampin in Indonesian Subjects. The objectives of this research project are to: i) cross examine and expand the findings of an original study to determine if the results can be replicated; ii) determine if rifampin, when given to Indonesian subjects, usually tends to produce higher peak concentrations in blood serum and, if so, the average peak concentration; and iii) derive the public health implications of the results of the research.

Formulation of a Tablet Alternative for Home Oral Rehydration Therapy in Tropical Climates. The goal of this project is to develop a stable oral rehydration salts tablet formulation which enhances accuracy in use and is comparatively economical and convenient for use in a variety of country and home settings.

FORT VALLEY STATE COLLEGE

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805 State College Drive
Fort Valley, GA 31030
Telephone: (912) 825-6328

President: Melvin E. Walker, Ph.D.
Director of International Agricultural Programs: James I. Kirkwood, Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools; Accreditation Board of Engineering and Technology (baccalaureate program in electronic engineering technology); National Council for Accreditation of Teacher Education.

BACKGROUND: Fort Valley State College (FVSC) is a public, comprehensive 1890 land-grant institution located in Middle Georgia, approximately 75 miles from Atlanta. Privately founded in 1895 for the education of the youth of Georgia, the college provides diversified and challenging development and academic programs following the liberal arts tradition.

FVSC is a member of the South-East Consortium for International Development (SECID) and has a joint memorandum of understanding with Ohio State University. It has also established linkages with the Dominican Republic's Secretariat of Agriculture and the Faculty of Agriculture and Veterinary Science, Damien, Haiti

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TECHNICAL COURSES: Livestock Production and Veterinary Health Care (Livestock Production: January to June; Veterinary Health Care: July to December).

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: Georgia Goat Research Center; Agricultural Research Station.

FIELDS OF SPECIALIZATION: Small ruminants production and management; veterinary health/technology; soil and plant analyses; agricultural diversification; agricultural trade and pricing policy; agricultural economics; crops (horticultural: leafy greens,

cucurbits, melons, squash, cucumbers; agronomic: peanuts and sweet potatoes); natural resources (game and game birds, water and agroforestry); and small family farm programs.

CAPABILITY STATEMENT: FVSC's mission can be broadly subdivided into the following categories: instruction, academic support, student services, research and development of institutional resources for transferring technology to developing countries. To give impetus to the international dimension, the College was awarded a Title XII strengthening grant in 1981. The professional development of core faculty has been greatly enhanced by their involvement in Title XII-related research, technical assistance projects and other activities.

FVSC's international capabilities have been further enhanced through work study, travel and seminars. Faculty members have been involved in projects in Burkina Faso, Guinea, Dominican Republic, Mali and India.

Selected Technical Assistance and Research Projects

Guinea Smallholder Production Preparation Project. Served as a subcontractor to SECID on this project to develop and implement a strategy for increasing smallholders' agricultural productivity, and operationalizing agricultural research and training facilities.

Burkina Faso Agricultural and Human Resource Development. As a subcontractor to SECID, provided a long term advisor on strengthening the curriculum of the Agricultural Department of the University of Ougadougou and the establishment of a research station to complement the curriculum.

Screening Grain Legume Germplasm for Symbiotic Nitrogen Fixation and Efficient Rhizobium Strains (Dominican Republic). Collaborative research venture with the Department of Agricultural Research of the Dominican Republic's Secretariat of Agriculture, the focus of which was to screen and identify grain legume germplasm and Rhizobium strains tolerant to pH stress, and to select appropriate macro and microsymbiont combination(s) for enhancing nitrogen fixation and grain yield.

State of the Art on Peanut, Soybean and Sweet Potato Production (Dominican Republic). In-depth study to determine current production practices on selected crops with lower than predicted productivity levels. The present status of research and possibilities for economic expansion of these crops was studied, with the goal of increasing the productivity and quality of life of smallholders producing 70 percent of the country's food on farms averaging less than six hectares.

HOWARD UNIVERSITY SCHOOL OF MEDICINE

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520 W Street, N.W.
Room 2400
Washington, DC 2059
Telephone: (202) 636-5074

President: James E. Cheek, Ph.D.
Dean, School of Medicine: Thomas Georges, M.D.
Administrator of International Health Programs: Margo Thombs

ACCREDITATION: Middle States Association of Colleges and Secondary Schools; Liaison Committee on Medical Education; Accreditation Board for Engineering & Technology (engineering); American Assembly of Collegiate Schools of Business; American Bar Association; American Council on Pharmaceutical Education; American Dental Association; American Dietetic Association; Association of Theological Schools; American Physical Therapy Association; Council on Social Work Education; National Association of Schools of Art.

BACKGROUND: Howard University was founded as a private university in 1987 by an act of Congress. It is a coeducational private university. Howard is comprised of 17 fully accredited colleges and schools offering 70 major undergraduate, graduate and professional degree programs in approximately 200 areas.

The International Health Program reflects the University's awareness that the education of health professionals is critical to the establishment and maintenance of international health care systems by offering state-of-the-art instruction in health cre that is especially important to developing countries.

Howard is party to a joint memorandum of understanding with the University of North Carolina School of Public Health (Chapel Hill).

GRADUATE PROGRAMS: M.S., Public Health (concentrations: biostatistics, environmental/occupational health sciences, epidemiology, public health administration, social/behavioral sciences).

RESEARCH FACILITIES: The Center for Sickle Cell Disease; The Cancer Center; The Institute on Drug Abuse and Addiction; The Institute of Child Development and Family Life.

FIELDS OF SPECIALIZATION: Primary health care; manpower and records development; logistics and supply; child spacing and pregnancy outcomes; nutrition; primary health care/prevention health interventions; policy planning/administration and fiscal management.

CAPABILITY STATEMENT: The International Health Program (IHP) tailors its services to meet the unique needs of a developing country and assigns personnel whose skills and expertise are adaptable to that country's needs. IHP provides technical assistance in the areas of integrated rural health system design and implementation, health worker training systems and institutional capacity building.

Selected Technical Assistance and Research Projects

Liberia Training Programs. IHP has worked with health personnel, ranging from directors of training programs to mid-level primary health care workers, from five institutions in Liberia. A multidisciplinary team of University faculty with expertise in nursing, physician assistant programs, nutrition and manpower development conducted the training.

Malawi Health Institutions Development Project. Assisted the Ministry of Health in its program to improve health care services, strengthen institutional capacity and develop mid-level human resources in the areas of nurse and mid-wife education, community health nursing and public health training.

Integrated Rural Health System Design and Implementation. This program focuses on the service areas of maternal and child health, child spacing, health education, environmental health and water protection, endemic disease control, nutrition, treatment of common complaints and first aid. The program recognizes that these services at the village level are dependent upon training at all levels, appropriate information systems and health planning, adequate supervisory and retraining relationships, and effective logistics and supply arrangements.

Health Workers Training Systems. The University is committed to the collaborative design and implementation of task-oriented, competency-based training in a process which involves appropriate ministry of health training and service personnel. Such a training system results in strenghtened in-country capability to develop and manage training programs.

LINCOLN UNIVERSITY

International Programs
202 New Memorial Hall
Jefferson City, MO 65101
Telephone: (314) 681-5360

President: Wendell G. Rayburn, Ph.D.
Director of International Agricultural Programs: Ikbal R. Chowdhury, Ph.D.

ACCREDITATION: North Central Association of Colleges and Schools; National Association of Schools of Music; National Council for Accreditation of Teacher Education.

BACKGROUND: Lincoln University, an 1890 land-grant institution, was founded in 1866. It is located in the state capitol of Missouri. Lincoln has an enrollment of 2300, approximately five percent of whom are international students from 28 developing countries.

Lincoln has a joint memorandum of understanding with the University of Minnesota and is a member of the South-East Consortium for International Development (SECID). Lincoln has adjunct membership status with the Mid-America International Agricultural Consortium (MIAC).

GRADUATE PROGRAMS: Lincoln does not award graduate degrees in agriculture. Special arrangements have been established with the University of Missouri (Columbia), under which graduate students can conduct research at Lincoln and earn their M.S. or Ph.D. in agriculture jointly from the University of Missouri and Lincoln University.

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: Dickinson Research Center; agricultural research farms.

FIELDS OF SPECIALIZATION: Human nutrition and health; livestock reproduction efficiency; plant and soil sciences; small family farm programs; water and soil management and conservation; crop production and marketing.

CAPABILITY STATEMENT: In 1980 Lincoln established the International Programs Office, whose training, research and extension priorities parallel those of AID. It is Lincoln's intention to play an increasingly important role in the field of food and agriculture, both domestically and internationally.

Lincoln has numerous strengths which enhance its international capability. The university has a long history of addressing the problems among the limited resource, rural population of Missouri, many of which are similar to those faced in developing countries. Lincoln's formal involvement in technical assistance projects began with the award of the Title XII strengthening grant. However, a number of faculty members had for many years been involved in technical assistance projects in, i.a., Bangladesh, Burma, China, India, Indonesia, Korea, Malaysia and Pakistan.

Selected Technical Assistance and Research Projects

Rwanda Farming Systems Research Project. The main objective of this joint enterprise Title XII project was to assist the Government of Rwanda in designing and implementing a farming systems approach to research and extension, including a mechanism for effectively linking research and extension institutions and their activities.

Burkina Faso Grain Marketing Development Project. As the lead institution, Lincoln provided two long term advisors who worked with the National Cereals Office (OFNACER) in Ouagadouga. The objectives of the project were to: i) assist OFNACER in operational activities of buying and selling; ii) determine ways of integrating the private sector into the national grain marketing system and iii) improve the marketing and distribution of grains for the purpose of providing food security, particularly in grain deficit areas and during the pre-harvest season.

Caribbean Workshop in Agribusiness Management. In collaboration with the Caribbean Food Corporation, organized a workshop in Barbados on the "Concepts and Practices of Agribusiness Management." The workshop was funded by the United Nations Development Program, the Organization of American States and the Caribbean Development Bank.

Jamaica Cattle Twinning Project. Pursuant to a grant from SECID, initiated a two-year collaborative project with the Animal Research Division of the Ministry of Agriculture. The project involved the transfer and demonstration of technology development in the area of "cattle twinning" and non-surgical embryo transplant techniques.

Small Farm Family Program (SFFP). The objective of SFFP is to assist families living on small farms to use available resources to improve their quality of living. SFFP integrates food production with nutrition, basic health care, education and community resource development. The program is currently being expanded with particular emphasis on vegetables for home use and local marketing, fruits, swine, sheep and goats. Production methods are those applicable to small acreages; the use of a model small farm is projected.

Pakistan Participant Training Program. Designed AID-specific technical training programs in the areas of business management, cooperative formation and management project management and scheduling, and flour milling technology.

Cochran Middle Income (MIC) Training Program. Through the U.S. Department of Agriculture, Office of International Cooperation and Development, International Training Division, provided custom-designed technical training to MIC participants, e.g., Malaysia and Mexico, in the areas of monoclonal biotechnology, livestock production management and extension, environmental management and waste recycling, botanical pesticides, and sheep and goat production.

MEHARRY MEDICAL COLLEGE

1005 D.B. Todd Boulevard
Nashville, TN 32708
Telephone: (615) 327-6128

President: David Satcher, M.D., Ph.D.
Director of International Agricultural Programs: E. Aban Oddoye, Ph.D.

ACCREDITATION: Liaison Committee on Medical Education.

BACKGROUND: Meharry Medical College was founded in 1876. The College has graduated 40 percent of the nation's practicing African-American physicians and dentists.

Since its inception, the College has trained physicians, dentists, nurses and nurse/midwives, and other technical personnel from both the United States and the developing countries of Asia, Africa and Latin America and the Caribbean, in the sciences of medical care and treatment.

The College has a joint memorandum of understanding with Columbia University's Center for Population and Family Health, and has formal linkages with the University of Calabar College of Medical Sciences in Nigeria. Meharry is a World Health Organization (WHO) Collaborating Center for Health Manpower Development.

FIELDS OF SPECIALIZATION: Primary health care (training the trainers program, food fortification and nutrition); community based education and problem based learning (biopsychosocial health); child spacing; maternal/child health; control of communicable diseases; environmental health programs; growth monitoring; development law and policy regarding health care and the status of women.

CAPABILITY STATEMENT: In 1971, with a grant from AID, the College established the International Center for Health Sciences (ICHS), with the mission of improving the health care delivery system in developing countries through the development of appropriate technology and applied research in the areas of maternal and child health, and applied nutrition.

In collaboration with other educational institutions and governmental agencies, the College, under the coordination of ICHS, offers the following services:

Strenghtening Health Services. Provision of care for high risk populations and family health.

Food and Nutrition. The College's agromedicine capabilities and experience applied to enhance the quality of basic foods, increase their availability and establish programs to correct nutritional deficiencies.

Infant Survival. Develop and implement maternal and child health care programs, emphasizing low cost and high impact, monitor child development and growth, oral rehydration therapy, promotion of breast feeding, immunization, monitoring of high risk pregnancies, child spacing and control of acute respiratory infections.

Water and Sanitation. Experienced in addressing the needs of rural villages for clean drinking water, sanitation and disease control, focusing on infectious and tropical malaria, dengue fever, onchocercosis, schistosomiasis and other critical tropical diseases.

Human Resource Development. Develop and implement health educational (literacy) processes for personnel to implement health care programs; develop mechanisms to create and extend primary health care delivery; train health workers to provide health care in the priority areas established by WHO for the region; train public health personnel to strengthen their capability to solve priority problems; develop mid-level and auxiliary technical personnel and develop appropriate educational technology, e.g., media and books.

THE MOREHOUSE SCHOOL OF MEDICINE

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720 Westview Drive, S.W.
Atlanta, GA 30310-1495
Telephone: (404) 752-1610

President: James A. Goodman, Ph.D.
Vice President for Sponsored Programs: Walter W. Sullivan, Ph.D.

ACCREDITATION: Liaison Committee on Medical Education.

BACKGROUND: In 1973 Morehouse College, the premier historically black liberal arts college, received a federal contract to study the feasibility of developing a two-year basic medical sciences program, which program was accredited in 1978. In 1981 the Georgia Department of Education issued a charter to Morehouse College to operate a four-year, degree-granting institution, The Morehouse School of Medicine (MSM), which received full accreditation to award the degree of medical doctor in 1985. MSM's current enrollment of 133 students, includes international students from India, Pacific Islands, Nigeria and South Africa.

MSM has a joint memoranda of understanding with Tulane University School of Public Health and Tropical Medicine; The Godfrey Huggins School of Medicine, University of Zimbabwe; John F. Kennedy Medical Center, University of Liberia; Obafemi Anolowo University (Nigeria) and University of Ougadougou (Burkina Faso). MSM also has linkages with the Centers for Disease Control and Yerkes Primate Center of Emory University.

GRADUATE PROGRAM: Public Health/Preventative Medicine (PH/PM) Residency Program. This program, accredited in 1986, represents a collaboration between MSM, the Georgia Department of Human Resources, Division of Public Health, Emory University School of Medicine, Department of Community Health, and the Centers for Disease Control. The program focuses on public health practice with a community-oriented preventive medicine approach.

The two-year program includes a practicum year integrated on a half-time basis with the award of a Master of Public Health from Emory University. There are seven major program components, five of which correspond to the major component areas of preventive medicine: epidemiology/biostatistics, health administration, environmental health, social/cultural/behavioral factors in health, and clinical applications of preventive medicine. The remaining two components are dedicated to work in a district health office and research or investigative/analytical pursuits.

The PH/PM Residency Program trains six residents per year. Completion of at least one year of clinical training in an accredited U.S. residency program is a prerequisite for admission.

TECHNICAL COURSES: International Health Workshop (three-week annual workshop on selected topics, including child survival, AIDS education, medical administration in primary health care and hypertension).

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: The Basic Medical Sciences Building houses 70 individual and shared use laboratories, research support service facilities and the Center for Laboratory Animal Resources. The Medical Sciences Building houses the electron microscopy facility, optical microscopy and image analysis facility and shared use computer facility, as well as the Biomedical Technology Service Laboratory which provides immunology and cell culture services, AIDS core laboratories and a molecular biology laboratory.

FIELDS OF SPECIALIZATION: Oral rehydration therapy and diarrheal diseases; communicable diseases; AIDS; cancer; hypertension; monoclonal antibodies; leprosy schistosomiasis; recombinant microbiology; maternal/child health; women in health and primary health care.

CAPABILITY STATEMENT: MSM's mission is to address the shortage of primary care physicians in rural and urban medically underserved areas of the U.S. MSM offers expertise in the development of educational strategies focusing on the health concerns of medically underserved populations in developing countries. Emphasizing primary and preventive care, MSM, using a team approach, provides consultative and technical assistance to universisties and ministries of health.

Consistent with its mission, MSM established the Office of International Health Programs (OIHP) to reach the medically underserved in developing countries. OIHP conducts annual health workshops on topics of child survival, AIDS education, medical administration in primary health care and hypertension. In addition, OIHP has developed a computerized Health Consultant Registry of both MSM faculty and external resources with international experiences in a wide range of health related areas.

MSM has established linkages with appropriate African, Caribbean and Latin American health institutions. Through these linkages, the transfer of knowledge from MSM faculty will aid in identifying solutions to health problems. In addition, through the reciprocal exchange of knowledge, MSM faculty will learn traditional practices and techniques of its linked partners, and means of incorporating these lessons learned in MSM's medical education programs.

NORTH CAROLINA A&T STATE UNIVERSITY

International Agricultural Programs
145 Carver Hall
Greensboro, NC 27411
Telephone: (919) 334-7901

Chancellor: Edward B. Fort, Ph.D.
Director of International Agricultural Programs: Richard D. Robbins, Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools; Accreditation Board for Engineering and Technology (architectural, electrical, industrial and mechanical engineering); American Assembly of Collegiate Schools of Business; Council on Social Work Education; National League for Nursing (baccalaureate and master's)

BACKGROUND: North Carolina Agricultural and Technical State University (NCATSU), a land-grant institution, began operation in 1890 as an annex to Shaw University. In 1893 it moved to Greensboro, the third largest city in North Carolina. The University awarded its first graduate degree in 1939. In 1967 the State of North Carolina voted to elevate the College to the status of Regional University. In 1972 it became a constituent institution of the consolidated University of North Carolina. Its current enrollment of approximately 5,600 students, includes students from China, Jordan, Kuwait, Lebanon, India, Indonesia, Oman, Pakistan and Sri Lanka, most of whom are in the graduate agricultural economics program.

NCATSU has a joint memorandum of understanding with Michigan State University, and is a member of the South-East Consortium for International Development (SECID).

GRADUATE PROGRAMS: M.S., Agricultural Economics (concentrations: agricultural marketing, production economics, rural development).

M.S., Agricultural Education (concentrations: administration, supervision, teacher education, research).

M.S., Plant and Soil Science (concentrations: cropping systems, irrigation and drainage, soil biology, soil fertility, soil mineralogy, waste management, environmental studies, alternate energy systems).

M.S., Food and Nutrition.

TECHNICAL COURSES: Workshop on Application of Microcomputers in Analysis for Decision-making in Food and Agricultural Policy (May 8 - June 2, 1989).

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: Research and teaching farm of approximately 500 acres, which includes modern greenhouses, swine and poultry research facilities.

FIELDS OF SPECIALIZATION: Farming systems research and planning; agricultural economics; natural resources (soil and water conservation/management and planning, forestry management and woodlot management); crops (tobacco, cotton, corn, peanuts, small grains, vegetables); animal production (poultry, swine, beef, sheep); livestock management (swine, rabbits, small ruminants); forage management; alternatives to farm employment; human nutrition and health; agricultural research management; agricultural engineering; renewable energy sources; industrial pollution; electric power systems management.

CAPABILITY STATEMENT: NCATSU embraces the traditional philosophy, mission and purpose of the land-grant institution, including the extension function. The University, particularly the School of Agriculture, has more than three decades of experience in international programs in ways which call for sharing faculty expertise, methodology and leadership directed to rural economic development.

Through the years, steps have been taken purposefully to enhance institutional capacity and effectiveness for overseas work in Africa and other regions, and to accommodate special needs of academic and short term international students.

The main thrust of NCATSU's international agricultural activities include agricultural economics, i.a., farm management, marketing, price analysis and policy analysis; rural development strategies and agricultural sector analysis; plant and soil science; animal science and husbandry; and farming systems research.

Selected Technical Assistance and Research Projects

Niger Integrated Livestock Production Project. Designed and implemented this project to provide technical assistance and training to improve the mixed farming and livestock capabilities of farmers and pastoralists.

Guinea Smallholder Production Project. As co-lead institution with Fort Valley State College (SECID was prime contractor), provided assitance to Guinea counterparts to operationalize the recently completed agricultural research station at Tindo. In addition, developed project identification document and project paper setting forth the strategy for AID's next project cycle in agricultural development.

Technical Support to Mission/Caribbean Project. In collaboration with the Midwest Universities Consortium for International Activities, performed agriculture sector assessment for Antiqua and Barbados. In addition, prepared a project paper relating to agricultural development for St. Vincent.

Burkina Faso Human Resource Development Project. Under subcontract with SECID, provided a long term advisor who evaluated the Agricultural Human Resource Development project. In addition, the advisor made recommendations to USAID/Ougadougou concerning future Mission support for the Centre Agricole Polyvalent and the Institut Superieur.

Tanzania Farmer Training. Collaborative venture with West Virginia University to assist the Ministry of Agriculture in developing linkages between agricultural extension personnel and small farmers. Provided training to local para-professional agricultural extension agents.

Tanzania Agriculture Manpower Development. Five-year project to strengthen the extension service's capability to undertake systematic farming surveys and develop appropriate technology packages.

Southern Africa Development Analysis Project. Under subcontract to SECID, NCATSU provided a long term agricultural economist to assess the extent and potential agricultural capabilities of nine southern African states.

Zambia People in Forestry Project. NCATSU collaborated with SECID in providing an agricultural economist to survey the economic impact of forestry projects funded by the Food and Agriculture Organization of the United Nations upon rural populations.

Uganda Technical Assistance Project. In a consortium arrangement with Ohio State University and West Virginia University, provided technical assistance to the University of Makerere in Kampala in developing postgraduate curricula and teaching system; coordinated applied research with regional and national stations in East Africa.

Zaire Human Resource Project. As subcontractor to the PRAGMA Corporation, provided a long term advisor who supervised thesis research for Master's degree candidates in agricultural economics at NCATSU, University of Georgia and University of Kentucky.

PRAIRIE VIEW A&M UNIVERSITY

Institute for International Agribusness Studies
P.O. Box 608
Prairie View, TX 77446-0608
Telephone: (409) 857-4424

President: Percy A. Pierre, Ph.D.
Director of International Agricultural Programs: Freddie L. Richards, Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools: Accreditation Board for Engineering and Technology (engineering); National Council for Accreditation of Teacher Education; National League for Nursing; Council on Social Work Education.

BACKGROUND: Prairie View A&M University (PVAMU) is a comprehensive 1890 land-grant institution. It is part of the Texas A&M University System, located approximately 40 miles northwest of Houston. PVAMU has an enrollment of approximately of 5640, ten percent of whom are international students from, i.a., Bangladesh, China, Egypt, India, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, Taiwan, Thailand and Yemen.

PVAMU has a joint memorandum of understanding with Texas A&M University, and is a member of the South-East Consortium for International Development (SECID). PVAMU recently entered into memoranda of understanding with the Inner Mongolia College of Agriculture and Animal Husbandry, The National Center for Rural Technology Development of China, Beijing Agricultural University and the School of Veterinary Medicine of the National Autonomous University of Mexico.

GRADUATE PROGRAMS: M.S., Agricultural Economics (concentrations: land and resources economics, farm and ranch management, price analysis, agricultural policy, marketing of farm products, research methods, agricultural finance).

M.S., Animal Science (concentrations: physiology of reproduction, animal physiology, non-ruminant nutrition, ruminant nutrition, dairy goat production, animal health).

M.S., Soil Science (concentrations: soil mineralogy, soil microbiology, soil ecology; fertility techniques and use, soil and land use planning, advanced soil chemistry, soil physicis, soil genesis and classification, soil survey and interpretation, advanced soil management, soils and quality of the environment, soils of the tropics, plant nutrition and soil fertility, application of biometrics).

M.S., Agricultural Education.

TECHNICAL COURSES: Dairy Goat Management Practices (semi-annual eight-week course); Institute for International Agribusiness Studies (custom-designed training programs).

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: International Dairy Goat Research Center; Cooperative Agricultural Research Center, including swine and poultry centers; Environmental Management Research Program (identify major environmental problems that impact the agricultural resource base and the agricultural food chain); Texas Engineering & Experiment Station.

FIELDS OF SPECIALIZATION: Dairy goat management, reproduction and health; animal production; agribusiness management; farming systems and extension methods (intensified farm planning program); environmental management; human resources; agricultural engineering; agricultural technology transfer.

CAPABILITY STATEMENT: The International Dairy Goat Research Center (IDGRC), established in 1979, has a mandate to increase knowledge about goats and to use this knowledge to assist both domestic and foreign limited income, smallholder farmers. The findings of research scientists in the areas of nutrition, reproduction and animal health have benefitted goat producers everywhere. Technical assistance has been provided to, i.a., China, Egypt and Malaysia.

IDGRC sponsors semi-annual workshops, the purpose of which is to transfer technology to international participants who are interested in improved goat production and distribution of food. The workshops offer a variety of lectures, learning tasks, opportunities to practice skills and try out solutions through "hands-on" training.

The Institute for International Agribusiness Studies, established in 1986, serves as the administrative mechanism to institutionalize PVAMU's involvement in international projects, programs and technical training activities. The Institute serves as the focal point for mobilizing institutional resources vis-a-vis research and extension projects, custom-designing technical courses and promoting international research in animal sciences, food and agricultural development.

The Institute's flexibility allows for special agribusiness training programs in the areas of agribusiness management, agro-industrial development, manpower management, food quality and safety, entrepreneurship, vegetable production and processing, and financial/marketing management.

The Institute, with multi-language capabilities, has sponsored and/or trained participants from Barbados, Belize, Benin, Burkina Faso, Central African Republic, Chad, China, Costa Rica, Congo, Cote d'Ivorie, Dominican Republic, Egypt, El Salvador, Germany, Ghana, Honduras, Jamaica, Japan, Kenya, Korea, Liberia, Mali, Mexico, Niger, Panama, Senegal, Sierra Leone, Thailand, Togo, St. Vincent and Zimbabwe.

SOUTHERN UNIVERSITY

Southern University System
Southern Branch Post Office
Baton Rouge, LA 70813
Telephone: (504) 771-2809

President and Chancellor: Delores R. Spikes, Ph.D.
Director of International Agricultural Programs: Gus T. Ridgel, Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools; Accreditation Board for Engineering and Technology (engineering); American Bar Association; Council on Social Work Education.

BACKGROUND: Southern University and A&M College is an 1890 land-grant institution which offers a broad range of diverse and comprehensive academic programs. The Southern University System, which is comprised of three campuses, is considered the nation's largest historically black institution of higher education. The main campus is located in Baton Rouge, with branch campuses in New Orleans and Shreveport-Bossier City. The Baton Rouge campus has an enrollment of over 9,500, including 1300 international students, primarily from African and Latin American countries.

Southern has a joint memorandum of understanding with Louisiana State University. It is a member of the South-East Consortium for International Development (SECID).

GRADUATE PROGRAMS: M.Ed., Agricultural Education (concentrations: vocational education, agricultural economics, animal science, agricultural technology, plant and soil science).

RESEARCH FACILITIES: Research and teaching farm of approximately 375 acres, which includes poultry, rabbit, swine and beef cattle farms, 25 acres of horticultural lands, three greenhouses, dairy production center, meat processing laboratory, food and nutrition laboratory and ponds; Center for Small Farm Research; Computer Learning Resources Laboratory.

FIELDS OF SPECIALIZATION: Plant, animal and human nutrition; small animal production (rabbits, goats, swine and poultry); fisheries (crawfish and catfish production and marketing); plant production and marketing systems; farming systems; tropical crop and vegetable production; small fruits (blueberries, blackberries and muscadine grapes); biotechnology; soil and water management; women in agriculture; rural development.

CAPABILITY STATEMENT: The Center for Small Farm Research (CSFR) was established to assist low-income, limited-resource farmers; 60 percent of all farms in Louisiana are classifed as small scale by the U.S. Department of Agriculture. Research at CSFR involves the development of practical management schemes for efficient farm production of many agricultural commodities, including rabbbits, goats, crawfish, fruit/vegetable crops and honey bees.

CSFR focuses on enterprises that small scale farmers can use. Its mission is to:

- o develop research programs specifically designed to provide solutions to the problems of small scale farmers to ensure their economic viability;
- o evaluate new and existing farm commodoties to determine appropriateness as small farm commodity through research and demonstration;
- o improve the productivity of small farm enterprises by advising farmers on planning, management, diversification, alternative marketing strategies and production practices; and
- o develop innovative ways of transferring research technology to small scale farmers and generally improve the interaction between small scale farming clientele and agricultural researchers and extension personnel.

Selected Technical Assistance, Research and Training Projects

Jamaica Primary Education Project. Provide technical assistance to the Ministry of Education to improve the design, implementation and evaluation of long term textbook program; assist in developing an effective national program of local community/school participation aimed at reducing the incidence of vandalism.

Jamaica Agricultural Education Project. In collaboration with, i.a., Louisiana State University developed and implemented curriculum for the Food-Grant Educational Institution.

Sierre Leone Adaptive Crop Research and Extension (ACRE). In collaboration with Louisiana State University, developed adaptive crop research and replicable technological delivery system responsive to the needs of rural and small farmholders.

Analysis of Health Aspects, Food Acceptability and Economic Benefits of the Solar Box Cooker (Sierra Leone). The objective of this project is to encourage the improvement of the nutritional status of ACRE farm families, and to promote the development of appropriate labor saving devices for use by rural women.

Fruit Orchard Management Training. Provided custom-designed training to 28 participants in the Central American Peace Scholarship program.

Agricultural Research Methodology Training Course. A specially designed course to train five Hondurans in practical subject areas related to agricultural research methodology.

TENNESSEE STATE UNIVERSITY

International Food and Agricultural Development
3500 John A. Merritt Boulevard
Nashville, TN 37203
Telephone: (615) 320-3002

President: Otis L. Floyd, Jr., Ph.D.
Director of International Agricultural Programs: Troy Wakefield, Jr., Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools; Accreditation Board for Engineering and Technology (engineering); American Medical Association (medical record administration); Council on Social Work Education; National Council for Teacher Education.

BACKGROUND: Tennessee State University (TSU) is an 1890 land-grant institution, located in the State Capitol. TSU has two campuses; the Main Campus, situated on 513 acres, and the Downtown Campus. TSU has an enrollment of approximately 7,500, of whom 530 are international students from 54 countries, including i.a., Jordan, Kuwait, Iran, Saudi Arabia, Egypt, Syria, India, Lebanon, Iraq, United Arab Emirates, Israel, Pakistan and Bangladesh.

TSU has a joint memorandum of understanding with New Mexico State University, and is a member of the South-East Consortium for International Development (SECID).

GRADUATE PROGRAMS: M.S., Agricultural Sciences (concentrations: agricultural education, animal science, plant science, rural development).

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: Experimental Farm, which includes a 6,400 sq. ft. Poultry Complex, capable of handling 10,000 layers and 5,000 broilers; Cattle Facility, with, i.a., four feed sheds, research laboratories and an on-farm herd of black angus beef cattle.

Ornamental and Fruit Tree Improvement Research Center. Facilities include approximately 85 acres of land, with 30 acres of fruit tree orchards and a 600 sq. ft. laboratory.

Nursery Development Farm. Located 60 miles south of TSU's main campus, the facility is used as TSU's nursey development station.

Under the Cooperative Agricultural Research Program (CARP), research is oriented towards the problems of the limited-resource farmer.

FIELDS OF SPECIALIZATION: Agricultural education (extension); watershed management; poultry production and management; integrated pest management; postharvest physiology; crop production (soybeans, corn, cotton, tobacco, vegetables); animal production (dairy, beef, rabbits); rainfed crops; agricultural economics; farming systems research and extension; human nutrition and health.

CAPABILITY STATEMENT: University endorsement and support for international activities is widespread. International involvement is articulated, encouraged and demonstrated through general support of faculty at the departmental level, and through the active participation of administrators in international activities. A University-wide document, "Policy and Practice Guidelines for International Involvement," has been developed.

Selected Technical Assistance and Training Projects

Swaziland Cropping Systems Research and Extension Training Project. The objective of this Title XII project is to develop, through applied research and in collaboration with Pennsylvania State University, recommendations for improving cropping systems for both dryland and irrigated crops, and to make these recommendations available to small farmers on Swazi National Land through improved extension services.

Kenya Agricultural Systems Support Project/Egerton College Expansion. The objective of this project was to assist the Government of Kenya in its efforts to increase the institutional capacity of Egerton College, an agricultural training facility.

Watershed Management Training. The focus of this activity, sponsored by the Food and Agriculture Organization (FAO) of the United Nations, was hands-on training in the areas of watershed management, forestry and soil conservation. The participants were from Trinidad and Tobago.

Poultry Production and Management. This four-week training program, sponsored by FAO, provided "hands-on" experience in raising poultry, disease prevention, grading poultry products and record keeping.

Honduras Participant Training. In collaboration with New Mexico State University, provided technical training in agriculture extension, conducted entirely in Spanish.

Costa Rica Participant Training. Designed six-week training program in the areas of leadership development, national parks development and management.

TEXAS SOUTHERN UNIVERSITY

The Graduate School
3100 Cleburne Street
Houston, TX 77004
Telephone: (713) 527-7232

President: William H. Harris, Ph.D.
Dean and Administrator, Office of International Affairs: Joseph Jones, Ph.D.

ACCREDITATION: Southern Association of Colleges and Schools; American Assembly of Collegiate Schools of Business; American Bar Association; American Council on Pharmaceutical Education; American Medical Association.

BACKGROUND: Texas Southern University (TSU), a state-supported, coeducational institution, was founded in 1947. In 1973 the Texas State Legislature designated the University as a "special purpose institution of higher education for urban programming." Its enrollment of approximately 8,700 includes 1,000 international students, from, i.a., Iran, Korea, Malaysia, Thailand and Taiwan.

TSU is a member of the Texas International Education Consortium, which is comprised of 18 institutions of higher learning. It has formal linkages with universities in the Dominican Republic, Kenya, Nigeria, Sierra Leone and South Korea.

GRADUATE PROGRAMS: Doctorate Degree: Curriculum and Instruction; Educational Administration; Higher Education; Pharmacy.

Master's Degree: Business Administration; Business Education; Curriculum and Instruction; Educational Administration and Supervision; Elementary Education; Higher Education; Public Administration; Secondary Education.

FOREIGN LANGUAGES: Spanish.

FIELDS OF SPECIALIZATION: Teacher training and preparation; educational administration; elementary and secondary education; special education; reading; food and nutrition.

CAPABILITY STATEMENT: The overall administration of international programs is a function of the Office of International Affairs (OIA) located within The Graduate School. The major function of OIA is to provide international activities that have an impact on the instructional programs of the University. Proposals for projects, new courses, degree program development and activities pertaining to international programs are coordinated by the Administrator of OIA.

Selected Technical Assistance and Training Projects

Basic Research and Implementation in Developing Educational Systems (BRIDGES). The project involves a study of educational training and administration in public schools in developing countries and possible models of training that will improve the effectiveness and efficiency of education.

Central American Peace Scholarship (CAPS) Program. Provided technical training to elementary school teachers from Guatemala in new curricular designs and techniques; 40 Guatemalans received training in primary health care workers; and secondary school principals from Costa Rica received intensive training.

Intensive English Training Program. Since 1981, TSU has operated a program in intensive language training for students who require short term training in the English language. Enrollees can accomplish satisfactory training in the speaking and writing of English within one semester with provisions made for more extensive training, where appropriate.

TUSKEGEE UNIVERSITY

Office of International Programs
Kresge Center
Tuskegee, AL 36088
Telephone: (205) 727-8953

President: Benjamin F. Payton, Ph.D.
Vice Provost for International Programs: Eugene W. Adams, D.V.M., Ph.D.

ACCREDITATION: Southern Associatin of Colleges and Schools; Accreditation Board for Engineering and Technology (engineering); American Dietetic Association; American Medical Association (medical technologist, occupational therapist); American Physical Therapy Assocation (physical therapist); American Veterinary Medical Association; Council on Social Work Education; National Architectural Accrediting Board; National League for Nursing.

BACKGROUND: Tuskegee University, founded by Booker T. Washington in 1881, is located 40 miles east of Montgomery. Tuskegee, a coeducational, privately controlled institution with an enrollment of approximately 3,300, is accorded 1890 land-grant status for selected programs and activities. Its programs emphasize professional, scientific and technical studies undergirded by a thorough grounding in the liberal arts.

Tuskegee has a joint memorandum of understanding with Oregon State University. It is a member of the South-East Consortium for International Development (SECID). Tuskegee is an officially designated WHO/PAHO Collaborating Center for Veterinary Public Health Training.

GRADUATE PROGRAMS:

School of Agriculture and Home Economics.

M.S., Animal and Poultry Sciences (concentrations: animal nutrition, ruminant or nonruminant, animal breeding and/or genetics, reproductive physiology).

M.S., Plant and Soil Sciences (concentrations: plant nutrition, plant breeding and/or genetics, plant physiology, soil physics, soil chemistry, soil microbiology, soil fertility and conservation).

M.S., Agricultural Economics
M.S., Environmental Sciences
M.S., Food and Nutritional Sciences

Department of Vocational and Adult Education
M.S., M.Ed., Agribusiness Education (concentrations: teacher education, extension).

School of Engineering and Architecture
M.S., Electrical Engineering
M.S., Mechanical Engineering

School of Veterinary Medicine
Doctor of Veterinary Medicne (concentrations: anatomy and histology, radiology and small animal medicine and surgery, large animal medical surgery, pathology and parasitology, microbiology and public health, physiology and pharmacology).

M.S., Tropical Animal Health and Production (concentrations: integration of animal health, disease control, animal production, zoonoses).

M.S., Veterinary Medicine

In addition, Tuskegee has established joint master's and doctoral programs with Oregon State University in agricultural science, home economics, veterinary science and engineering.

TECHNICAL COURSES: Seminar Series, Tropical Animal/Human Health (January - June); Agricultural Development and Management Training (June 11 - July 1, 1989); Agribusiness Management (August 28 - September 29, 1989).

FOREIGN LANGUAGES: French.

RESEARCH FACILITIES: The George Washington Carver Agricultural Experiment Station, where a multidisciplinary approach to research is conducted in the areas of, i.a., small animal production, sweet potatoes, small fruits, food and nutrition (new products and basic biotechnology), atmospheric pollutants on forest trees; International Center for Tropical Animal Health.

FIELDS OF SPECIALIZATION: Food and nutritional sciences; animal health care delivery systems; integrated management systems for small farms; agricultural crop and livestock production; biotechnology; tropical animal health; agroforestry; nitrogen fixation; seed technology; international fisheries economics; range management; farming systems.

CAPABILITY STATEMENT: Tuskegee University's historic involvement in international programs dates from 1899, when a team of Tuskegee agricultural experts was sent to the former German West African colony of Togoland to improve cotton production. The Office of International Programs (OIP) serves as the central unit responsible for all international activities.

The International Center for Tropical Health (ICTH) brings a multidisciplinary approach to problem solving, health care administration, health information management and manpower development. The focus of ICTH's activities is animal diseases of economic and zoonotic importance to developing countries, and animal production methods developed to increase productivity in those countries.

The Model Small Farm Program is a federally-funded project to establish model farms in order to encourage small farmers to remain on the land. An integral component of the project is the establishment of a research center to study the effects of biological nitrogen fixation in achieving increased fertilizer efficiency. This project is of international interest because of the linkage of farmer-crop aptitude with improved production and management methods and effective marketing policies.

Selected Technical Assistance and Training Projects

Casmance Regional Development Project (Senegal). The objectives of this project were to: increase agricultural production in the Lower Casmance region; increase agricultural production through the management of water; increase cattle and crop protection; raise literacy rates among smallholder farmers; and improve agricultural extension.

Guyana Tropical Livestock Development. Tuskegee faculty members conducted a comprehensive analysis of livestock and veterinary medicine service and reported their findings to USAID and the Ministry of Agriculture. Under a separate agreement, Tuskegee conducted a livestock management program designed to provide certificate training for potential livestock producers and Ministry of Agriculture employees.

Mali Integrated Rural Development. Conducted training in rural development, with an emphasis on farming systems, marketing, community organization and new lands development.

Burkina Faso Agricultural/Human Resource Development. This project was designed to conduct a comprehensive needs assessment and to develop strategies for initiating short term and long term programs in agriculture at the University of Ougadougou. Provided advice and assistance in placing 20 nationals in master's degree and doctoral programs in agriculture and rural development at U.S. universities.

Yemen Horticultural Improvement Project. Provided a comprehensive fruit improvement project with the main objective of introducing and testing improved cultivars of both tropical and subtropical fruits. Trained local technicians to support horticultural initiatives and to distribute nursey stock to farmers throughout the country.

Liberia Rural Teacher Training Institutes. Assisted the Government of Liberia in establishing teacher training institutes whose graduates would fill the teaching positions created by the country's expanding rural school development program. Organized the administrative structure, developed curricula, syllabi and course outlines; provided vocational training, teacher workshops and other in-service training for teachers and staff.

Central American Peace Scholarship (CAPS) Program. Designed and implemented a series of four-week vocational agricultural training courses for 80 high school and college teachers of agriculture from Panama, Guatemala, El Salvador, Costa Rica and Honduras.

Technical Support Services, USAID Missions in East Africa and Southern Africa. In a collaborative effort, provide short term technical services in agriculture, rural development and natural resources.

UNIVERSITY OF ARKANSAS at PINE BLUFF

P.O. Box 82
Pine Bluff, AR 71601
Telephone: (501) 541-6745

Chancellor: Charles A. Walker, Ph.D.
Director of International Agricultural Programs: Hazell Reed, Ph.D.

ACCREDITATION: North Central Association of Colleges and Schools; National Council for Accreditation of Teacher Education; National Association for Schools of Music; American Home Economics Association; International Association of Counseling Services.

BACKGROUND: The University of Arkansas at Pine Bluff (UAPB), an 1890 land-grant institution, was founded in 1873; it joined the University of Arkansas system in 1972. UAPB, located approximately 40 miles from Little Rock, has an enrollment of approximately 3,700, three percent of whom are international students.

UAPB has a joint memorandum of understanding with Auburn University. It is a member of the South-East Consortium for International Development (SECID) and the Consortium for International Fisheries and Aquaculture Development.

FOREIGN LANGUAGES: French and Spanish.

RESEARCH FACILITIES: Agricultural Experiment Station with 100 hectares of land for research and demonstration, agronomy building and pasture land for large cattle; aquaculture research and training involve 71 ponds of sizes from 0.05 hectare to 2 hectares for a total of 16.5 hectares; hatchery building with laboratory facilities for research using tanks and aquaria as experimental units.

FIELDS OF SPECIALIZATION: Aquaculture (stocking/carrying capacities, reproduction, physiology, nutrition and feeding, fish diseases and parasite control, water quality management, limnology of ponds, fish harvest and handling, fish transport, pond construction, surveying, fish processing and preservation, extension techniques, market survey techniques, country-specific orientation); Farming systems research and extension (agronomic and horticulture practices); agricultural economics; vegetable production; animal production (poultry, swine, beef and dairy cattle).

CAPABILITY STATEMENT: UAPB has provided technical assistance and services to limited resource farmers for over 90 years. One of the major mandates of the University is to identify and develop appropriate technologies to solve agriculture-related problems of limited resource farmers. Since the majority of the farmers in developing countries are limited resource farmers, UAPB also has the responsibility and obligation to provide technical assistance and services to these needy farmers.

UAPB's institutional capacity has been significantly strenghthened by its linkage with Auburn University's International Center for Aquaculture which is internationally renowned for its accomplishments in aquaculture development.

Selected Technical Assistance and Training Projects

U.S. Peace Corps Inland Fisheries Program. UAPB faculty and staff have worked with Peace Corps volunteers and consultants on a number of assignments, ranging from evaluated small farmer aquaculture extension programs to conducting fish hatcheries in, i.a., Malaysia, Philippines and Thailand.

Collaborative Efforts with International Center for Aquaculture. Presented a course in aquaculture/agriculture for villagers in Africa; conducted training session n the Cameroon and site assessments in Indonesia, Kenya and Sudan. A team comprised of UAPB and Auburn University faculty evaluated aquaculture projects in Tanzania and Rwanda.

Songhai Integrated Agriculture Project (Benin). In collaboration with a private volunatry organization, a four-member UAPB team made recommendations to the project directorate on methods of increasing food production and the efficiency of local farming systems that included aquaculture as a farm enterprise.

International Farming System Research/Extension Group. In collaboration with Auburn University, UAPB offers workshop focusing on the concepts, advantages, disadvantages and significance of farming system research in developing countries.

Arkansas Small-Farm Project. This collaborative project between UAPB and the Farmers Home Administration builds upon proven management practices and information that combine the farmers' experience and UAPB's system research and extension findings. Farm management and budgeting plans are custom designed to fit the farmer's specific needs. Each plan carefully details the increased cash flow required to make optimum use of limited resources.

Aquaculture Training Programs. A "hands-on" approach is used in order to maximize the practical experience gained by the participants. Training is individualized to allow each participant to progress at his or her own pace. The training methodology used in the programs is appropriate to the actual settings in which the participants will be working. Training has been provided under the Peace Corps inland fisheries training programs in the Cameroon, the Philippines, Kenya and Mali.

Biographical Sketches of Selected Faculty and Staff

CLARK ATLANTA UNIVERSITY

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Ernest Attah is an Associate Professor in the Department of Sociology. Dr. Attah has over twenty years' experience in program evaluations in a wide range of substantive areas, dealing with projects both in the U.S. and overseas, including Israel and Nigeria, and applying both quantitative and qualitative techniques. In the water and sanitation field, his experience since 1986 in connection with the Atlanta University International Symposium on Water Supply and Sanitation in Africa includes membership of the Technical Committee, execution of a Country Study Award to review the UNICEF Assisted Rural Water Supply and Sanitation Program in Nigeria and participation in the symposium itself as a presenter and a rapporteur.

As a founding member of IIAD, Dr. Attah took part in formulating an agenda for the university in the development field, including degree programs (M.A., Ph.D.) in international affairs, research priorities for the enhancement of development activities and areas of technical assistance and direct program activities for which the capability already existed or could be developed in the near term. His own research project funded in the USAID Research Program for Historically Black Colleges and Universities (HBCUs) focused on what changes in social structure and economic organization will likely be necessary for the behavioral and attitudinal adjustments that will yield fertility reduction and demographic transition in Africa.

Dr. Attah was commissioned by the World Bank in 1985 to identify reasons for severe underutilization of public sector health facilities in Imo State, Nigeria.

Earle D. Clowney, primary research interests are in French language and literature. His expertise are in the teaching of French, Spanish, and English as a second language. Past activities include coordinator for two summers (1987, 1988) for the English language component of the Management Training Program sponsored by the University's International Affairs Program for participants from French-speaking countries in Africa and the Caribbean. In this capacity he prepared placement examinations for all participants, administered the examinations, graded them and, based on the results of the test (both oral and written), grouped the participants into four classes and selected and supervised the teachers who worked directly with the participants.

Frank Cummings, is a professor of chemistry and associate dean of the School of Arts and Sciences. He has been at Atlanta University since 1967 after receiving a Ph.D. from Harvard University. He has extensive experience in academic program development and management including service as a department chairman for eight years. He has experience in proposal development. He gained knowledge of regional development planning as chairman of an advisory committee to the Atlanta Regional Commission.

International experience includes living in Indonesia and El Salvador as a youth, extensive recent travel in Central America, and familiarity with development issues. He can speak basic Spanish and read at the newspaper level. He has worked closely with Central American refugees in the United States.

He served on the technical committee planning a major AID sponsored conference (May 1987) on accomplishments and social and policy issues in water development in Africa. He is currently helping to coordinate Atlanta University's involvement in the WASH III project. He is also assisting the President of Atlanta University in project start-up on a major four-year technical assistance contract with the Egyptian Ministry of Health Child Survival Project funded by AID and visited Egypt in December of 1988.

Alex Danso is an Assistant Professor in the Department of Public Administration at Atlanta University. He teaches courses in Human Resources Management, International Development, and Comparative Administration. From 1982 to 1986, he served as a Lecturer in Public Administration in the School of Administration, University of Ghana, Legon. He has also served as a Visiting Lecturer at the Ghana Armed Forces Staff College and the Ghana Rural Development College. Between 1979 and 1981, Dr. Danso worked in such capacities as Management Analyst, Personnel Analyst, and Budget Analyst for the County of Fairfax, Fairfax, Virginia. Dr. Danso was instrumental in the development of Executive Management Training Programs for top level managers of public, private, and parastatal corporations in Ghana. His research interests are in International Affairs and Development.

Dr. Danso holds a Master of Public Administration (MPA) degree from Northeastern University in Boston and a Ph.D. from Howard University in Washington, D.C.

Carolyn Fowler is currently a Professor in the Department of African American Studies at Atlanta University. Very early in her career at Atlanta University, her research and active interest in the political and social betterment--as well as the literature--of Third World peoples, African Americans and other American minorities, made her the logical choice in Federal- and private agency-sponsored programs of outreach, interpretation and interaction. Thus she was chosen in 1972 and again in 1973 to go to the Dominican Republic as part of a team of American scholars to interpret, in Spanish, aspects of American culture to colleagues in the Dominican universities. She won a National Endowment for the Humanities grant in 1975 to study comparative intellectual history among African derived peoples, which took her to Martinique, Jamaica and France, as well as again to Haiti. In 1977 she was sent by the Phelps-Stokes Fund to the University of Yaounde in Cameroon to teach American literature. While in Africa, she visited Guinea, the Central African Republic (then, Empire), Mali, Ivory Coast and Togo on a State Department-sponsored lecture tour, and was in Nigeria during Fes-

tac as a member of the American delegation. She also visited Ghana and Senegal during this trip. In 1979, she received a Fulbright Senior Research award to research the periodical literature--the literature of group movement (one of her special interests)--in Haiti. In 1983, the State Department sent her again to Cameroon as the special guest of the Cameroon writers Association, and in 1986, she was sent as Fulbright Lecturer to the University of Madagascar, where she remained for two years.

In each instance, she was interviewed on radio and/or television and gave public lectures in French, and amassed an impressive collection of materials, some quite rare, some of direct interest to students in political science and history, which is on occasion shared with them. She has also developed a network of contacts with artists, writers, and scholars in each of these countries, as well as in several other countries which she has visited, such as Papua New Guinea.

Hashim Gibrill is currently an Assistant Professor in the Department of Political Science, a position he has held since 1983. Prior post-secondary teaching experience includes a one year appointment at Bethune-Cookman College, Florida, and two years at the University of Maiduguri, Nigeria. His areas of specialization are African political economy, international relations, and development administration. His recent activities include serving as a member of the Technical Committee, and co-author of the *Final Report for the International Symposium on Water Supply and Sanitation in Africa,* held in Atlanta in May 1987, and funded by the U.S. Agency for International Development. Currently he is carrying out research funded by USAID into development management training in Nigeria, and co-editing a text on inter-state relations in Africa.

Dr. Gibrill is a founding member of Atlanta University's Institute for International Affairs and Development (IIAD). In this capacity he has participated in developing a number of major proposals which have been funded by USAID. He has also played a leading role in developing the curriculum, and teaching core courses, in the master's and doctoral programs in international affairs offered by IIAD. He is currently serving as a liaison officer for Atlanta University's participation in the WASH III project. While a lecturer at the University of Maiduguri, he assisted in the development and teaching of an in-service development management training program for senior state and local administrators in Northern Nigeria.

Dr. Gibrill has extensive international experience. He lived and studied in England, before teaching in Nigeria, and subsequently the United States. Among countries he has visited are France, Spain, the Federal Republic of Germany, Morocco, and the Cameroons.

Collette M. Hopkins, a social scientist on the faculty of the Graduate School of Education, is a graduate of Fisk and Atlanta Universities and the George Peabody College of Vanderbilt University. Dr. Hopkins has travelled, studied and lived extensively in Europe, Africa, and the Caribbean. She has recently completed three international field studies including (a) a mid decade study of women's participation in water and sanitation activities in Zaire (1985-86), (b) a study of the changing status of women in Lesotho (1986-87), and (c) a study of sociocultural practices and preferences relative to rural household sanitation in the United Republic of Cameroon (1987-89). Dr. Hopkins has received numerous honors and awards and is currently co-authoring a book on the sociocultural status of the African American child.

Jacques Katuala received his Ph.D. in Public Administration from the University of California at Berkeley. Presently he is serving as a Visiting Associate Professor in the International Affairs and Development Program. His areas of specialization includes project management, planning, and training of trainers. He is also responsible for the *Francophone Management Program* and has performed consultant work for UNDP, USAID, and the Centers for Disease Control. He has conducted several training programs in the United States and abroad. Dr. Katuala speaks several languages including French, Lingala, Kikongo, and English.

George Kugblenu, is an associate professor and chairperson of the Department of Public Administration. His areas of specialization are African Politics, International Relations and public management. A founding member of the Atlanta University Institute for International Affairs and Development (IIAD) he has actively participated in the various activities sponsored by the institute. He served as a member of the Technical Committee on the USAID funded International Symposium on Water Supply and Sanitation in Africa held in Atlanta in May 1987.

Dr. Kugblenu is currently engaged in conducting research on an AID funded project entitled *Estimating the Willingness to Pay for Water and Sanitation Services in Ghana*. In addition he serves as a consultant to the City of East Point, Georgia on the Department of Housing and Urban Development technical assistance program to small cities.

He has travelled very extensively in both West Africa and Western Europe.

Ku-Ntima Makidi, holds M.A. degrees in Political Science and Public Administration (the State University of the Congo), in African History and Economics (Temple University), and Theories of Economics and Social Development (Instituto Di Studi Per Lo Sviluppo Economico, Naples, Italy). An agronomist specializing in Zootechny and Tropical Forestry,

he received a Certificate in Agricultural, Economic and Technical Assistance to Farmers from Shell Italian at Borgo A. Mozzano (Italy). As a Research Fellow at Centro Piani Economics (Rome, Italy), he participated in the elaboration of the five-year economic development plan for the Malagasy Republic.

His research and teaching activities have concentrated on the following areas: political theory, international politics, African and Caribbean politics and history, political economy and comparative politics. He has contributed numerous articles to scholarly journals in all these sub-fields.

He is the Director of the Institute for International Affairs and Development as well as Chair of the Political Science Department. His recent projects have involved the United Nations sponsored *Status of Namibia Project*, the USAID sponsored *International Symposium on Water Supply and Sanitation in Africa* and *Francophone Management Seminars*.

Dr. Makidi speaks several languages including French, Lingala, Kikongo, Flemish, Kiswahili, Italian and English. He reads Portuguese and Spanish.

Trevor A. Turner, is currently associate professor in the Department of Educational Leadership, Atlanta University, and chairman of the department. He teaches courses in educational planning, school finance, international development education, and educational resources management. He also serves as co-director of a project funded by USIA for the exchange of faculty between the National University of Lesotho and Atlanta University. In this role he is responsible for project budgeting and for planning schedules for the exchange of instructors and researchers.

At the University of West Indies, Jamaica, he served as vice-dean of the School of Education for four years and as head of a department for two years. He also served, 1980-84, as director of a USAID funded project for the training of primary school principals. In this position he prepared budgets and supervised expenditures, prepared schedules and venues for seminars,secured tutors for seminars including conducting some himself, organized residential summer sessions for the participants, and evaluated the performance of the project schools following the training.

Dr. Turner has also served as educational planning consultant to the Ministries of Education of St. Lucia, Dominica, and Jamaica, and as program consultant to UNESCO at conferences in Paris, 1981 and 1985, and in Chile and Panama, 1985.

Charles R. Drew University of Medicine and Science

CHARLES R. DREW UNIVERSITY OF MEDICINE & SCIENCE

Rosalyn C. King, Oharm.D., M.P.H.
Douglas L. Keene R.Ph, MHS
Jewel Bazilio-Bellegarde, MA 51

Getachew Demissse
Dorothy Madis-n-Seck, M.S.W.
Regina Dennis, M.A. 52

Laslene J.K. Dawkins, M.H.S.A.
Margaret Philomena Price, D.P.A.
Bowyer G. Freeman 53

Drew University International Health Institute Staff

Rosalyn C. King, Pharm.D., M.P.H.

Dr. King is the current Director of the International Health Institute at Drew.
Dr. King has conducted pre- and post-project assessments in nineteen countries in Africa, Asia, the Middle-East, Latin America, and the Caribbean.

She brings over 25 years of experience in the field of pharmacology, both as a practicing pharmacist and as a consultant on policy design, management, and training.

Dr. King received her Pharm.D. from the University of Southern California. She also holds an M.P.H. from the University of California at Los Angeles. She is an Associate Professor in the Department of Family Medicine at Drew.

Douglas L. Keene R.Ph, MHS

Mr. Keene is Program Monitor for the International Health Institute. Mr. Keene is a registered Pharmacist and has consulted internationally as a public health pharmacist.

Mr. Keene also served two years in Senegal, West Africa as a Peace Corps Volunteer where he was the pharmacist for the regional pharmacy on the USAID funded Sine-Saloum health project.

Mr. Keene received his B.S. degree in pharmacy from the University of Maryland School of Pharmacy and a Masters of Health Science in Health Policy and Management with a focus on International Health from the Johns Hopkins University School of Hygiene and Public Health.

Jewel Bazilio-Bellegarde, MA

Mrs. Bazilio-Bellegarde is Project Manager for the Swaziland Primary Health Care Project.
Mrs. Bazilio-Bellegarde has had ten years of experience in Human Resources Development Programme and Training.

Mrs. Bazilio-Bellegarde received her B.S. degree from Georgetown University; her M.A. from Columbia University, N.Y. in International Education Development.

Getachew Demisse

Mr. Demisse is the Project Manager for the Cameroon Maternal and Child Health Project.
Mr. Demisse previously served as Project Assistant for WHO in Geneva, UNDP/UNCTAD Project Officer in Southern African Countries, and Project Manager for USAID funded Child Survival Programme in Malawi. Mr. Demisse's international experience include Botswana, Malawi, Mozambique, Lesotho, Zambia, Zimbabwe, Swaziland and Tanzania and Sierra Leone.

Mr. Demisse holds a B.A. from Haile Selassie University, Addis Abeba, Ethiopia.

Dorothy Madison-Seck, M.S.W.

Mrs. Madison-Seck is the Provincial Coordinator for the South Province, Cameroon MCH Project. She earned her M.S.W. from the Louisiana State University; B.S. from Northeast Louisiana University; Health Education Training, Institute of Child Health in London. Mrs. Madison-Seck has conducted training in Nutrition and Adult Education in Gabon, with the U.S. Peace Corps.

Mrs. Madison-Seck experience includes: Advisor, Women, Infants and Children, Washington D.C.; Adult Education Training Director and Health Coordinator U.S. Peace Corps, Gabon, Central Africa.

Regina Dennis, M.A.

Ms. Dennis is the Provincial Coordinator for the North Province, Cameroon MCH Project.
Ms. Dennis experience includes: Peace Corps Volunteer and rural developer in Ivory Coast, teaching in Senegal, Socio-Forestry Consultant, Somalia and Public Health Administrator, Boston University. Her country experience includes the Ivory Coast, Senegal and Somalia.

Ms. Dennis received her M.A. from New York State University; her B.A. from Wilberforce University, Ohio.

Laslene J.K. Dawkins, M.H.S.A.

Ms. Dawkins is the Program Manager for the Child Survival Fellows Program, which is housed at The Johns Hopkins University Institute for International Programs. Ms. Dawkins is an experienced reseacher and practitioner in the field of health services administration. Her accomplishments include projects in Africa and the Caribbean.

Ms. Dawkins received her M.H.S.A. degree from The University of Michigan; her B.A. from Columbia University.

Margaret Philomena Price, D.P.A.

Dr. Price is the Clinic Management Advisor for the Swaziland Primary Health Care Project.
Dr. Price has had extensive experience in the field of education/human resource development as Dean of Nursing, Dean of Health Sciences, and Health Sciences Educator, at the Fanshawe College of Applied Arts and Technology, London, Ontario, Canada.

Dr. Price received her Doctorate in Public Administration at Nova University, Fort Lauderdale, Florida and her M.Sc. from University of Western Ontario; she also has a Certificate in Hospital Departmental Management.

Bowyer G. Freeman

Mr. Freeman is the Fiscal Monitor for the International Health Institute. Mr. Freeman has had several years of experience in data management/monitoring and financial analyses. He has established a computerized project management software system for the Institute.

Mr. Freeman is currently a candidate for a Master degree in Business Administration; and received his B.A. from University of Dayton in Political Science-Public Administration.

CHARLES R. DREW UNIVERSITY OF MEDICINE & SCIENCE

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FORT VALLEY STATE COLLEGE

Kashmiri L. Arora, DVM, PhD	54
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NathanielB. Brown, Jr.	77
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James Irvin Kirkwood, Ph.D.	98
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Willie J. Rawls	124
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CURRICULUM VITAE

I. PERSONAL DATA:

Name:	Kashmiri L. Arora, DVM, PhD	Sex:	Male
Address:	103 Tiffany Lane Warner Robins, GA 31093	Health :	Excellent
		Marital Status:	Married
Telephone:	(912)922-9898 (Residence) 825-6353 (Office)	Citizenship:	USA

II. ACADEMIC QUALIFICATIONS:

D.V.M.	College of Veterinary Medicine Hissar, India	1957
Ph.D.	Washington State University Pullman, Washington	1965
Residency	University of Michigan Medical School Laboratory Animal Medicine Ann Arbor, Michigan	1974-76

III. EMPLOYMENT RECORD:

1979-Present	Fort Valley State College Fort Valley, Georgia	Professor & Head, Dept. of Veterinary Science
1976-79	University of Nebraska Medical School Omaha, Nebraska	Director Animal Research Facilities and Associate Professor
1973-74	Wayne State University College of Medicine Detriot, Michigan	Primatologist and Coordinator of the Vivarium
1971-73 1965-68	Drake University Des Moines, Iowa	Associate Professor of Animal Physiology
1968-71	Haryana Agricultural University Hissar, India	Head, Dept. of Animal Physiology and Associate Professor
1964-65	University of Colorado Boulder, Colorado	Research Associate
1957-59	Indian Veterinary Research Institute Izatnagar, India	Veterinary Officer

IV. PROFESSIONAL GROWTH AND DEVELOPMENT:

A. Courses, Workshops, and Symposia Attended

1. Course in "Electron Microscopy" from the Department of Molecular, Cellular and Develop. Biology, University of Colorado, Boulder, 1972.

2. Colloquium on "Electron Microscopy" held at Iowa State University, Ames, Iowa, 1973.

3. Course in "Introduction to Computer Technology", Ankeny Community College, Des Moines, Iowa, 1973.

4. Symposium on the "Mammalian Fetus-Comparative Biology and Methodology", Wayne State University, Detriot, Michigan, 1973.

5. Colloquium on "Endocrine Functions of the Hypothalamus", Wayne State University, Detroit, Michigan, 1974.

6. Symposium on "Animal Models for Research on Contraception and Fertility," sponsored by ILAR, Washington, D. C., 1978.

7. Course in "Mammaliam Genetic" (Animal Models for Human Diseases), Jackson Laboratory, Bar Harbor, Maines, 1975.

8. Symposium on "Prostaglandins and Reproductive Physiology", Wayne State University, Detroit, Michigan, 1974.

9. Course in "Basic Techniques of Photography", Fort Valley State College, Fort Valley, Georgia, 1980.

10. Symposium on "Animal Technicians" and seminars on "Small Animal Medicine", sponsored by the American Veterinary Medical Association (AVMA Conventions, 1980, 1981, 1984, 1986).

11. Attended "Farming System Research Symposium: The role of animals in the farming system", held at Kansas State University, Manhattan, KS, 1983.

12. Attended "Farming System Research and Extension Symposium: Management and Methodology", held at Kansas State University, Manhattan, Ks, 1985.

13. Symposium on "Computer Application in the Health Services", Tuskegee University, Alabama, 1985.

14. Workshop on "Committee Orientation", University of Georgia, Athens, 1986.

15. Workshop on "International Project Design, Implementation, and Evaluation: A University Strengthening approach", University of Maryland, 1986.

16. Symposium on "Farming System Research and Extension: Food and Feed", Kansas State University, Manhattan, KS, 1986.

B. Committee Memberships

A. School-wide Committees

1. Veterinary Technology Advisory Committee
2. Faculty Promotion and Tenure Committee
3. Scholarship and Internship Committee
4. Member Executive Council of the Dean College of Agriculture, Home Economics, and Allied Programs

B. College-wide Committees

1. Curriculum Committee
2. Committee for Human Subjects in Research (Chairperson)
3. Faculty Evaluation Committee
4. Advisory Board for the International Programs
5. Educational Policy Sub-committee
6. Long Range Planning Committee
7. College Development Commmittee
8. Minority Recruitment Committee
9. Title III Institutional Aids Advisory Committee

C. Professional Organizations

1. Veterinary Technician Liaison Committee
   Georgia Veterinary Medical Association
2. Board of Directors, Southeast Association of Laboratory Animal Science

C. Membership in Professional Organizations

1. Sigma XI
2. American Veterinary Medical Association (AVMA)
3. American Association of Laboratory Animal Science (AALAS)
4. American Association of Laboratory Animal Practitioners (AALAP)
5. Georgia Veterinary Medical Association (GVMA)
6. Association of Animal Technician Educators (AATE)
7. Middle Georgia Veterinary Medical Association (MGVMA)
8. Southern Georgia Veterinary Medical Association (SGVMA)
9. Southeastern Branch of American Association for Laboratory Animal Science (SEAALAS)

V. ACTIVITIES IN FVSC INTERNATIONAL PROGRAM:

1. Prepared "Summary Document" for BIFAD site-visit and participated in the evaluation of Title XII Strengthening Grant activities.

2. Participated in "Congressional Reception", Atlanta, GA (1984) and "Salute to Legislatures" (1986) Atlanta, GA.

3. Prepared "Documentation of Interest and Capabilities-DIC" for potential AID projects in different countries for long-term and short-term overseas assignments.

4. Attended several seminars on International Programs/Activities presented by visiting dignitories.

5. AID funded research project "Incidence and field management of infertility in cattle and buffaloes in rural Haryana (India) for $99,700.00.

6. Participated in the preparation of Joint Memorandum of Understanding (JMOU) with Ohio State University, Columbus, Ohio 1986.

7. Participated in the preparation of JMOU with Winrock International Institute for Agricultural Development, Morrilton, Arkansas 1986).

8. Participated in "BIFAD" Workshop on Project Design, Implementation, and Evaluation: A Univ. Strengthening Approach, Univ. of Maryland College Park, Maryland, 1986.

9. Attended "Meat Goat Production" conference at the Florida A&M University, Tallahassee, FL., February 1986.

10. Visited Dominican Republic. Exploratory mission for developing joint research projects (1986).

11. Liaison Faculty-Office of International Programs, Fort Valley State College, Fort Valley.

12. Member of the Advisory Board and a member of the core faculty for the International Programs, Fort Valley State College.

13. Preparing a joint training project on "Animal Production and Preventive Animal Health Program" with the Ohio State University-Agricultural Training Institute, Wooster. (Designed for developing countries)

14. Preparing a joint research project in Farming System Research in Dominican Republic involving the integration of livestock into cropping pattern in small farmers setting.

VI. LICENSURES/CERTIFICATIONS:

-State Licenses in Veterinary Medicine:

Iowa
Nebraska
Georgia

VII. PROFESSIONAL EXPERIENCES:

A. Administration:

- Provided supervisory and technical support to the departmental organizations through planning and coordination of teaching, research, and service activites.

- Supervised personnel (Teaching and Research Faculty, Office, and Animal Care Staff); recruited staff, developed job desrciptions, and work assignments; evaluated job performances; formulated and reviewed personnel policies; inter-personal relations, greivance procedures, and other related matters.

- Budget and fiscal management; procurement of animals, medicines and supplies; and overseeing day-to-day fiscal activites of the department.

- Developed departmental policies, procedures, goals, and liaison with other units of the institution.

- Participated in institutional activities such as committee meetings and assignments.

- Developed long- and short-range plans and objectives for the department along with necessary policies and programs for achieving those objectives.

- Sought grants, contracts, and donations from extramural sources for the improvement of the programs within the department.

- Prepared progress and accreditation reports

B. Veterinary Technical and Professional Involvements:

- Twenty-five (25) years of experience in management, breeding and veterinary care of farm and laboratory animals.

- Directed animal research facilities; formulated policies and goals; staff supervision; designed animal care facilities; established high sanitation and managemental standards for animal facilities.

- Coordinated animal research activities by acquiring and conditioning animals, and maintaining health records.

- Provided diagnostic and treatment services for sick animals, post-operative care; conducted necropsies and histopathology of diseased and experimental animals; monitored animal quarters for biohazards and communicable diseases.

- Provided support services to investigators in a variety of biological disciplines as pathology, toxicology, microbiology, radiology and surgery, parasitology, and reproduction.

- Trained employees, students, and animal attendants in routine animal care practices, and in the detection of sickness and deviant behavior.

- Provided technical support to research scientists in the preparation of research grant applications.

- Directed on-the-job training of employees, students and technicians in routine animal care and management practices.

- Compliance with city, state, and federal regulations regarding the use of animals in biomedical research and teaching.

C. Teaching:

Extensive experience in teaching undergraduate and graduate courses in veterinary, animal science and paramedical programs:

(a) ANIMAL SCIENCES: Animal/Poultry Production, Reproductive Physiology, Semenology and A.I., Climatic Physiology, Animal Genetics, and Breeding.

(b) VETERINARY MEDICINE: Veterinary Anatomy and Physiology, Animal Diseases and Preventive Medicine, Clinical Pathology and Laboratory Medicine.

Innovative teacher and possesses broad-based educational background in biomedical sciences.

D. Curriculum Development:

Extensive experience in developing/strengthening of curricula as follows:

(a) Associate Degrees
1. Veterinary Technology
2. Laboratory Animal Care

(b) Bachelor of Science
1. Animal Sciences
2. Veterinary Technology

(c) Pre-Veterinary Medicine Program

(d) Master of Science Degree in Agriculture (Animal Science)

E. Extension:

Organized extension programs in Artificial Insemination, cross-breeding for livestock improvement, and training farmers in preventive animal health care and scientific husbandry practices. Arranged open-houses, and exhibits at rural extension centers and agricultural fairs. Directed disease control and mass vaccination camps.

F. Research:

1. ANIMAL SPECIES INVESTIGATED: Twenty (20) years of research experience with:

Farm Animals--cattle, sheep, goats, chickens and turkeys
Laboratory Animals--mice, rats, guinea pigs, rabbits and non-human primates

2. REASEARCH INTERESTS: Investigation of genetic and environmental factors affecting:

a. Reproduction: Fertility, reproductive cycles, conception

rate, and semenology.

b. Fetal Development: Embryogenesis, prenatal and post-natal growth and teratology.

c. Animal Diseases: Spontaneous diseases and animals models for human diseases.

3. RESEARCH DIRECTOR: Directed undergraduate and graduate (M.S. and Ph.D.) research programs. Designed research projects, prepared research reports, and grant applications.

4. RESEARCH GRANTS RECEIVED:

a. Institutional Seed Research Grant, Drake University, Des Moines, Iowa.

b. NSF Research Grant, Co-investigator, Wayne State University, College of Medicine, Detroit, Michigan. Project: Physiological Changes in the Reproductive Organs of Rhesus (*Macaca mulatta*) in Relation to the Use of d-Norgestrel.

c. AID Research Grant, Principal Co-investigator, Project: Incidence and field management of infertility in cattle and buffaloes in rural Haryana, India ($99,700.00).

d. USDA Strengthening Grant: Student recruitment and retention program at the Fort Valley State College School of Agriculture, Home Economics, and Allied Programs ($106,000.00).

5. PUBLICATIONS: Authored and co-authored 100 research publications and presentations.

G. Training of Staff:

Extensive experience in training faculty and staff in carrying out their assigned job functions. Trained laboratory staff in the use of audio-visual and other software, recordkeeping, data analysis, and report writing.

RESEARCH PUBLICATIONS

(Poultry, Cattle, Sheep/Goats, and Lab. Animals)

1. Arora, K. L. 1965. Early embryogenesis of chickens and turkeys as related to the preincubation history of eggs and parental genotypes. Ph.D. Dissertation. Washington State University, Pullman, Washington. (ABA 35: 152, 1967, #813).

2. Arora, K. L., Kosin, I. L. Development of chick embryos in aging egg held at different temperatures before incubation. Soc. Exp. Biol. & Med. (Northwest section), Richland, Washington, 1961. (Abstract)

3. Kosin, I. L., Arora, K. L., Weisbroth, S. H. Developmental implications of genetically determined differences in the mitotic index of turkey blastoderms. Northwest Scientific Association, Bellingham, 1962. (Abstract)

4. Arora, K. L., Kosin, I. L. 1962. Uptake of p^{32} by White Leghorn embryos developing in "Fresh" and "Stored" eggs. Proc. Poult. Res. Council, Washington State Univeristy, Pullman, Washington, pp. 46-49.

5. Arora, K. L., Kosin, I. L. 1963. The effect of different gaseous environments on the blastoderm in chicken eggs held at 25± 1°C. Proc. Poult. Res. Council, Washington State University, Pullman, Washington. pp. 114-119.

6. Arora, K. L. The respone of early chick embryo to X-irradiation and Tritiated Thymidine. Soc. For Develop. Biol. Friday Harbor, Washington, 1963. (Abstract)

7. Arora, K. L., Kosin, I. L. Observations on the gross embryogenesis in turkey eggs: Effect of genetic line and oviposital age. Soc. Exp. Biol. & Med. (Northwest section), Pullman, Washington, 1963. (Abstract)

8. Arora, K. L., Kosin, I. L. The "Pseudo-dormancy" of chicken and turkey blastoderms during preincubation storage and its relation to subsequent embryonic teratologies. Western Soc. of Naturalists, Seattle, Washington, 1964. (Abstract)

9. Arora, K. L., Kosin, I . L. 1964. Selection for traits in the matured domestic turkey yields correlative responses in embryos. Genetics 50: 232. (ABA 33: #902, 1965).

10. Kosin, I. L., Arora, K. L. 1966. The pattern of early embryonic development in two genetically isolated lines of B.B.B. turkeys. Poult. Sci. 45: 819-825. (ABA 34: #814, 1967).

11. Arora, L., Kosin, I. L. Early embryogenesis of chick embryos in eggs held under different gaseous environments before incubation. Iowa Academy of Science, Pella, 1966. (Abstract)

12. Arora, K. L., Kosin, I. L. 1966. Changes in gross morphological appearance of chicken and turkey blastoderms during preincubation holding. Poult. Sci. 45: 819-825. (ABA 34: #814, 1967).

13. Arora, K. L., Kosin, I. L. 1966. Developmental responses of early turkeys and chicken embryos to preincubation holding of egg: Inter and Intra-species differences. Poult. Sci. 45: 958-970. (ABA 35: #1963, 1967).

14. Arora, K. L. Developmental patterns of various morphological traits during early ontogenesis of chickens and turkeys. Iowa Acad. Sci., Pella, 1966. (Abstract)

15. Arora, K. L., Kosin, I. L. 1967. Auto-radiographic and cytological study of blastodermal cells in turkey eggs subjected to extended preincubation storage. Biological Bull. 133: 303-309. (ABA 37: #1986, 1969).

16. Matsumoto, I., Arora, K. L. Prenatal growth in Japanese quail (Coturnix C. Japonica). Iowa Acad. Sci., Waverly, 1968. (Abstract)

17. Arora, K. L. Early embryogenesis in chicken eggs of different sizes. Iowa Acad. Sci. Waverly, 1968. (Abstract).

18. Arora, K. L., Kosin, I. L., 1968. A heritable difference in the resistance of turkey blastoderms to prolonged preincubation storage--Cytological evidence. Poult. Sci. 47: 2000-2002. (ABA 37: #4112, 1969).

19. Arora, K. L., Kosin, I. L. 1968. The response of the early chick embryo to preincubation temperature as evidenced from its gross morphology and mitotic pattern. Physiol. Zool. 41: 104-112. (ABA 37: #1984, 1969)

20. Arora, K. L, Matsumoto, L. 1968. Early ontogenesis in chicken eggs of different weights. Proc. Iowa Academy Sci. 75: 404-415.

21. Arora, K. L. 1968. Raising Japanese quail in the laboratory. Iowa Science Teachers' Jour. 5 (3): 21-25.

22. Arora, K. L. 1968. Early embryogenesis in chickens--Some quantitative measurements. Iowa Science Teachers' Jour. 5(4): 3-6.

23. Arora, K. L. 1969. Genetic and environmental factors affecting the development of avian embryos. American Biol. Teacher, 31: 526-530.

24. Arora, K. L., Lohchuba, B. S. 1969. Pregnancy diagnosis in cattle. Panjab Vet. 8: 36-40. (ABA 39: 1718, 1970).

25. Arora, K. L. 1970. Hatching avian eggs in the laboratory. Iowa Science Teachers' Jour. 6(3); 14-23.

26. Galhotra, M. M., Arora, K. L. 1970. Effect of serum gonadotrophin alone or in combination with diethylstibestrol upon sexual maturity and egg production in Desi chicks. Indian J. Anim. Prod. 1:86-90.

27. Galhotra, M. M., Arora, K. L. 1970. Body weight, hemoglobin and plasma protein level in Desi female chicks as affected by the administration of serum gonadotrophin alone or in combination with diethylstibestrol. Indian J. Anim. Prod. 1: 139-143.

28. Singal, S. P., Arora, K. L. 1970. An impaired fertility in Haryana heifer-A case report. Gujvet 4: 100-101.

29. Singal, S. P., Lohchuba, B. S., Arora, K. L. 1980. Intra-uterine treatment with Combiotic (antibiotic) of repeat breeders in Haryana cattle. Haryana Vet. 9: 37-41.

30. Tomar, S.S., Arora, K. L. 1970. Calving season and secondary sex ratio in Haryana cattle. Haryana Vet. 9: 20-23.

31. Arora, K. L. 1970. Genetic and environmental factors affecting hatchability. Indian Poult. Gazette 54: 91-102.

32. Arora, K. L., Dhanda, O. P., Georgie, G. C. 1970. Duplex uterus in sheep--A case report. Panjab Vet. 9: 54-55.

33. Sharma, R. D., Arora, K. L. 1970. A study on the semen characteristic of Beetal bucks. Panjab Vet. 9: 14-17.

34. Arora, K. L., Tomar, S. S., Singal, S. P. 1971. Influence of cross-breeding and other associated factors on the birth weight of calves in Haryana cattle. Indian Vet. J. 48: 373-380, (ABA 40: #1343, 1972).

35. Tomar, S. S., Arora, K. L. 1971. Studies on the breeding efficiency of Haryana cattle--Conception rate and services per conception for the first five services. Indian J. Anim. Prod. 1: 147-150.

36. Arora, K. L., Tomar, S. S., Singal, S. P., Lohchuba, B. S. 1971. Gestation length in Haryana cows bred to different breeds of bulls during successive gestations. Jour. Res. (Haryana Agric. Univ., India) 1: 141-145. (ABA 40: #3038, 1972).

37. Tomar, S. S., Arora, K. L. 1971. Sudies on the reproductive efficency of Haryana cattle--Relationship between supernumerary teats and reproduction traits. Haryana Vet. 10: 30-33.

38. Arora, K. L., Arneja, D. V., Acharya, R. M. 1971. Fertility, hatchability and embryonic mortality in four indigenous Indian breeds of poultry. Indian J. Poult. Sci. 6: 13-16. (ABA #14: #2859, 1973).

39. Arora, K. L., Tomar, S. S., Singal, S. P. 1971. Factors affecting the reproductive efficiency of Haryana cattle--The duration of post-partum breeding interval. Indian Vet. J. 48: 1015-1019. (ABA 41: #2250, 1973).

40. Rattan, P. J. S., Arora, K. L. 1971. A preliminary study on semen lipids of farm animals by Thin Layer Chromatography (TLC). Indian Vet. J. 48: 570-571.

41. Arora, K. L., Arneja, D. V, 1972. Comparative growth of embryos in White Leghorn and Desi eggs, Indian J. Anim. Prod. 3: 58-60.

42. Arneja, D. V., Arora, K. L. 1972. Effect of administration of stilbestrol dipropionate on egg production and growth of reproductive organs in White Leghorn and Desi birds. Indian J. Exptl. Biol. 10: 34 (ABA 41: #4611, 1973).

43. Arora, K. L., Arneja, D. V., and Tomar, S. S. 1972. Embryonic development in White Leghorn eggs laid in Winter and Summer months. Indian J. Poult. Sci. 7: 40-42.

44. Tomar, S. S., Arora, K. L. 1972. Studies on the breeding efficiency of Haryana cattle--Age at first calving. Indian Vet. J. 49: 364-370. (ABA 40: #4452, 1982).

45. Singal, S. P., Lohchuba, B. S., Arora, K. L. 1972. Effect of breed of sire, horn of pregnancy on sex and birth weight of calves in Haryana cattle. Jour. Res. (Haryana Agric. Univ., India) 2: 117-122. (ABA 42: #2390, 1974).

46. Arora, K. L., Arneja, D. V. 1972. Early embryonic development in eggs from White Leghorn and Desi birds subjected previously to extended periods of storage. Indian J. Poult. Sci., 7: 8-12. (ABA 42: 2390, 1974).

47. Tomar, S. S., Arora, K. L., Arneja, D. V. 1972. Studies on the breeding efficiency of Haryana cattle--The influence of season on the occurrence of oestrus and conception rates. Indian Vet. J. 49: 477-482. (ABA 40: #4453, 1972).

48. Sharma, R. D., Arora, K. L. 1972. Biometrics of buck spermatozoa. Haryana Vet. 10: 26-28.

49. Kaushish, S. K. , Arora, K. L. 1972. Effect of weight of dam at service on gestation length, parturition and weight of lamb born to Nali sheep. Indian J. Anim. Prod. 3: 47-51. (ABA 43: #724, 1975).

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51. Chand, D., Arora, K. L., Arneja, D. V. 1972. Egg size and yolk cholestrol content in White Leghorn and four indigenous Indian breeds of fowl. Indian J. Poult. Sci. 7: 13-16. (ABA 41: #2361, 1973).

52. Arneja, D. V., Arora, K. L., 1972. Response of White Leghorn and Desi chicks to injections of stilbestrol dipropionate--1. Hemoglobin, hematocrit, erythrocyte and leucocyte counts in blood. Indian J. Anim. Prod. 2: 20-30.

53. Tomar, S. S., Arora, K. L. 1972. The influence of different breeds of exotic sires on the gestation length of Haryana cows. Indian Vet. J. 49: 572-577. (ABA 41: #3948, 1973).

54. Arneja, D. V., Arora, K. L. 1972. Responses of White Leghorn and Desi chicks to injection of stilbestrol dipropionate II. Protein and cholestrol concentration in plasma. Indian J. Anim. Prod. 3: 94-98.

55. Arneja, D. V., Arora, K. L. 1972. Responses of White Leghorn and Desi chicks to injections of stilbestrol dipropionate-III. Egg quality. Indian J. Anim. Prod. 3: 94-98.

56. Kaker, M. L., Arora, K. L. 1973. Studies on semen phosphatases and transaminases of young Holstein-Fresian X Haryana and Brown Swiss X Haryana crossbred bulls as affected by post-pubertal age. Indian J. Anim. Sci. 43: 91-94. (ABA 42: #984, 1974).

57. Arora, K. L. Effect of diethylstibestrol injections on the growth and development of reproductive organs in growing Japanese quail (Coutrnix C. Japonica) Iowa Acad. Sci., Iowa City, 1972. (Abstract)

58. Kaker, M. L., Arora, K. L., 1973. Studies on biochemical components of semen of young Holstein-Fresian X Haryana and Brown Swiss X Haryana crossbred bulls as affected by post-pubertal age. Indian J. Anim. Sci. 43: 193-196. (ABA #2625, 1975).

59. Arora, K. L. Long-term administration of diethylstilbestrol on growth, sexual maturity, gonadal development and subsequent fertility in Coturnix. Iowa Acad. Sci., Grinnel., 1973 (Abstract)

60. Arneja, D. V., Arora, K. L. 1973. Responses of White Leghorn and Desi chicks to injections of stilbestrol dipropionate--IV. Body growth and sexual maturity. Indian J. Anim. Prod. 4: 96-102.

61. Galhotra, M. M., Arora, K. L. 1973. Effect of the administration of stilbestrol on egg quality traits of Desi birds. Indian Vet. J. 50: 793. (ABA 42: #1929, 1974).

62. Kaushish, A. K., Arora, K. L., Dhanda, O. P. 1973. Studies on reproduction in sheep: Time of parturition. Indian J. Anim. Prod. 4: 56-59. (ABA 43: #1773, 1975).

63. Kaker, M. L., Arora, K. L. 1973. Post-pubertal changes in semen quality of young Holstein-Fresian X Hariana and Brown Swiss X Hariana crossbred bulls. Indian J. Anim. Prod. 4: 147-154.

64. Sharma, R. D., Arora, K. L., Arora, C. L. 1973. Reaction time and semen quality in Nali and Lohi breed of sheep. Jour. Anim. Health and Prod. 1:23-26. (ABA 42: #4914, 1974).

65. Gupta, S. C., Arora, K. L., Pandy, J. N., and Razdan, M. N. 1973. Studies on sexual maturity and egg production of Australorp and White Leghorn chicks hatched in December and April. Indian J. Anim. Prod. 4: 203-206.

66. Gupta, S. C., Pandey, J. N., Arora, K. L., and Razdan, M. N. 1974. Studies on growth rate of Australorp and White Leghorn female chicks hatched in December and April. Indian J. Poult. Sci. 9: 103-113.

67. Kaushish, S. K., Arora, K. L., 1974. Studies on reproduction in sheep; Factors affecting gestation length. Indian J. Anim. Prod. 5: 85-90.

68. Dahiya, N. S., Tomar, S. S. and Arora, K. L. 1974. A note on the process of parturition in Haryana cows inseminated with semen from exotic bulls. Indian J. Anim. Sci. 44: 398-401.

69. Arora, K. L., Arneja, D. V., Chand, D. 1974. A report on the lysozyme concentration of egg white of some breeds of fowl. Indian J. Poult. Sci. 9: 162-164.

70. Kaushish, S. K., Arora, K. L. 1974. Studies on relationship among weight of placenta, number of cotyledons and birth weight of lamb. Indian J. Anim. Sci. 45: 248-251.

71. Karker, M. L., Arora, K. L. 1974. Effect of consecutive collection of semen on sodium, potassium, total proteins and inorganic phosphorous content of semen from young Holstein-Fresian X Hariana and Brown Swiss X Hariana crossbred bulls. Indian J. Anim. Prod. 5: 133.

72. Kaushish, S. K., Arora, K. L. 1974. Studies on reproduction in sheep: Process of parturition. Indian J. Anim. Sci. 44: 667-671.

73. Arora, K. L. Fertility, embryonic growth and survival as affected by in-vivo aging of spermatozoa in Japanese quail. Iowa Acad. Sci., Ames, 1975 (Abstract)

74. Kaushish, S. K.. Bhatia, D. C., Arora, K. L. 1976. Studies on adapability of sheep to subtropical climate and seasonal changes in rectal temperature, cardio-respiratory and hematological attributes of Nali sheep. Indian Vet. J. 53: 760-765.

75. Kakar, M. L., Arora, K. L. 1976. Relationship among various physical and biochemical parameters of semen from young crossbred bulls. Jour. Res. (Haryana Agric. Univ., India) 6: 251.

76. Arora, K. L. Growth and sexual development in Coturnix (Coturnix C. Japonica) as affected by continuous photoperiod. Iowa Acad. Sci., Dubuque, Iowa, 1976 (Abstract)

77. Kaushish, S. K., Arora, K. L. 1977. Studies on reproduction in sheep: Blood and plasma constituents before and after parturition in Nali sheep. The Haryana Veterinarian 16: 74-77.

78. Arora, K. L., Arneja, D. V., Biswas, D. K. 1977. Hatchability and embryonic mortality in White Leghorn and Desi eggs as affected by preincubation storage. Indian J. Anim. Prod. 7: 3[illegible]-36.

79. Dhanda, O. P., Arora, K. L. 1977. A note on synchronization of oestrus in Nali sheep. Indian J. Anim. Sci. 27: 377-379.

80. Arora, K. L. Blood sampling and IV injections in Japanese Quail (Coturnix C. Japonica) Regional AALAS Meeting, Omaha, Nebraska, 1978.

81. Arora, K. L. Effect of sampling site on some blood parameters in Japanese Quail (Coturnix C. Japonica) Iowa Acad. Sci., Des Moines, Iowa, 1977 (Abstract)

82. Arora, K. L. Detrimental effects of blood sampling via cardiac puncture on reproductive performance in Japanese quail females. Amer. Assoc. Lab. Anim. Sci., Anaheim, California, 1977 (Abstract)

83. Chand, D., Arneja, D. V., and Arora, K. L. 1978. Relation of testicular ascorbic acid concentration to testicular development in Desi and White Leghorn birds. Indian J. Exptl. Biol. 16: 676-678.

84. Arora, K. L., Arneja, D. V. and Arora, P. N. 1978. Involution of reproductive organs in birds following cessation in egg production. Indian J. Exptl. Biol. 16: 1293-95.

85. Gupta, S. C., Pandley, J. M., Arora, K. L., and Razdan, M. N. 1979. Growth rate of Australorp and White Leghorn male chicks hatched in December and April. Indian J. Poult. Sci. 14: 20-25.

86. Arora, K. L. 1979. Blood sampling and intravenous injection in Japanese quail. Lab. Anim. Sci. 29: 114-118.

87. Chand, D., Arora, K. L., and Arneja, D. V. 1979. Cholestrol changes during testicular development in Desi and White Leghorn breeds of poultry. Indian J. Exptl. Biol. 17: 82-84.

88. Arora, K. L., Cohen, B. J., and Beaudoin, A. R. 1979. Fetal and placental responses to artificially induced hyperthermia in rats. Teratology 19: 251-59.

89. Dhanda, O. P., Arora, K. L. 1979. Effect of hormonal synchronization of oestrus on fetal development in sheep under semi-arid conditions. Trans. Isdt. & Ucds 4: 36-38.

90. Chand, D., Arneja, D. V., Georgie, G. C., and Arora, K. L. 1982. Effect of rearing sexes separate and combined on growth, plasma alkaline phosphatase and other physiological responses in Desi birds. Indian J. Poult. Sci. 17: 281-289.

91. Kaushish, S. K. and Arora, K. L. 1983. Effects of weights and measurements on placental weight and number of cotyledons in Nali and Lohi sheep. Inter J. Trop. Agri. 1: 167-169.

92. Arora, K. L., Arneja, D. V., Chand, Diwan, and Georgie, G. C. 1984. Follow-up studies in Desi birds to long term administration of Stilbestrol dipropionate: Testes, liver, and haematological values. Life Sci. Adv. 3: 38-41.

93. Chand, D., Lohchuba, B. S. and Arora K. L. 1985. Biochemical constituents of semen in NALI and LOHI breeds of rams. Indian Vet. J. 62: 964-68.

94. Arora, K. L. Effects of sampling site on hemoglobin and packed cell volume in Japanese quail (Coutrnix coturnix japonica). Submitted

95. Arora, K. L. Detrimental effects of blood sampling via cardiac puncture on cardiac tissue, blood picture, body weight, and reproductive efficiency in Japanese quail (Coturnix Coturnix japonica). Submitted

BRIEF SUMMARY OF KASHMIRI L. ARORA'S PROFESSIONAL BACKGROUND, EXPERIENCES AND ACHIEVEMENTS

1. ACADEMIC QUALIFICATIONS

(a) DVM - Veterinary Medicine. Experience in Livestock Diseases and their Control. Licensed as a Veterinary Faculty and Practioner in USA.

(b) PhD - Animal Sciences. Experienced in Livestock Production, Management and Breeding.

2. ADMINISTRATION

Fourteen(14) years of educational administrative experience as Head/Director of the departments. Supervised faculty-staff and coordinated their teaching, research, and extension/service activities. Provided leadership in the growth and development of the programs. Other duties included faculty-staff hiring, student recruitment, developing departmental policies and procedures, faculty-staff performance evaluation, fiscal management, oversee public relations and community programs, prepare progress reports and monitor the goals and objectives of the department. Student advisement.

3. TEACHING EXPERIENCE

Over 16 years of experience in teaching undergraduate and graduate courses in veterinary, animal science and paramedical programs:

(a) ANIMAL SCIENCES: Animal/Poultry Production, Reproductive Physiology, Semenology and A.I., Climatic Physiology, Animal Genetics and Breeding.

(b) VETERINARY MEDICINE: Veterinary Anatomy and Physiology, Animal Diseases and Preventive Medicine, Clinical Pathology and Laboratory Medicine.

Innovative teacher and possesses broad-based educational background in biomedical sciences.

4. RESEARCH EXPERIENCE

Research was invariably the integral component of my 27 years of research-teaching involvements, particularly those with Land Grant Institutions. Worked with farm and experimental animals.

(a) FARM ANIMALS: Cattle, sheep, goats, and poultry.

(b) RESEARCH INTERESTS:
- -Animal Reproduction: Includes investigations on fertility, reproductive cycling, conception rate, and semenology.
- -Physio-Pathology of Pre and Post-Natal Growth and Development.

(c) RESEARCH DIRECTOR: Directed graduate (MS and PhD), undergraduate and senior special research projects, prepared research reports, and grant applications.

(d) RESEARCH PUBLICATIONS: Authored or co-authored about 100 research publications.

5. EXTENSION EXPERIENCE

Organized extension programs in Artifical Insemination, cross-breeding for livestock improvement, and training farmers in preventive veterinary care and scientific husbandry practices. Arranged open-houses, and exhibits at rural extension centers and agricultural fairs. Supervised diseases control and mass vaccination camps.

6. FARM MANAGEMENT AND VETERINARY CARE

Supervised vaccination, disease prevention and other managemental needs of research and production stock on the farm. Monitored health status of animal herds and provided necessary veterinary care. Established high standards for animal management and care, sanitation, and checked facilities for communicable diseases, zoonosis, and biohazards. Trained employees, students, and animal attendants in routine animal care practices, and in the detection of sickness and deviant behavior.

7. CURRICULUM DEVELOPMENT

Extensive experience in developing/strengthening of curricula as follows:

(a) Associate Degrees
1. Veterinary Technology
2. Laboratory Animal Care

(b) Bachelor of Science
1. Animal Science
2. Veterinary Sciences

(c) Pre-Veterinary Medicine Program

(d) Master of Science Degree in Agriculture (Animal Science Option)

8. COMMITTEE MEMBERSHIPS

College committee memberships/participations are:

Curriculum Committee; Educational Policy Sub-Committee; Faculty Evaluation Committee; Executive Council, School of Agriculture, Home Economics and Allied Programs; Faculty Selection Committee; Human Subject Committee; Veterinary Technology Advisory Committee; Recruitment and Retention Committee.

9. SOCIETY MEMBERSHIPS

Sigma Xi; American Veterinary Medical Association (AVMA); American Association of Laboratory Animal Practioners (AALAP); Georgia Veterinary Medical Association (GVMA); and Association of Animal Technician Educators (AATE).

10. PLANNING

Participated in planning of educational buildings, research laboratories, and farm facilities. Planned goal and objectives of the programs and how they will be achieved.

11. STAFF TRAINING

Extensive experience in training faculty and staff in carrying out their assigned job functions. Trained laboratory staff in the use of audio-visuals and other software, recordkeeping, data analysis, and writing reports.

CURRICULUM VITAE

PERSONAL DATA:

NAME: Ajmer S. Bhagsari
Division of Agriculture
Fort Valley State College
Fort Valley, Georgia 31030

BORN: 4 May 1930, India

SEX: Male

MARITAL STATUS: Married

CITIZENSHIP: U.S.A.

CHILDREN: One (18 years)

MAILING ADDRESS: 314 Wakeforest Drive
Warner Robins, Georgia 31093

PHONE: Home - 912/929-4027
Office - 912/825-6451

ACADEMIC QUALIFICATIONS:

The University of Georgia, Ph.D. Agronomy (Crop Physiology) 1974
Athens, Georgia

The Punjab University, M.S. Agriculture 1957
Chandigarh, India

The Punjab University, B.S. Agriculture 1954
Chandigarh, India

Thesis and Dissertation:

M.S. - "An Agronomic Survey of Ludhiana District"

Ph.D. - "Photosynthesis in Peanut (*Arachis*) Genotypes"

EMPLOYMENT RECORD:

1976 to present	-	Associate Professor Division of Agriculture Fort Valley State College Fort Valley, Georgia
1974 to 1975	-	Research Associate The University of Georgia Athens, Georgia
1970 to 1974	-	Research Assistant The University of Georgia Athens, Georgia
1958 to 1966	-	Assistant Professor of Agriculture Khalsa College Amritsar Punjab, India
1957 to 1958	-	Technical Assistant, Potato Research Department of Agriculture Himachel Pradesh, India

PROFESSIONAL EXPERIENCE:

TEACHING: Eight years of teaching experience at undergraduate level. subjects taught: Soils and Soil Fertility, Origin and Classification of Soils, Irrigation and Soil Conservation, Crop Production, Farm Management, Experimental Designs, and Crop Improvement.

RESEARCH ACTIVITIES: Photosynthesis and photosynthate partitioning, biomass production potential of energy crops, source-sink relationships; physiology of water stress in soybeans, peanuts and sweet potato; use of antitranspirants; development of antidotes for soybean herbicide metribuzin; and symbiotic nitrogen fixation.

Authored/co-authored eight research publications and 37 abstracts in professional journals (list attached), and chapter in a book.

EXTENSION: Production and distribution of certified potato seed to farmers; supervised soil fertility and fertilizer trials under field conditions; conducted bench-mark surveys

for major agronomic crops in different agro-climatic zones of Punjab, India; conducted a survey Methods and Practices of Farming in the hilly state of Himachel Pradesh. Holding Annual Sweet Potato Day at Fort Valley State College Agricultural Research Station.

ADMINISTRATION: Provided leadership in planning, organization and coordination of the departmental activities; personnel supervision in research and commercial farming; budget and fiscal management; developing long range farm plans.

RESEARCH INTERESTS:

Physiology of photosynthesis and water stress with emphasis on peanut, soybean, and sweet potato. Multiple cropping and symbiotic nitrogen fixation.

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

American Society of Agronomy
Crop Science Society of America
American Society for Horticultural Science
Weed Science Society of America
Southern Association of Agricultural Scientist
Southern Region American Society for Horticultural Science
Member, National Sweet Potato Collaborator Group
Member, Georgia Chapter American Society of Agronomy

RESEARCH GRANTS:

1. Project No. 701-15-04D.
   Development of Antidotes for the Soybean Herbicide Metribuzin.

2. 1890 Regional Project RR-3.
   Evaluation of Soybean Germplasm for Stress Tolerance and Biological Efficiency.

3. Project Np. GEOX-5308.
   Intensive and Multiple Cropping to Improve Returns for Small Farmers.

4. Project No. GEOX-5309.
   Improvement of Sweet Potato Yield and Quality through Characterization of Physiological Parameters.

PUBLICATIONS

A. JOURNAL ARTICLES:

1. Bhagsari, A. S., and R. H. Brown. 1976. Photosynthesis in Peanut (Arachis) Genotypes. Peanut Sci. 3: 1-5.

2. Bhagsari, A. S., and R. H. Brown. 1976. Translocation of Photosynthetically Assimilated ^{14}C in Peanut (Arachis) Genotypes. Peanut Sci. 3: 5-9.

3. Bhagsari, A. S., and R. H. Brown. 1976. Relationship of Photosynthesis to Carbon Dioxide Concentration and Leaf Characteristics in Selected Peanut (Arachis) Genotypes. Peanut Sci. 3: 10-14.

4. Bhagsari, A. S., and R. H. Brown. 1976. Effect of Moisture Stress on Photosynthesis and Some Related Physiological Characteristics in Peanut. Crop Sci. 16: 712-715.

5. Bhagsari, A. S., D. A. Ashley, R. H. Brown, and H. R. Boerma. 1977. Leaf Photosynthetic Characteristics of Determinate Soybean Cultivars. Crop Sci. 17: 929-932.

6. Bhagsari, A. S. 1981. Relation of Photosynthetic Rates to Yield in Sweet Potato Genotypes. HortSci. Vol. 16:779-780. (in press).

7. Bhagsari, A. S., and S. A. Harmon. 1982. Photosynthesis and Photosynthate Partitioning in Sweet Potato Genotypes. J. Amer. Soc. Hort. Sci. 107: 506-510.

8. Mathur, D. D. and A. S. Bhagsari. 1983. Effect of Photosynthetically Radiation, Temperature, and Antitranspirants on Photosynthesis and Respiration of Leather Leaf Fern. Hort Science. 18:189-191.

B. BOOK AND BULLETIN ARTICLES:

1. Phillips, B. A., and A. S. Bhagsari. 1978. Diazosulfonates as Protectants Against Atrazine Toxicity to Soybeans. p. 21-34. In F.M. Pallos and J.E. Casida (Ed.). Chemistry and Action of Herbicide Antidotes. Academic Press, Inc., New York.

2. Bhagsari, A. S., and B. A. Phillips. 1978. Screening of Herbicidal Antidotes For Soybeans. Re. Bull. Fort Valley State College, Fort Valley, GA. Vol. 11. p. 15-19.

C. ABSTRACTS:

1. Bhagsari, A. S., and R. H. Brown. 1973. Photosynthesis in Peanut Genotypes. Georgia Agron. Abstr. 16: 15.

2. Bhagsari, A. S., and R. H. Brown. 1973. Photosynthesis in Peanut Genotypes. J. Amer. Peanut Res. and Educ. Assoc. 5: 194.

3. Bhagsari, A. S., and R. H. Brown. 1974. Photosynthesis and Respiration in Selected Peanut Genotypes. Georgia Agron. Abstr. 17: 3.

4. Bhagsari, A. S., and R. H. Brown. 1974. Photosynthesis of Wild and Cultivated Peanuts. S.E. Peanut Farmer. 12 (2): 14.

5. Bhagsari, A. S., D. A. Ashley, H. R. Boerma, and R. H. Brown. 1975. Photosynthesis, Photorespiration and Diffusive Resistance in Determinate Soybeans. Agron. Abstr. p. 68.

6. Bhagsari, A. S., D. A. Ashley, and H. R. Boerma. 1976. The Effect of Leaf Age and Sink Demand on Certain Physiological Responses in Determinate Soybeans. Agron. Abstr. p. 69.

7. Phillips, B. A., and A. S. Bhagsari. 1976. Herbicide Protectants for Soybeans 1: A Dexon-Triazine Interaction. Bicentennial Meetings of the Historically Black Land-Grant Colleges and State Universities. p. 52.

8. Ashley, D. A., A. S. Bhagsari, and H. R. Boerma. 1976. Photosynthesis and ^{14}C-Photosynthate Translocation in the Field Grown Soybean Cultivars During Reproductive Development. Agron. Abstr. p. 69.

9. Phillips, B. A., and A. S. Bhagsari. 1976. Evaluation of Some Sulfonic Acid Derivatives As Protectants Against Atrazine Toxicity to Soybeans. Agron. Abstr. p. 65.

10. Bhagsari, A. S., B. A. Phillips, and B. P. Singh. 1977. The Effect of Phenylmercuric Acetate on the Diffusive Resistance of Field Grown Soybeans. Sou. Assoc. Agric. Sci. Abstr. p. 5.

11. Singh, B. P., B. A. Phillips, and A. S. Bhagsari. 1977. Nitrogenase Activity and Leaf Diffusion Resistance in Soybeans: Effect of Soil Moisture. Sou. Assoc. Agric. Sci. Abstr. p. 1.

12. Phillips, B. A., and A. S. Bhagsari. 1977. Diazosulfonates as Protectants Against Atrazine Toxicity on Soybeans. Symposium on: "Chemistry and Action of Herbicide Antidotes." 173. Nat. Amer. Chem. Soc. Meeting Abstr. PEST.-066.

13. Bhagsari, A. S. 1978. Herbicidal Antidotes for Crop Production. Research Symposium (ARD), Historically Black Land-Grant Colleges and State Universities.

14. Bhagsari, A. S. amd B. P. Singh. 1978. Diffusive Resistance, Nitrogenase Activity and Yield of Leaf Hair Isogenic Soybeans under Moisture Stress. Agron. Abstr. p. 70.

15. Bhagsari, A. S., and B. P. Singh. 1978. Effect of Antitranspirants on Diffusive Resistance and Yield of Soybeans. Georgia Agron. Abstr. No. 21. p. 6.

16. Bhagsari, A. S., and B. P. Singh. 1978. Effect of Moisture Stress on Diffusive Resistance, Nitrogenase Activity and Yield of Soybeans. Sou. Assoc. Agric. Sci. Abstr. p. 5.

17. Bhagsari, A. S. 1979. Evaluation of Herbicidal Antidotes for Weed Control in Soybeans. World Soybean Research Conference-II. p. 109-110.

18. Bhagsari, A. S. 1980. Weed Control in Soybeans with Metribuzin Antidoted with Activated Charcoal. Weed Sci. Soc. Abstr. p. 80.

19. Bhagsari, A. S., and S. A. Harmon. 1980. Growth Analysis of 20 Sweet Potato Genotypes. HortScience 15: 279.

20. Bhagsari, A. S. 1980. Photosynthesis of Sweet Potato Genotypes. HortScience 15: 279 •

21. Bhagsari, A. S. 1980. Sweet Potato Dry Matter Accumulation Patterns. Third Biennial Research Symposium. Historically Black Land-Grant Colleges and Universities. p. 28.

22. Bhagsari, A. S., and S. A. Harmon. 1980. Screening Sweet Potato Genotypes for Photosynthesis. Agron. Abstr. p. 77-78.

23. Bhagsari, A. S. 1981. Study of Photosynthesis of Sweet Potato Genotypes. HortScience 16: 98.

24. Bhagsari, A. S., and S. A. Harmon. 1981. Study of Morphological Traits of Sweet Potato Genotypes. HortScience 16: 288.

25. Bhagsari, A.S., and R. K. Abe. 1981. Single Leaf Photosynthesis and its Correlations with Yield and Leaf Area. Agron. Abstr. p. 80.

26. Bhagsari, A.S. 1982. Biomass Production Potential and Photosynthetic Rate of Selected Sweet Potato Genotypes. HortScience. 17:p.156.

27. Bhagsari, A.S., and R.K. Abe. 1982. Effect of Leaf Size on Photosynthesis and Production of Sweet Potatoes. HortScience. 17:p.157.

28. Bhagsari, A.S., and R.K. Abe. 1982. Photosynthesis, ^{14}C-translocation and Photosynthate Partitioning as Related to Sweet Potato Yield. XX 1st International Hort. Congress. Hamburg, Germany. p. 1452.

29. Bhagsari, A.S., and Arthur C. Willis, Jr. 1982. Crop Growth and Storage Root Development in Sweet Potato Genotypes. 4th Biennial Research Symposium, Historically Black Land-Grant Colleges and State Universities. p. 25.

30. Mathur, D.D., and A.S. Bhagsari. 1982. Effect of Light Intensity, Temperature, and Antitranspirants on Photosynthesis and Respiration of Leather-leaf Fern. Hort. Sci. Vol. 17 (section 2) p. 371.

31. Bhagsari, A.S. and Arthur C. Willis, Jr. 1983. Canopy Photosynthesis and Dry Matter Partitioning of Selected Sweet Potato Genotypes. HortScience. 18. p. 172.

32. Bhagsari, A.S., D. A. Ashley and Arthur C. Willis, Jr. 1983. Relation of Photosynthesis and ^{14}C-Assimilate Translocation to Yield of Selected Sweet Potato Genotypes. Agron. Abstr. p. 88.

33. Bhagsari, A. S. and Arthur C. Willis. 1984. Physiology of Root Crops. I. Leaf Conductance and Photosynthesis. HortScience. Vol. 19. p. 205.

34. Bhagsari, A. S. and Arthur C. Willis. 1984. Physiology of Root Crops. II. Canopy Photosynthesis and Dry Matter Partitioning. HortScience. Vol. 19. Section 2. p. 110.

35. Bhagsari, A. S. 1984. Photosynthetic Evaluation of Selected Soybean Genotypes and Their Parents. World Soybean Research Conference III. p. 63.

RESUME

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EDUCATION: J. T. Barber High School, Diploma, 1966
New Bern, North Carolina

North Carolina Central University, Durham, B.S., M.S., Biology/General Sciences, 1970 and 1972, respectively

University of Michigan, Ann Arbor, Ph.D., Natural Resources/Resource Policy and Management, 1978

University of Georgia, Athens, Agriculture and Resource Economics, 1982 - Post Graduate Study

INFORMAL CONTINUING EDUCATION:

Certificate in Remote Sensing Technology with Digital Computer, Alabama A&M University, June 22, 1979

Certificate in Computer Literacy and System Usage, Fort Valley State College, March 12, 1982

Certificate in Computer Programming 1-Basic, Advance Basic and Pascal, Fort Valley State College, May 18, 1982

Certificate in Survey Research Methodology, USDA-CSRS, July 13, 1984

Certificate in Agricultural Marketing and Product Promotion, ASAE-Administrator, December 11, 1984

GENERAL INTEREST:

(1) natural resource development and technology for wise management and resource utilization.

(2) farm problems and agricultural policy issues with emphasis on the Southern Region.

(3) cooperative marketing and other alternative marketing processes for farm and natural resource business entities.

CURRENT RESEARCH ACTIVITIES:

(1) "Factors Influencing the Survival of Small Farms in the South"

(2) "Labor Force Experiences of Persons Trained in Colleges and Schools of Agriculture"

(3) "Socioeconomic Dimension of Technology Change, Natural Resource Use and Agricultural Structure"

PROFESSIONAL WORK:

Fort Valley State College, Associate Professor, 1984 to present

Fort Valley State College, Research Associate, 1978-84

The City of Fort Valley, Fort Valley, Georgia, Community Development Director, 1976-77

Hoffman-LaRoche, Inc., Nutley, New Jersey, Faculty Research Fellow, Biochemical Nutrition Branch (summers), 1973 and 1974

Fort Valley State College, Instructor, Division of Science and Mathematics, 1972-74

PROFESSIONAL SERVICE, ORGANIZATIONS AND RECOGNITIONS:

Resource Person listed in: The International Journal Directory on the Science and Technology of Desalination and Water Purification, February, 1980 edition

Chairman, Needs Assessment Review Committee for the "Farm and Communtiy Life Center," Fort Valley State College, 1980. Also, Associate Planner for Programming and Development of Proposed Farm and Community Life Center - Activities

Member, NC-140 Committee on the Future of Farmer Cocperatives and Farm Credit Banks, St. Louis, Missouri, 1985

Peer Review Team for Professional Manuscripts submitted to the Southern Journal of Rural Sociology, under Dr. James H. Coop, Editor, 1985-Present

Member, Permanent Committee on the Opportunity and Status of Blacks in Agricultural Economics, American Agricultural Economics Association (AAEA), 1986-Present

Member, National Institute of Science (NIS), affiliate chapters of scientific professionals of the Historically Black Colleges and Universities (HBCU's) 1972-Present

Who's Who in the South and Southwest, Who's Who in America Publications, 1979

Betta Kappa Chi Scientific Honor Society, (BKX) Member of the Association of College Honor Societies, Fort Valley State College Chapter; Fort Valley, Georgia, 1980

Recipient of a Minority Research Travel Grant (competitive), Oak Ridge Associated Universities, Oak Ridge National Laboratory, Tennessee, 1981

Member, Southern Association of Agricultural Scientists (SAAS) (Agr. Econ. and Rural Sociology Sections), 1978-Present

Member, National Agricultural and Resource Economics Association (NAREA), 1983-Present

Member, Association of Social and Behavioral Scientists (ASBA), 1981-Present; Member of the one-fifth (1/5) club, 1987; selected to the Subcommittee on planning and evaluation of Student Research Papers - competitive section(s) 1987-88 term

Member, Georgia Partners of the Americas, Inc., Subchapter of National Partners of the Alliance Association, Inc., Washington, DC, 1986-Present (Mrs. Fran Campbell, Local President)

Member, Optimist International, Fort Valley Evening Optimist Club, 1986-Present

Member, Peach County Area Habitat for Humanity, Inc., also Vice President for 1987-88 Term, and Member of the International Association of Habitat for Humanity, 1985-Present

ABSTRACTS, PAPERS AND PUBLICATIONS:

"The Role of Cooperatives in Alleviating Long Term Rural Poverty: A Case Study in Hancock County, Georgia," Dissertation Abstracts International, Volume 39, No. 6, p. 3700-A, December, 1978

"The Quality of Life of the Rural Poor in Nineteen Selected Counties in Middle Georgia," Proceedings of the 77th meeting of Southern Association of Agricultural Scientists (SAAS), Hot Springs, Arkansas, 1980

"Studies in the Application of Fluorescent Antibody Technique in Bacillary Dysentery," Journal of Public Health Laboratory Directors, Vol. 38, No. 5, Boiling Springs, NC, pp. 299-305, 1980

"Water Hyacinth [ECHHORNIA CRASSIPIES (MART) SOLMS] as a 'Polishing Agent' in a Model Biological Waste Treatment System," (Abstract) Transactions: Journal of the National Institute of Science (NIS), Vol. 28, No. 1, March 1982, p. 5

"Hunting Recreation and Hunter Safety as Public Goods: Comments on the Question of Social Welfare Maximization in Georgia," a mimeographed paper presented at the National Resource Economics Issue's Workshop, The University of Georgia, School of Agricultural Economics, Athens, Georgia, November 8, 1983

"Price Variability for Selected Types of Food Outlets Within and Among Markets," Journal of Rural Sociology in the South, Southern Association of Agr. Scientists Annual Meeting, Orlando, Florida, February 7-10, 1982, p. 13 (co-author)

"Occupational Achievements Among Families in Selected Middle Georgia Counties," Sociological Abstracts, Suppl.-126, paper presented at the annual meeting, Southern Association of Agricultural Scientists, Rural Sociology Section, February 5-8, 1984, p.2

"Market Potential for Georgia Sweet Potatoes," abstract of paper presented at the Fifth Biennial Research Symposium, sponsored by the Association of Research Directors (ARD-HBLGCSU), Dallas, Texas, October 23-26, 1984, 10 pp.

"Increasing the Involvement of Minorities and Women in Renewable Natural Resources Careers," (co-editor), Proceedings of the Symposium on Natural Resources, published by the Southern Rural Development Center, Mississippi State University, SRDC Series #71, June 1984, 174 pp.

"Opportunity for Human Capital Development in Agriculture and Natural Resources: A Priority Issue," revised and forthcoming in the Urban League Review Journal of Policy Research, Rutgers University, submitted December 3, 1985, 15 pp.

"Cooperatives' Use and Economic Advantages for Limited Resource Farmers," paper presented at the Regional Conference on Small Farm Reserach and Extension in the Southern Region (Proceedings forthcoming), Center for Cooperative Agricultural Programs (CCAP), Florida A&M University and the University of Florida, Tallahassee, Florida, January 21-22, 1986, 12 pp.

"Water Hyacinth (Eichhornia crassipes - Mart.-SOLMS) as a Polishing Agent in a Greenhouse Model Biological Waste Treatment System," Rainbow Journal of Natural Resources, Vol. 1, No. 1, N. C. State University School of Forest Resources, Raleigh North Carolina, December, 1986, p. 21

"The Influence of Trellising and Irrigation On Economic Returns from Fresh Market Cucumbers" (Abstract) poster paper, February 20, 1987 meeting, American Society for Horticultural Science; HortScience: Vol 22, No. 5, October, 1987, p. 721 (co-author)

BIOGRAPHICAL SKETCH

NATHANIEL B. BROWN, JR.

Brown, Nathaniel B. Jr., Associate Professor of Agriculture and Resource Economics, Agricultural Research Station, Fort Valley State College, Fort Valley, Georgia, was native born in Greensboro, North Carolina. My parents (deceased), Rev. Nathaniel B. and Lydia (Martin) Brown, moved to the Tuscarora Community in 1950 near New Bern, North Carolina where I grew up on a small farm in that area. My farm background caused me to become familiar with timber (pulpwood and sawlogs), tobacco, corn, soybeans, peanuts, sweet potatoes, swine, chickens, home garden vegetables, and other elements that we had on the farm. Married Fredrena NMN (Burgess) of South Carolina, and we have three children, Kenneth, Kysha and Kimberly.

My educational training involved attendance at (the former) J. T. Barber High School in New Bern, North Carolina; B.S. and M.S. in Biology and General Sciences from North Carolina Central University in Durham, North Carolina, 1970 and 1972; Ph.D., in Natural Resource Policy and Management, School of Natural Resources, University of Michigan, 1978 and post-graduate study in Agricultural Economics and Economic Development, School of Agricultural Economics, University of Georgia, 1982. Completed training in the University of Maryland's International Development. Management Workshop on "Project Design, Implementation and Evaluation: The Logical Framework Approach", in March, 1987.

I have worked in various other capacities which include: Medical Lab Technician, Duke University Medical Center, 1968-72; Instructor of Biology, Fort Valley State College, 1972-74; Research Associate in Rural Development, Fort Valley State College Agricultural Research Unit, 1978-83; Student Assistant to Director of Minority Affairs, School of Natural Resources, University of Michigan, 1975-76; Community Development Director, City of Fort Valley, 1976-77; and Faculty Research Fellow at Hoffman LaRoche, Inc., Nutley, New Jersey (summers), 1973-74.

Former Assistant Scout Master (BSA), Usher Temple Christian Methodist Episcopal Church, 1978; Member of the Beta Kappa Chi (BKX) Scientific Honor Society; Member of the National Organization of Black Scientist (NOBS); Member of American Association of University Professors (AAUP); Member of the Southern Association of Agricultural Scientists (SAAS); Member of American Agricultural Economics Association (AAEA); Member of Northeast Agricultural and Resource Economics (NAREA) Conference; Member of the Forest History Society (FHS); Member of the American Society for Environmental Science (ASES); Member of the One-Fifth Club of the Association of Social and Behavioral Scientist, Inc. (ASBS); Member of the Georgia Vegetable Growers Association (GVGA) and Member of the Southern Natural Resources Economics Committee (SNREC). Address: P. O. Box 5236, Agricultural Research Station, Fort Valley State College, Fort Valley, Georgia 31030, Telephone (912) 825-6443.

CURRICULUM VITAE

I. Personal Data:

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Sex:	Male
Age:	39
Marital Status:	Married
Children:	2

II. Academic Qualifications:

B. S.	Fort Valley State College Fort Valley, Georgia	1970
M. S.	Tuskegee Institute Tuskegee Institute, Alabama	1973
Ph. D.	Ohio State University Columbus, Ohio	1978

III. Employment:

1982 - Present	Fort Valley State College Fort Valley, Georgia	Assistant Professor Ornamental Horticulture
1973 - 1982	Tennessee State Authority Muscle Shoals, Alabama	Horticulturist Waste Heat Greenhouse
1975 - 1978	Ohio State University Columbus, Ohio	Graduate Student
1972 - 1973	Tuskegee Institute Tuskegee Institute, Alabama	Instructor Landscape Design
1970 - 1972	Tuskegee Institute Tuskegee Institute, Alabama	Graduate Researcher Assistant
Summers - 1967, 1968, 1969, and 1970	Soil Conservation Service USDA	Soil Scientist Trainee

IV. Professional Growth and Development

A. Courses, Workshops and Symposia Attended

1. Workshop on "Tennessee Valley Greenhouse Vegetable," Chattanooga Tennessee, March 18-20, 1975.

2. Attended the "Thirteenth International Bedding Plant Conference and First Trade Show, Atlanta Marriott Hotel, Atlanta, Georgia, October 4-9, 1980.

3. Workshop on "Greenhouse Operation for Spring" Rural Development Center, Tifton, Georgia. Sponsored by Abraham Baldwin Agricultural College, Cooperative Extension Service, December 16, 1982.

4. Attended the "Forty-third Annual Meeting - Southern Region American Society for Horticultural Science," Sheraton-Atlanta, Georgia, February 6-8, 1983.

5. Attended the W. K. Kellogg Foundation and University of Florida National Conference - Food/Agriculture in Liberal Arts, University of Florida, Gainesville, Florida, January 3-6, 1984.

6. Attended the "Forty-fourth Annual Meeting - Southern Region American Society for Horticultural Science, Opryland Hotel, Nashville, Tennessee, February 5-7, 1984.

7. Workshop on "Landscape Planning for the Homeowner," Rural Development Center, Tifton, Georgia. Sponsored by Abraham Baldwin Agricultural College, Cooperative Extension Service, March 13, 1984.

8. Attended the "Forty-fifth Annual Meeting - Southern Region American Society for Horticultural Science," Biloxi Hilton, Biloxi, Mississippi, February 3-5, 1985.

9. Workshop on "Home Landscaping for Beginners," Callaway Garden, Pine Mountain, Georgia, February 9, 1985.

10. Workshop on "Lawn Construction and Care," Callaway Garden, Pine Mountain, Georgia, February 16, 1985.

11. Attended the "Eighty-second Annual Meeting - American Society for Horticultural Science, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, July 28 - August 2, 1985.

12. Attended the "Sixth Biennial Research Symposium," Pierremont Plaza Hotel, Atlanta, Georgia, October 20-22, 1985.

13. Attended the "Forty-sixth Annual Meeting - Southern Region American Society for Horticultural Science," Orlando, Florida, February 2-4, 1986.

14. Attended the "Eighty-third Annual Meeting - American Society for Horticultural Science (This meeting was an integral part of the XXII International Horticultural Congress)." University of California, Davis, California, August 10-18, 1986.

15. Attended the "Georgia Horticulture Society Meeting," Terrace Motel, Milledgeville, Georgia, October 24-25, 1986.

16. Attended the "Forty-seventh Annual Meeting - Southern Region American Society for Horticultural Science, Nashville, Tennessee, February 1-3, 1987.

17. Attended the "Georgia Horticultural Society Meeting," Stuckey Auditorium, Georgia Experiment Station, Griffin, Georgia, September 18-19, 1987.

18. Attended the "Seventh Biennial Research Symposium," Omni Shoreham Hotel, Washington, DC, October 4-7, 1987.

19. Attended the "Eighty-third Annual Meeting - American Society for Horticultural Science," Hyatt Orlando Hotel, Orlando, Florida, November 6-12, 1987.

B. **Membership in Professional Organizations**

1. Bedding Plant Inc.
2. American Association of Nurseryman
3. Southern Nurseryman's Association
4. American Society for Horticultural Science
5. Southern Region - American Society for Horticultural Science
6. American Camellia Society
7. Georgia Horticulture Society

C. **Publications and Papers**

1. Carter, J., B. Hotchkiss and S. L. Jackson. 1987. "Disinfection Methods for Reducing Contamination in Camellia Tissue." HortScience (Abstract) 22:94

2. Carter, J., B. Hotchkiss and S.L. Jackson. 1987, "Disinfection Methods for Reducing Contamination in Camellia Tissue Culture." A poster paper presented at the Eighty-fourth Annual Meeting, American Society for Horticultural Science, Orlando, Florida, November 6-12, 1987.

3. Brown, N. B., J. Carter and S. Mahotiere, 1987. "Economic Considerations for Fresh Market Cucumber Production using Trellising and Irrigation." Seventh Biennial Research Symposium. A paper presentation.

4. Brown, N.B., J. Carter and S. Mahotiere. 1987. "Economic Considerations for Fresh Market Cucumber Production using Trellising and Irrigation" Seventh Biennial Research Symposium. Abstract P. 55

5. Hotchkiss, B., S. L. Jackson and J. Carter. 1987. "Reducing Contamination in Tissue Culture of Camellias." The Camellia Journal, 42:4-7.

6. Carter, J. and C. Johnson. 1987. "Influence of Different Types of Mulches on Eggplant Production." This article has been reviewed and accepted for publication in HortScience.

7. Carter, J., B. P. Singh, and S. Mahotiere. 1987. Response of Cucumbers to Irrigation and Trellising. This paper has been reviewed and accepted as a Station publication.

8. Carter, J., N. B. Brown and S. Mahotiere. 1987. The Influence of Trellising and Irrigation on Economic Returns from Fresh Market Cucumbers. (Abstract)HortScience 22:721.

9. Jackson, S.L. B. Hotchkiss and J. Carter. 1987. "Reducing Contamination in Tissue Culture of Camellias," HortScience 22:733 (Abstract).

10. Johnson, C., J. Carter, U. Yadava and B. P. Singh. 1987. "Research Apprenticeship Students in Horticulture as a Recruitment Tool." HortScience 22:713 (Abstract).

11. Jackson, S., B. Hotchkiss, and J. Carter. "Reducing Contamination in Tissue Culture of Camellias." Paper was presented at the Forty-seventh Annual Meeting of the Southern Association of Agricultural Scientists, Horticulture Section J. B. Edmond Undergraduate Competition, Nashville, Tennessee, February 1-3, 1987.

12. Carter, J., N. B. Brown and S. Mahotiere. "The Influence of Trellising and Irrigation on Economics Returns from Fresh Market Cucumber." Paper was presented at the Southern Association of Agricultural Scientists, Horticulture Section - Poster Session, Nashville, Tennessee, February 1-3, 1987.

13. Johnson, C., J. Carter, U. Yadava and B.P. Singh. 1987. "Research Apprenticeship Students in Horticulture as a Recruitment Tool." Paper was presented at the Southern Association of Agricultural Scientists, Horticulture Section Education Session, Nashville, Tennessee, February 1-3, 1987.

14. Carter, J., B.P. Singh, and S. Mahotiere, "Influence of Trellising and Three Methods of Irrigation on Cucumber Production." A poster paper prepared and presented at the Forty-sixth Annual Meeting - Southern Region American Society for Horticultural Science, Orlando, Florida, February 2-4, 1986.

15. Carter, J., B. P. Singh, and S. Mahotiere, 1986. "Influence of Trellising and Three Methods of Irrigation on Cucumber Production." HortScience 21:945 (Abstract)

16. Carter, J. and C. Johnson, 1985, "The Use of Inexpensive Mulches in Home Gardens." A poster paper prepared and presented at the Eighty-second Annual Meeting-American Society for Horticultural Science, Virginia Polytechnic and State University, Blackburg, Virigina, July 28 - August 2, 1985.

17. Carter, J. and C. Johnson. 1985. "The Use of Inexpensive Mulches in Home Gardens." HortScience 20:68 (Abstract)

18. Johnson, C. and J. Carter, 1984. "Response of Tomatoes and Eggplants to Four Mulching Treatments." Fifth Biennial Research Symposium. A paper prepared and presented.

19. Johnson, C. and J. Carter, 1984. "Response of Tomatoes and Eggplants to Four Mulching Treatments." Fifth Biennial Research Symposium. P. 28. (Abstract)

20. Carter, J. "The Influence of Different Mulching Materials on Growth and Development of Eggplant." A poster paper prepared and presented at the Forty-fourth Annual Meeting of the Southern Association of Agricultural Scientists, Horticulture Section, Nashville, Tennessee, February 5, 1984.

21. Carter, J., 1984. "The Influence of Different Mulching Materials on Growth and Development of Eggplant." HortScience 19:211 (Abstract)

22. Carter, J. and R. S. Pile, 1982, "Using Heat from Power Plant Condenser Cooling Water for Greenhouse Tomato Production, HortScience 17:74-76.

23. Badger, P. C., R. S. Pile, D. W. Burch, J. Carter, and E. L. Waddell, Jr., "Greenhouse Heating with Heat via a Dry Heat Exchanger. Presented at the American Society of Agricultural Engineers Meeting. Paper No. 81-4028, Orlando, Florida, June 21-24, 1981.

24. Progress Report-"The Browns Ferry Waste Heat Greenhouse," Muscle Shoals, Alabama, Tennessee Valley Authority, Bulletin Z-117, August 1980.

25. Burns, E. R., J. Carter, R. S. Pile, and J. C. Roetheli, Corp Production in Humid Greenhouses Heated with Direct Contact Heat Exchanges and Power Plant Waste Heat. Proceeding of National Greenhouse Vegetable Conference, Cleveland, Ohio, September 1979.

26. Carter, J., W. L. Baurle and D. W. Kretchman, "The Influence of Root Temperature on Photosynthesis, Root Respiration and Root Development of Greenhouse Tomatoes." Presented at the Seventy-sixth Annual Meeting of the American Society Horticultural Science, Ohio State University, Columbus, Ohio, July 29-August 4, 1979.

27. Carter, W. L. Baurle and D. W. Kretchman, 1979. "The Influence of Root Temperature on Photosynthesis, Root Respiration and Root Development of Greenhouse Tomatoes." HortScience 14:473. (Abstract)

28. Carter, J. "Greenhouse Grower (Meeting a Success)" American Vegetable Grower and Greenhouse Grower 25:22, 1977 (see attachment). Progress Report 11-Using Power Plant Discharge Water in Controlled Environment Greenhouses. Muscle Shoals, Alabama, Tennessee Valley Authority, Circular Z-71, December 1976.

29. Crumbly, I. J. and J. Carter, "Future Possibility of Using Nuclear Power Plant Discharge Water in Greenhouse Vegetable Production." Presented at the Seventy-second Annual Meeting of the American Society of Horticultural Science, University Hawaii, Honolulu, Hawaii, August 1975.

30. Crumbly, I.J. and J. Carter, 1975. "Future Possibility of Using Nuclear Power Plant Discharge Water in Greenhouse Vegetable Production" HortScience 10:31 (Abstract) (See attachment)

31. Progress Report-Using Power Plant Discharge in Greenhouse Vegetable Production. Muscle Shoals, Alabama, Tennessee Valley Authority Bulletin Z-56, January 1975.

Research Proposals have been developed and approved on projects listed below. Research is being conducted and carried out on these projects.

1. Sprinkler vs Drip Irrigation in the Production of Fresh Market Cucumbers in Central Georgia.

2. In Vitro (Tissue Culture) propagation of Camellia Species.

3. Inexpensive Mulches for the Home Vegetable Garden (Eggplant Research).

RESUME'

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FORMAL EDUCATION:

1972-1974 **The Ohio State University** - Columbus, Ohio
Ph.D., 1974 - Major in Agricultural Administration, Minor in Higher Educational Administration and Guidance and Counseling

1968-1969 **Virginia State University** - Petersburg, Virginia
M.S., 1969 - Major in Agricultural Education, Minor in Agronomy

1961-1965 **The Fort Valley State College** - Fort Valley, Georgia
B.S., 1965 - Major in Animal Science, Minor in Agronomy and Poultry

1961 **Hazlehurst High School** - Hazlehurst, Georgia
Diploma

Post Doctoral Study: Fort Valley State College, Fort Valley, Georgia
Area of Concentration - Elementary Education - Curriculum Development and Supervision for Youth Programs - 1975-1977

CERTIFICATIONS - SPECIAL SCHOOLS AND TRAINING:

1977 **Integrated Pest Management**
Georgia Department of Agriculture
Atlanta, Georgia

1972 **Modern Management - Essentials of Supervision and Management**
USDA
Washington, D.C.

1971 **Introduction to Supervision and Management**
USDA
Washington, D.C.

CERTIFICATIONS - SPECIAL SCHOOLS AND TRAINING:

1971 **Principles of Management**
USDA
Washington, D.C.

1971 **Computer Concepts in Management**
USDA
Washington, D.C.

1971 **Dictation for Managers**
USDA
Washington, D.C.

1971 **Flu-Cured Tobacco Grading School**
USDA, C & MS
Raleigh, North Carolina

1971 **Burley Tobacco Grading School**
USDA, C & MS
Lexington, Kentucky

1971 **Orientation to Agricultural Stabilization**
USDA
Washington, D.C.

PROFESSIONAL EXPERIENCE:

1982-Present **Program Leader, Agriculture & Natural Resources**
The Fort Valley State College
Fort Valley, Georgia

1974-1982 **Agricultural Program Specialist and Assistant Coordinator**
The Fort Valley State College
Fort Valley, Georgia

1970-1974 **Tobacco Marketing Specialist**
Agricultural Stabilization and Conservation Service

United States Department of Agriculture
Washington, D.C.

1969-1970 **Administrative Officer**
Food and Nutrition Service

United States Department of Agriculture
Mobile, Alabama

1965-1969 **Soil Scientist**
Soil Conservation Service

United States Department of Agriculture
Ipswich, South Dakota

PROFESSIONAL EXPERIENCE:

1985 **Soil Conservationist**
Soil Conservation Service

United States Department of Agriculture
Swainsboro, Georgia

OTHER EXPERIENCES:

1976-Present **Farmer** - Fort Valley, Georgia

1985 **Elected County Commissioner**
Peach County At Large, Post 5

Planned, organized and managed fiscal operations of the county. These services are provided to 21,000 county residents.

1986-Present **Chairman,** Peach County Board of Commissioners

FELLOWSHIPS AND SCHOLARSHIPS:

United States Department of Agriculture
Long-Term Academic Fellowship (ASCS, Washington, D.C.) - 1972-74

Ohio State University Graduate
Administrative Associate
(The Ohio State University) - 1972-1974

Research and Teaching Assistantship
(Virginia State University) - 1968-1969

HONORS:

-**Chairman,** Minority Advisory Committee for Georgia's Third District Congressman, The Honorable Richard Ray
-**Distinguished Service Award** (United States Department of Agriculture)
-Nominated to the **"Agriculture Blue Ribbon Committee"** by the Honorable Richard Ray - 1985
-**Merit Award** (Georgia Black County Extension Agents)
-**Who's Who in Ohio Among Outstanding Citizens**
-**Outstanding Young Men of America**
-**Deacon,** Mt. Calvary Baptist Church
-**Dictionary of International Biography**
-**Houston Stallworth Achievement Award**
-**Citizenship Award by Lambda Chapter** - Omega Phi Fraternity Peach County Chapter

HONOR SOCIETIES:

Phi Delta Kappa
Gamma Sigma Delta

NATIONAL, REGIONAL AND STATE CONFERENCES, INSTITUTES, SEMINARS AND WORKSHOPS ATTENDED:

Forest Resource Management and Assistance Program for Small Private Land Owners. Fort Valley State College, Fort Valley, Georgia - 1981

Public Policy Workshop - 1985

National Workshop for Extension Program Leaders in Agriculture and Natural Resources

Consultant and Participant on Workshop for Rural Development and Cooperative Facilities in Dooly County. Unadilla, Georgia - 1981

Assisted Personnel & Staff Development Specialist, UGA, CES, with Recruitment Contacts at Fort Valley State College - 1981

Agriculture Career Awareness Symposium - 1981

Professional Agricultural Workers Conference. Tuskegee, Alabama - 1947-1980

Conference on Rural Development Issues in Georgia. Tifton, Georgia - 1979

Florida A&M University and University of Florida Home Gardening Demonstration Tour - 1975-1979

Project Clean Water - South (Soil Conservation Service Field Day) Unadilla, Georgia - 1979

National 4-H Paraprofessional Staff Development Seminar. Washington, D.C. - 1979

Marketing Alternatives for Fruit and Vegetables Procedures on Small Farms. Atlanta, Georgia - 1979

Swine Facility Tour for Small Farm Operations at the Upper Coastal Plains Research Station. Rocky Mount, North Carolina - 1979

"Sunbelt Exposition". Moultrie, Georgia - 1979-1981

Georgia Extension Service Annual Conference - 1974-1985

Muscadine Field Day. Griffin, Georgia - 1975-1981

Commercial Vegetable Short Course. Tifton, Georgia - 1979

National Civil Rights 1980 Workshop. Sponsored by USDA-SEA, New Orleans, Louisiana - 1979

NATIONAL, REGIONAL AND STATE CONFERENCES, INSTITUTES, SEMINARS AND WORKSHOPS ATTENDED:

National Home Horticulture Workshop for Extension Workers, Washington, D.C. - 1978

No-Till Demonstration. Fort Valley State College, Fort Valley, Georgia - 1978

Southern Small Farm Management Workshop. Nashville, Tennessee - 1978

Monthly - Extension State Staff Conference - 1974-1978

Monthly - Assistant Director, Agriculture and Natural Resources Meeting - 1976-1981

Farm Machinery Short Course. Tifton, Georgia - 1977

Georgia Small Farm Conference. Macon, Georgia - 1977

Swine Short Course. Tifton, Georgia - 1977

Beef Cattle Performance Seminar. Tifton, Georgia - 1977

New Agent Training for Extension Employees. Rock Eagle, Georgia - 1977

National Workshop for A&NR Program Leaders. Washington, D.C. - 1977

Harvest & Dry Grain Short Course. Tifton, Georgia - 1977

Resource Conference for New Extension Personnel - UGA, Cooperative Extension Service. Rock Eagle, Georgia - 1976

Small Farm Tour in the States of Texas and Missouri - 1976

Penalty Mail Workshop. University of Georgia, Athens, Georgia - 1976

Freshman Career Exploration Program. Fort Valley State College, Fort Valley, Georgia - 1975

PUBLICATIONS:

Hill, Glenwood F. - **"The Development of a Resource Unit in Plant Science."** Masters Thesis, Virginia State University , Petersburg, Virginia, 1969

"The Attitude of Tobacco Farm Operators Regarding The Relationship Between Smoking and Health." Ph.D., dissertation, The Ohio State University, Columbus, Ohio, 1974

PUBLICATIONS: **Life On The Farm Learning Package.** 1981: Revised, 1984

Atkinson, Ronald and Hill, Glenwood F., **"Successful Gardening in Georgia."** UGA-FVSC, Ext. Bul., 1977

"Georgia Small Farm Activities". Fort Valley State College, Fort Valley, Georgia, 1977

"Handbook for County Extension Program Assistants." Unpublished, Fort Valley Cooperative Extension Program, Fort Valley State College, Fort Valley, Georgia, 1978

"Saving e—Seven Steps to Success." FV-20-3, Fort Valley State College, Fort Valley, Georgia, May, 1980

"Home Gardening Guide." Cir. FV-10-0-23: 1980 (Monthly) to Present

"Poisonous Plants." Cir. FV-10-14-A, Fort Valley State College, Fort Valley, Georgia, 1981

Mahotiere, Sauveur and Hill, Glenwood F., **Basic Requirements For Growing Asparagus in Middle Georgia.** Fort Valley, Georgia, April, 1983

Mahotiere, Sauveur and Hill, Glenwood F., **Asparagus.** Fort Valley State College, Fort Valley, Georgia, 1984

Hill, Glenwood F., **"Alternative Farming Opportunities for the South."** Southern Rural Development Center, Mississippi State University, Starksville, Mississippi, 1987

ARTICLES:

CONFERENCES, INSTITUTES, SEMINARS AND WORKSHOPS ORGANIZED:

Home Slaughter Meat Cut-up Clinics - 1982-Present

Ham and Egg Breakfast - 1983-Present

Small Farm Trout & Catfish Clinics - 1983-Present

Co-Chair, Farm City Day Activities, Fort Valley State College - 1983-Present

Member, Committee for County Sanitation - 1985

Coordinated Seminar on Small Farm Programming in Georgia for Extension Professionals from Developing Nations, Fort Valley State College, Fort Valley, Georgia - 1981

"Beekeepers for Beginners", Fort Valley State College, Fort Valley, Georgia - 1981

"Coping With Farm Problems in the 80's" (Fort Valley State College), Fort Valley, Georgia - 1981

Coordinated educational visits and tours for Jamaican delegation, Fort Valley State College, Fort Valley, Georgia - 1981

Coordinated and developed "Life on the Farm Show", Fort Valley State College, Fort Valley, Georgia - 1980-Present

Team Taught - Agricultural Education 200 - "Cooperative Extension" Spring Quarter, Fort Valley State College, Fort Valley, Georgia 1978, 1980 and 1981

Coordinated educational visits, seminar and tour for International Agricultural Delegation - 1979-Present

Organized and conducted home gardening training for Christ United Methodist Church - Warner Robins, Georgia - 1979

Coordinated agent training in "Farm Management", Fort Valley State College, Fort Valley, Georgia - 1977

Coordinated vegetable production short course, Fort Valley State College, Fort Valley, Georgia - 1977

Coordinated and conducted agent training in "Income Tax Preparation and Farm Management" - 1977

Coordinated "Asparagus Field Day" - 1977 and 1978

Coordinated and conducted agent training in "Livestock Production and Management" - 1976

Coordinated and conducted Gardening Training for Selected Students for Mercer University, Macon, Georgia - 1976

PROFESSIONAL MEMBERSHIPS:

-University Sertoma
-National County Extension Agent Association
-Georgia Association of Educators
-American Vocational Association
-Prince Hall Masonic Temple No. 191
-Georgia Farm Bureau
-Alpha Phi Alpha Fraternity
-MASAB Shrine Temple No. 11
-Member, Georgia Association of County Commissioners
-Member, Georgia Association of Black Elected Officiation
-Member, Peach County Chamber of Commerce
-Member, Georgia Coalition of Black Women & Men
-Board of Directors, Community Hypertension Intervention Program

ACADEMIC RESEARCH AND TEACHING INTERESTS:

Higher Education
Administration
Production Agriculture and Extension

Member, Georgia General Assembly, House Agriculture Committee on Aquaculture - 1985

SPECIAL ASSIGNMENTS:
(Professional)

NATIONAL-Joint Fort Valley State College - Peace Corps Training Center - 1981

UNIVERSITY SYSTEM - University of Georgia - Fort Valley State College

College Committee on Extension Program Development that ultimately became The Fort Valley State College Cooperative Extension Program

University of Georgia - Fort Valley State College

Committee for the Coordination of Extension Programming for Small and Part-time Farmers

FORT VALLEY STATE COLLEGE — Member, Homecoming Committee and Co-Chairman Homecoming Parade Committee - 1980 and 1981

Co-Chairman, Sweet Potato Festival Committee - 1980-1981

Member, Planning Committee for Ohio Hall Renovation - 1980

SPECIAL ASSIGNMENTS:
(Professional)

Member, Committee to study procedures for Hiring Academic faculty and "Special Project" Employees in Agriculture - 1979

Search and Screening Committee for Animal Scientist - 1979

Member, Title XIII Committee for Animal Scientist - 1979

Search and Screening Committee for Horticulture Faculty - 1978 and 1979

Search and Screening Committee for College Farm Manager - 1979

Planning and Steering Committee for Fort Valley State College, Laboratory, Experiment and Demonstration Farm - 1976-1979

Chairperson, Publicity and Hospitality Committee for Division of Agriculture Picnic - 1977

FVSC Self-Study Committee - Standard Eleven - 1977

Member, New Workers Conference Committee - 1976

Member, Relationship Committee for Resident Instruction, Research, and Extension - 1976

Member, Recruitment Committee, Division of Agriculture - 1975

COOPERATIVE EXTENSION SERVICE - Member, District Agents for Agriculture and Natural Resources Committee - 1976-1981

Member, Georgia Extension Committee for Assistant Director of Agriculture and Natural Resources

Member, Search and Screening Committee for Assistant Director of Agriculture and Natural Resources

OTHER - Member, Central Georgia Small Farm Committee - 1979

COUNTY GOVERNMENT:

-Member, Committee on Taxation & Economy in Government - 1983-Present

-Chairman, Committee for County Building & Maintenance - 1985

-Member, Committee for Public Works & Safety - 1985

-Member, Committee for Law Enforcement - 1985

TELEVISION AND RADIO PROGRAMS:

WJIZ, WFDR, WFPM (Now WXKO) and WQBZ Radio Stations Talk Shows - 1977-1985

"Down On The Farm," WMAZ Television Station, Macon, Georgia - 1981

Channel 2, Atlanta - 1985; Channel 10, Albany - 1985; Channel 11, Atlanta - 1985; Channel 3 - Savannah, 1985

GRANTS AND PROPOSALS:

Co-Authored Contract No. 53-3157-5-6, Training and Technical Assistance for Small and Family Sized Black-Owned Farms in the state of Georgia

USDA Farmers Home Administration Sponsoring Agent - 1985 ($368,035.00)

Heifer Project Incernational Program $22,000.00, Heifer Project International Sponsoring Agent - 1983

Heifer Project International Program - $2,000.00, Heifer Project International Sponsoring Agent - 1981

Members of a team of scientist who wrote a proposal and received funding through U.S. Department of Commerce, Office of Minority Business Enterprise, to Research, Produce, Market and Process Domesticated Rabbit and other Grain Feeding Animals as a Major Food Source, Washington, D.C. - 1977 ($265,000.00)

Consultant "Urban Crest Beautification Project," Urban Crest, Ohio - 1973 ($70,000.00)

MILITARY DATA: Vietnam Veteran, U.S. Army, Two Years — Served as a Food Inspector, Preventive Medicine Inspector and a Medical Technician

FAMILY: Wife - Betty (Reading Teacher, Peach County High School)

Children - Glenwood F., II
Robford Elton Hill

RESUME

NAME:	James Irvin Kirkwood, Ph.D.
BIRTHDATE:	August 3, 1928
PLACE OF BIRTH:	Kansas City, Kansas
NATIONALITY:	U. S. Citizen
SEX:	Male
MAILING ADDRESS:	P. O. Box 5413 Fort Valley State College Fort Valley, Georgia 31030
FAMILY INFORMATION:	Married, two children

COLLEGIATE AND PROFESSIONAL EDUCATION:

Institution	Year	Major	Degree Awarded
Kansas State University	1952	Soil Conservation	B. S.
Kansas State University	1953	Soil Fertility	M. S.
Michigan State University	1962	Soil Biochemistry	Ph. D.

WORK EXPERIENCE AND CAREER:

Employer	Title	Year
U.S. Army (Honorable Discharge)	T/5	1946-1948
Bureau of Internal Revenue Kansas City, Missouri	File Clerk GS-2	1948
Armour Packing Plant Kansas City, Missouri	Student - Summer Work	1948-1952
Kansas State University Manhattan, Kansas	Research Assistant	1952-1953
Kansas State University Manhattan, Kansas	Temporary Instructor	1953
Prairie View A&M College Prairie View, Texas	Assistant Professor of Agro-Horticulture	1953-1959
Michigan State University East Lansing, Michigan	Graduate Fellow-NSF	1959-1962

Employer	Title	Year
Michigan State University East Lansing, Michigan	Research Assistant	1962
Prairie View A&M College Prairie View, Texas	Assistant Professor of Agronomy	1962 - 1965
Texas A&M/AID Contract in the Dominican Republic	Soils Advisor to the Dominican Republic	1965 - 1969
Texas Agric. Experiment Station Prairie View A&M University	Officer-in-Charge	1969 - 1976
Texas Agric. Experiment Station Prairie View A&M University	Professor and Research Coordinator	1970 - 1976
Prairie View A&M University Prairie View, Texas	Director of Tropical Soils Grant Program	1970 - 1976
Prairie View A&M University Prairie View, Texas	Director of Agricultural Research	1973 - 1976
Prairie View A&M University Prairie View, Texas	Chairman, Agricultural Executive Council of the College of Agriculture	1975 - 1976
Fort Valley State College Fort Valley, Georgia	Director of the Division of Agriculture and Allied Programs	1976 - 1984
Fort Valley State College Fort Valley State College	Acting Dean of Agriculture, Home Economics and Allied Programs	1984 - 1986
Fort Valley State College Fort Valley, Georgia	Director of International Programs	1981 - Present

MEMBERSHIPS:

Soil Science of America

Agronomy Society of America

Association of U.S. University Director of International Programs - AUSUDIAP

Member of the Joint Committee on Agricultural Development (BIFAD), 1977-1980

Trustee for the South-East Consortium for International Development - SECID

Society of Sigma Xi

Gamma Sigma Delta

Optimist International

Certification of Ordination, the Gospel Ministry, 1970

PUBLICATIONS:

1. Pasture Fertilization at Prairie View, 1955-57, PR 2109, Texas Agric. Experiment Station, J.I. Kirkwood, et. al.

2. Effect of Fumigation, Temperature, Level of Nitrate on Microbal Numbers, CO_2 Production and Nitrogen Transformation, in Organic Soil, Soil Science, 102: 131-8. J.I. Kirkwood, Wollcott, A.R., et. al.

3. Kirkwood, James I., Tejeda, Luis, et. al., Las Regiones Geomorficas En la Republica Dominicana. Secretaria de Estado de Agricultura, Division de suelos, San Cristobal, Republica Dominican, Marzo, 1969.

4. Kirkwood, James I., Santo Quintino et. al., Relaciones Generales Entre Plantas y Suelos. Secretaria de Estado de Agricultura, Division de suelos, San Cristobal, Republica Dominicana, Marzo, 1969.

5. Kirkwood, J.I., Brams, E., Chang, Y.P., The People Behind: A World-Wide Concern. Paper presented at the International Agronomy, Section of the American Society of Agronomy, 1972. Miami, Florida.

6. Collins, J.B., Polanco, J.I. Kirkwood, Soils of the Savanna Quabatico-Dominican Republic Departmental Technical Report No. 72-73.

7. Kirkwood, J.I., Lopez, C.E., Growth Patterns of Fusarium SP Under Different Concentrations of Urea Derivative Hervicides. TAES PR 3132, 1972.

8. Kirkwood, J.I., Chang, Y.P., Tropical Savanna - A Potential Frontier for Increasing Food and Fiber. Paper presented at the ASA Meeting, November, 1973.

9. Kirkwood, J.I., Brams, E., and Chang, Y.P., 1973. "World-Wide Rural Poverty: An Agronomist's Concern." Journal of Agronomy Education, Volume 2, pp 56-64.

10. Lopez, C.E., James I. Kirkwood, 1974. "Isolation of Microorganisms from a Texas Soil Capable of Degrading Urea Derivative Hervicides," Soil Science Society of America. Proc. Vol. 38 No. 2, pp. 309-312.

11. Kirkwood, J.I., Brams, E., and Brams, P., Grass Roots Institution Building: A Realistic Focus for Agricultural Development, College of Agriculture, Prairie View A&M University, 1974.

12. Kirkwood, J.I., et. al., Outlook on Institutional Involvement in International Programs, February 1983. Proceedings available.

HONORS:

National Science Foundation Fellowship, 1959

John H. Witney Opportunity Fellowship, 1961

Annual Recipient of the National Science Grant for Development of Science, PVAMU, 1969-73

AID Institution Grant, Tropical Soils, 1970-1976

Recognition for Outstanding Service, First Baptist Church, Santo Domingo, 1969

Prairie View A&M School of Agriculture Faculty Recognition for Outstanding Service, 1973

Profiles of Distinguished Black Americans

Personalities of the South, 1972

Outstanding Educators of America, 1973

20-Year Service Award, Prairie View A&M College, 1973

Recognition for Outstanding Contributors to the College of Agriculture, PVAMU, 1976

Appreciation for Outstanding Services to Division of Agriculture, Fort Valley State College, 1981-1982

INTERNATIONAL EXPERIENCE:

1. Soils Advisor to the Government of the Dominican Republic, Texas A&M/AID Contract to the Dominican Republic, 1965-1969.

2. Grant Director, 211(d) AID Grant - Soil Fertility Problems of Savanna-Prairie Ecology, 1970-1976.

3. Coordinator de Conferencia - Simposio Sobre Suelos de Sabana en el Tropico, Santo Domingo, Republica Dominicana 22-26 de Enero, 1973.

4. Field trip to study soil management and the development process five West African countries, Summer, 1973 (211 (d) Soils Grant).

5. Field trip to study soil management and the development process in Tropical America, February 11-24, 1974 (211 (d) Soil Grant).

6. Presentation of a paper at the Latin America Soil Science Society meetings, Medellin, Colombia, August 17-21, 1975.

7. Field trip to study selected phases of Title XII Implementation in the Philippines and Indonesia, August 6-19, 1978 (JCAD/BIFAD).

8. Field trip to study selected phases of Title XII Implementation in West Africa - Senegal, Cameroon, Mali, and Ivory Coast - May 4, 1979 (JCAD/BIFAD).

9. Field trip to the Dominican Republic with five core faculty members to determine the reality and advantages of a collaborative program and possible synthesis of technologies for the improvement of the productivity of small farmers, August, 1983. (Activity sponsored under Title XII Strengthening Grant).

10. Field trip to the Dominican Republic to confer with officials of the Government of the Dominican Republic (GODR) and Agency for International Development (AID) relative to the development of a MOU to facilitate cooperative efforts under Title XII. (January 31 - February 6, 1984).

11. Field trip to the Dominican Republic to conduct a needs assessment of soybean, sweet potatoes, and peanuts in the Dominican Republic under the auspices of Title XII. (April 1-4, 1984).

12. Field trip to the Dominican Republic to work on the State-of-the-Art Project on sweet potato and oil crops with Dominican counterparts. (October 30 - November 3, 1984).

13. Field trip to the Dominican Republic to meet with Agricultural Officials of the GODR in the development and implementation of plans of work for collaboration in ongoing projects.

14. Field trip to the Dominican Republic to confer with GODR and AID Mission Officials.

15. Field trip to Haiti to conduct an exploratory visit with the possibility of establishing linkages with the National Agricultural of Haiti. (March 19-25, 1986).

16. Field trip to the Dominican Republic to review with the new Secretariat of Agriculture in the Dominican Republic the current Nitrogen Fixation Project. (September 28 - October 7, 1986).

17. Field trip to the Dominican Republic to visit with officials of the state and private institutions of higher education to develop efforts in research and exchange in faculty and students and working on Nitrogen Fixation Project. (December 9-17, 1986).

18. Field trip to Kampala, Uganda to visit officials to strengthen and enhance future activities under the FVSC-OSU Joint Memorandum of Understanding. (January 15-22, 1987).

19. Field trip to Nairobi, Kenya to study mores, culture and environmental impact in Kenya. (January 22-25, 1987).

WORKSHOPS:

1. Attended Phase I of BIFAD Workshop on "Project Design, Implementation and Evaluation in College Park, Maryland. (October 28-31, 1985).

2. Attended Phases II of BIFAD Workshop on "Project Design, Implementation and Evaluation" in College Park, Maryland. (January 6-10, 1986).

3. Attended workshop on "Soil and Water Conservation on Steep Lands", in San Juan, Puerto Rico. (March 22-27, 1987).

OTHER:

In 1984, Drs. Ajmer Bhagsari, Albert Essel, and James Kirkwood and Dominican consultant, Ing. Julio C. Polanco made an in-depth study to determine current production practices on peanut, soybean and sweet potato with lower-than predicted productivity levels.

The present status of research and possibilities for economic expansion of these crops were studied, with the goal of increasing the productivity and quality of life of the Dominican Republic smallholders producing 70 percent of the country's food on farms averaging less than 6 ha.

CURRICULUM VITAE

PERSONAL DATA

Name:	Mark Latimore, Jr. Agricultural Research Station Fort Valley State College Fort Valley, Georgia 31030
Born:	September 11, 1951 Stewart County, Georgia
Sex:	Male
Citizenship:	U.S.A.
Marital Status:	Married
Children:	Two (Mark 7; Elisha, 8)
Mailing Address:	103-D Knollwood Drive Americus, Georgia 31709
Phone:	Home: (912) 928-2645 Office: (912) 825-6451

ACADEMIC QUALIFICATIONS

The University of Missouri-Columbia, Ph.D., Agronomy (Soil Microbiology and Biochemistry), 1983

The University of Georgia, M.S., Agronomy (Soil Microbiology and Biochemistry), 1975

The Fort Valley State College, B.S., Agronomy, 1973

EMPLOYMENT EXPERIENCES

Assistant Professor of Agronomy and Coordinator of Cooperative Education Program in the School of Agriculture	1984 - Present
Graduate Research Assistant and Independent Consultant Completion of Doctor of Philosophy degree	1982 - 1984
Agronomic Consulting with Chevron Chemical Company - ORTHO Research Agronomist: Responsibilities included agronomic assistance to sales representatives, fertilizer dealers, dealer/farmer customers and university staff to strengthen the fertilizer marketing program	1979 - 1982

Graduate Research Assistant 1973 - 1979
Research: Responsibilities included research towards a Master of Science degree and a Doctor of Philosophy degree in Soil Microbiology and Biochemistry. Laboratory experience included teaching and preparation and supervision of laboratories for Introductory Soil course, and Soil Microbiology.

ACCOMPLISHMENTS

- Designed laboratory manuals for use in Soil Science and Soil Fertility laboratories.
- Secured scholarship funding for Agronomy students in the School of Agriculture.
- Successful in securing graduate opportunities for students in the Department of Agronomy.
- Builded linkage with Federal and State agencies and private industry which led to job opportunities for students graduating in agriculture.
- Increased student enrollment in the Agronomy program via active recruitment.
- Developed linkage with the Soil Conservation Service which led to student placement and research opportunities.
- Encouraged students which led to increased achievements in the Agronomy program.
- Provided personal consultation to Key Ortho customers resulting in diagnosing common problems and recommending corrective measures which increased profit.
- Recommended fertilizer programs based on soil and plant analysis, crop requirements, and management practices which improved farmers awareness of futuristic benefits for proper soil care.
- Provided technical counseling and assistance to the company in matters involving product liability and/or damage claims.
- Trained district sales representatives, dealers, and dealer customers in the proper use of nitrogen fertilizers for maximum efficiency with top profits.
- Demonstrated the use of radio-isotopes in labeling photosynthate in soybeans resulting in the publications of such work.
- Demonstrated the use of a carbon-dioxide enriched atmosphere in increasing symbiotic nitrogen fixation and seen yield in soybeans.
- Utilized gas chromatography techniques in measuring nitrogenase activity in symbiotic nitrogen fixation studies.

- Utilized immunodiffusion in the study of Rhizobium japonicum strains identification from soils.

- Development of a Regional project via the Southern Soil Microbiology group.

CONTINUING EDUCATION

Dale Carnegie Effective Speaking Course
Xerox Professional Selling Skills II
Nebraska Dealer Training Seminar - UNL
Non-Parametric Statistics (Math 576)
Recombinant DNA Methodology Training Course

RELATED PROFESSIONAL EXPERIENCES

Member - American Society of Agronomy
Member - Georgia Chapter of the American Society of Agronomy
Member - Sigma Xi Scientific Research Society of North America
Member - Beta Kappa Chi National Scientific Honor Society
Member - Soil Conservation Society of America
Member - Southern Soil Microbiology Group

SIGNIFICANT PUBLICATIONS

1. Latimore, Mark, Jr., Joel Giddens and D. A. Ashley. 1977. Effect of ammonium and nitrate nitrogen on photosynthate supply and nitrogen fixation by soybeans. Crop Science. 17:399-404.

2. Pagashetti, B. K., Mark Latimore, Jr., and G. H. Wagner. 1977. Identification and recovery of Rhizobium japonicum strains from soil using a combination of antigenic and antibiotic resistance markers. Agronomy Abstract. p-151.

3. Latimore, Mark, Jr. 1983. Nitrogen fixation efficiency of Rhizobium japonicum inoculum in carbon dioxide enriched field-grown soybeans. Ph.D. Dissertation, University of Missouri-Columbia, Columbia, Missouri.

4. Latimore, Mark, Jr. 1975. Influence of Sodium Nitrate and Ammonium Sulfate on Translocation of ^{14}C-Labeled Photosynthate into Soybean Nodules. M.S. Thesis, University of Georgia, Athens, Georgia.

5. Latimore, Mark, Jr., B. K. Pugashetti and G. H. Wagner. 1977. Soybean nodulation and nitrogen fixation by Rhizobium japonicum strains in soils of different texture. Proc. of Sixth Rhizobium Conference. p-34.

6. Thorup, R. M. 1984. ORTHO-Agronomy Handbook: A . ractical Guide of Soil Fertility and Fertility and Fertilizer Use, Contributing Author, Fertilizer Division, Chevron Chemical Company, San Francisco, California.

AGRONOMIC PUBLICATION (Chevron Chemical Company - ORTHO)

1. Understanding cation exchange capacity
2. Potassium, calcium, and magnesium interactions in soil
3. Nebraska crop and fertilizer survey
4. Unipel 10-10-30: Ideal for soybeans
5. A need to know your soil organic matter level
6. Fertilization review on no-till practices
7. Relating soil pH to fertilizer use
8. Wheat: Topdressing ammonium nitrate a step up on urea
9. Effects of different fertilizers on wet meadow and bromegrass yields
10. Nutritional effects on legume nodulation and nodule formation
11. Sidedressing NH_3: Yields 182 bushels/acre corn
12. Hunger signs in corn, sorghum, and soybeans
13. Closing the margin on 200 bushels/acre corn
14. Effects of flooding on plant growth and nutrient uptake
15. Soybeans newsletter
16. Guar
17. Producing 149 bushels/acre dryland corn
18. Acid neutralizing ability of fluid lime suspension can be misleading
19. Fertilizer economics: Grain sorghum

RESEARCH GRANTS (Funded)

1. Project No. GEOX-5103.
   The influence of phosphorus, zinc, and lime on silage production in tripple cropping rotation.

2. Project No. GEOX-5501.
   Effect of soil conservation practices on the loss of soil and nutrients from agricultural watersheds.

3. AID Project.
   Screening grain legume germplasm for symbiotic nitrogen fixation and efficient Rhizobium strains (co-investigator).

SPECIAL RECOGNITIONS AND AWARDS

High School Valedictorian (1969)

Ralston Purina company, Fort Valley State College Agronomy Department, and Fraternity Scholarships (1971-1973)

Who's Who in Colleges and Universities (1970)

President of Georgia Graduate Agronomy Club (9174-1975)

Second place winner of Georgia Chapter of the American Society of Agronomy Seminar Contest (1975)

Outstanding Teacher of the Year, 1986-1987

Outstanding Young Men of America, 1987

FOREIGN TRAVEL

Dominican Republic - 1985

Republic of Guinea, West Africa - 1986

REFERENCES

Dr. Melvin E. Walker, Jr., Dean and Research Director, Agricultural Research Station, Fort Valley State College, Fort Valley, Georgia 31030. (912) 825-6320.

Dr. Willie J. Rawls, Head, Agriculture Instruction, Fort Valley State College, Fort Valley, Georgia 31030. (912) 825-6262.

Dr. James I. Kirkwood, Director, International Programs, School of Agriculture, Home Economics and Allied Programs, Fort Valley State College, Fort Valley, Georgia 31030. (912) 825-6327.

Dr. George H. Wagner, Department of Agronomy, College of Agriculture, Mumford Hall, University of Missouri, Columbia, Missouri 65211. (314) 882-2801.

Curriculum Vitae

SAUVEUR MAHOTIERE

[redacted]

P. O. Box 4093
Fort Valley State College
Fort Valley, Georgia 31030
(912) 825-6262, 6451, 6456

PERSONAL INFORMATION

Date of Birth:	April 11, 1938	Marital Status:	Divorced
Place of Birth:	Bodarie, Haiti (West Indies)	Children:	Daphne and Rose Barbara
		Health:	Excellent
Nationality:	U. S. Citizen	Height:	5'9"
SSN:	086-44-6540	Weight:	160 lbs.
Hobby:	Jogging		

Present Position: Professor of Horticulture, Fort Valley State College, Fort Valley, Georgia

Position Sought: Applied agronomic and/or horticultural research and/or administration in a Lesser Developed Country (LDC), preferably in West Africa.

DEGREES

B. S. in General Agriculture, August 1963. Faculty of Agronomy, Damien, Port-au-Prince, Haiti, West Indies.

M. S. in Plant Physiology, May 1967. Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica.

Ph. D. in Horticulture, September 1972. Michigan State University, East Lansing, Michigan 48824.

PROFESSIONAL EXPERIENCES

Director of Coffee Regeneration Program at Fond-des-Negres, Haiti, 1963-1965.

Professor of Plant Ecology and Chemistry at Kisangani High School, Democratic Republic of Zaire, 1967-1968.

Caseworker at New York City Department of Social Services, 1968-1969.

Graduate Assistant in the Department of Horticulture, Michigan State University, 1969-1972.

TEACHING EXPERIENCES

1967-1968, Kisangani High School. Zaire, Africa. Taught Plant Ecology, General Agriculture and Chemistry.

1972-Present, Fort Valley State College. Taught Plant Physiology, Food Technology, Marketing Technology, Nursery and Greenhouse Management, Vegetable Crops, Plant Physiology, Plant Propagation, Soil Management, Forage Crops.

LANGUAGE KNOWLEDGE

Contemporary Languages: English, French and Spanish (fluent in reading, speaking, writing).

Ancient Languages: Latin, Greek (read and write).

AWARDS

Fellowships: Haitian Government, 1958-63; Organization of American States, 1965-1967.

Michigan State University, 1972, Horticultural Graduate Student of the Year.

PROFESSIONAL ORGANIZATIONS

American Society for Horticultural Science
American Socity of Agronomy
Sigma Xi Society

CURRICULUM DEVELOPED

Ornamental Horticulture, submitted to Board of Regents of the University System of Georgia and the Faculty of Fort Valley State College. Bachelor of Science and Associate degree programs in Ornamental Horticulture. Approved in 1979. Being implemented.

ONGOING RESEARCH PROJECTS

FUNDED BY COOPERATIVE STATE RESEARCH SERVICES (CSRS). U.S. Department of Agriculture

An Evaluation of Asparagus of a High Income-Per-Acre Cash Crop for Limited Resource Farmers. Fort Valley State College.

Evaluation of Irrigated Trellised Cucumber as a High Cash Crop for Farmers with Limited Resources. Fort Valley State College.

Lime, Phosphorus and Zinc Application. Effects on Intensive Production of Silage Crops: Corn, Sorghum and Rye in the Middle Georgia Agro-climatic Conditions. Fort Valley State College.

COMMUNITY SERVICES

Helped organize tomato greenhouse workshop, 1973, Fort Valley State College.

Helped prepare water resource and utilization symposium, 1974, Fort Valley State College.

Organized workshop for home vegetable gardners, 1975, Fort Valley State College.

Organized workshops and field day for farmers interested in asparagus growing, Spring 1978 and 1979, Fort Valley State College.

Advised low-income families of Fort Valley community gardens, 1977 and thereafter, according to availability.

INTERNATIONAL EXPERIENCES

1959-1963, worked in Haiti in agriculture student summer training program in helping small farmers in tropical fruit and commercial vegetable enterprises. Assisted researchers in demonstration plots to strengthen small farmers' knowledge in these enterprises.

Worked as a consultant for SOVIR (MISEREOR) in Haiti, 1963-1965, in supervision of agricultural credit.

Spent two (2) years in Costa Rica as a graduate student. Had opportunity to do extension work with coffee farmers, 1965-1967.

Spent one (1) year in Zaire, West Africa, initiating high school students in practical agriculture, 1967-1968.

Spent five (5) weeks in Upper Volta participating in the design of a project on Agricultural and Human Resources Development financed by the Agency for International Development (AID) and implemented by the South-East Consortium for International Development (SECID), November-December 1977. Participated in writing the technical analysis of same project.

Feasibility study on Environmental Training Program for Africans. Participated in fact-finding trip to Mali, Senegal, Ivory Coast, Burkina Faso. January 1979. SECID-AID Project.

Prepared the Title XII Strengthening Grant Proposal for Minority Institution, 1979, funded by AID through the Board for International Food and Agricultural Development (BIFAD). Fort Valley State College.

October 1979-August 1982, Agronomy/Horticulture advisor at the University of Ouagadougou, Burkina Faso, West Africa in Project: Agricultural and Human Resource Development, AID/SECID. Worked on agricultural curriculum improvement at the University. Taught courses on Agroclimatology, Experimental Design, Fruit and Vegetable Crops, Soil Fertility, Soil Conservation. Actively participated in organization and development of a new research station for the University in Gampela. Introduced fruit trees at the station and initiated Agronomy and Horticulture research; advised 5 students in field work leading to preparation of "memoires" (Thesis) as a part of their graduation requirements.

Interim Chief of Party, Agricultural and Human Resources Development Project, Ouagadougou, Burkina Faso, July-October, 1981 and May-June 1982. Assumed the administrative leadership of the project during this period, in addition to being the technical advisor.

July 15-August 31, 1983, Agronomy/Horticulture consultant at the University of Ouagadougou in Project: Agricultural and Human Resource Development for follow-up and observations of work done at new research station at Gampela during previous assignment, and for helping a Burkinabe Graduate from a U.S. university plan and organize his teaching and research at the university and at Gampela.

January 1985-December 1986, Guinea, West Africa. Research Advisor, Smallholder Preparation Project funded by AID and implemented by SECID. I helped Guinean counterparts assigned to USAID laboratories of Plant Pathology, Nematology, Entomology and Plant Breeding and Improvement (Foulaya-Kindia) in organizing their respective laboratories. Participated in the socio-economic survey in the "sousprefectures" of Nialia and Tiro aimed at identifying the constraints to agricultural production in these areas. Helped elaborate and design their adaptive research project. Helped Guinean counterparts at the Center for Applied Research in Tindo (Faranah) in elaborating, planning and implementing their agronomic research intended to help smallholders in the area improve their productivity. Member of the design team assigned to elaborate and write long-term follow-up project intended to help smallholders increase productivity, taking into account the constraints identified in the field survey. Initiated, in cooperation with Guinean counterparts, applied research in the areas of weed control and soil fertility improvement through cultural practices, particularly multiple cropping. Introduction and trials of new varieties of rice, cassava and sweet potato. Introduction and trial of vegetable crops, particularly tomato, onions and okra. Sensitized Guinean counterparts to research by organizing workshops, seminars, and conferences on research methodology.

RESEARCH PUBLICATIONS IN PROFESSIONAL JOURNALS AND BOOK

Sanders, D. C. and S. Mahotiere, 1974. Water Management for Vegetables and Small Fruits in Water Resource and Utilization Symposium. M.C. Blount, editor. FVSC. Taylor County Printing Company.

Mahotiere, S., R. C. Herner and F. G. Dennis, 1976. Effect of Applied Growth Substances on Growth of Shoot Apices Excised from Onions in Rest. ASHS. 101: 211-213, 1976.

Mahotiere, S., R. C. Herner and F. G. Dennis, 1976. Effect of Temperature on Growth of Shoot Apices Excised from Onions in Rest. Hort. Sci. 11:154-155.

Mahotiere, S., 1976. Response of Asparagus Crowns to Ethephon and Gibberellic Acid. Hort. Sci. 11: 240-241. 1976.

Mahotiere, S., 1977. Lycopersicon vs. Lycopersicum. An Etymologic Viewpoint. HortSci. 12: 195-196.

Singh, B. and S. Mahotiere, 1980. Effect of Soil Profile Properties on Soybean Growth. Phyton, 39.

Mahotiere, S., C. Johnson and P. Cullers, 1987. Response of Asparagus Crowns to Dikegulac. Paper accepted for publication in Hortscience.

ABSTRACTS OF PAPERS PRESENTED

Mahotiere, S. and R. C. Herner, 1972. Effects of Temperature, Growth Regulators and Root Removal on Growth of Onion Shoots. Abstract. Hort. Sci. 7:325.

Mahotiere, S. and B. P. Singh, 1978. Growth, Carbohydrate and Nitrogen Content of Soybeans as Affected by Soil Profile Properties. Abstract. Paper presented at 1978 Annual Meeting of Southern Branch of American Society of Agronomy. Houston, Texas, 705, p. 2.

Mahotiere, S., C. Z. Somda, M. Ouedraogo and P. Cullers, 1983. Response of Corn and Peanut to Triple Superphosphate and Phosphate Rock Under Agro-climatic Conditions of Upper Volta. Agron. Abst. 1983 Annual Meeting.

Mahotiere, S., P. H. Cullers and N. Hicks, 1984. Growth of Asparagus Seedlings as Affected by Soils from Old Asparagus Field. Abstract. HortSci. 19:596.

Mahotiere, S., C. Johnson and P. Cullers, 1987. Positional Dominance and Growth of Asparagus Officinalis as Affected by Dikegulac. Paper presented. Abstract in ARD Seventh Biennial Research Symposium. pp: 40-41.

ABSTRACTS OF PAPERS PRESENTED (Cont'd)

Brown, N. B., J. Carter and S. Mahotiere, 1987. Economic Considerations for Fresh Market Cucumber Production Using Trellising and Irrigation. Paper presented. Abstract in ARD Seventh Biennial Research Symposium. p: 55.

Johnson, C., G. Hill, P. Cullers and S. Mahotiere, 1987. Growing Asparagus from Transplants. Abstracts. HortSci. 22: p. 723.

Johnson, C., S. Mahotiere and P. Cullers, 1987. Dikegulac and Positional Dominance of Asparagus. Abstract. HortSci. 22: p. 1040.

STATION PUBLICATIONS

Mahotiere, S., 1974. An Evaluation of Asparagus as a High Income-Per-Acre Cash Crop for Limited Resource Farmers. FVSC Res. Bul. 3:1214.

Mahotiere, S. and H. Stallworth, 1976. Studies on the Evaluation of Asparagus as a High Income-Per-Acre Crop for Limited Resource Farmers in Middle Georgia. Abstract. Presented at the Bicentennial meetings of the Historically Black Land-Grant Colleges and State Universities. Washington, DC, p. 53.

Mahotiere, S. and H. Stallworth, 1976. Yield Responses of Asparagus to Spacing. FVSC Res. Bull. 21-23.

Mahotiere, S., 1978. Potential for Asparagus Production in Middle Georgia. Asparagus Short Course Proceedings. Fort Valley State College, Fort Valley, Georgia, 15 p.

Mahotiere, S., 1978. Twice-a-year Harvest of Asparagus Under Middle Georgia Conditions, 1978. FVSC Research Bulletin. 2:25-27.

Mahotiere, S., 1978. Effect of Maleic Hydrazide on Winter Dormancy of Asparagus. FVSC Res. Bull. 2:29-32.

REFERENCES

Dr. Mark Wentling
AID Mission Director
Conakry
Department of State
Washington, DC 20520

Mr. Robert Hellyer
Agricultural Development Officer
Conakry
Department of State
Washington, DC 20520

Dr. Ed Vickery
Executive Director/SECID
300 Eastowne Drive
Suite 101
Chapel Hill, NC 27514

CURRICULUM VITAE

Personal Data:

Name: Mack C. Nelson

Place of Birth: Hiwannee, Mississippi (U.S.A.)
Sex: Male
Marital Status: Married
Citizenship: U.S.A.
Children: Two
Mailing Address: P. O. Box 5321
Fort Valley State College
Fort Valley, Georgia 31030
Telephone: (Home) 912/825-3843
(Office) 912/825-6447/6446

Academic Qualifications:

The University of Illinois, Urbana Campus, Ph.D.
Agricultural Economics (Production Economics and Farm Management), 1977

Tuskegee Institute, Tuskegee Institute, Alabama, M.S.
Plant and Soil Science (Soil Chemistry), 1974

Alcorn A&M College, Lorman, Mississippi, B.S.
Agriculture, 1970

Thesis and Dissertation:

M.S. - "The Effects of Fertilization on the Early Growth of Long Leaf Pines"

Ph.D. - "An Economic Analysis of the Long-Run Productivity Impacts of Soil Erosion Control"

Professional Employment Record:

1983 to present - Associate Professor
School of Agriculture, Home Economics and Allied Programs
Fort Valley State College
Fort Valley, Georgia 31030

1978 to 1983 - Assistant Professor
Division of Agriculture
Fort Valley State College
Fort Valley, Georgia 31030

1977 to 1978 - Assistant Professor
Department of Agricultural Economics
Prairie View A&M University
Prairie View, Texas

1974 to 1977 - Research Assistant
Department of Agricultural Economics
University of Illinois
Urbana, Illinois

1972 to 1974 - Research Assistant
Carver Foundation
Tuskegee Institute
Tuskegee Institute, Alabama

1970 to 1972 - U. S. Army

1970 to 1970 - Assistant County Supervisor
Farmers Home Administration
Mendenhall, Mississippi

Summers, 1968 and 1969 - Student Trainee
Farmers Home Administration
Waynesboro, Mississippi

Teaching: Nine years of teaching experience at the undergraduate level and one year at the graduate level. Subjects taught: Production Economics, Farm Management, Land Economics, Research Methods, Agricultural Prices, Marketing, Special Problems, Agricultural Finance, Farm Record and Taxation, Agricultural Policies, Introduction to Agricultural Economics and Seminar.

Research: Farmers Use of Public or Private Information in Production Decisions; The Use of Resources by Farm Size and Age of Operator; and Measures of Farmers' Willingness to Accept Risk.

Administration: Serve as Coordinator of Agricultural Economics, both teaching and research activities.

Service to Profession:

1. Member, American Agricultural Economics Association Permanent Committee on Opportunities and Status of Blacks in Agricultural Economics.

2. Member, American Agricultural Economics Association Ad Hoc Committee on Opportunities and Status of Blacks in Agricultural Economics.

3. Member, Southern Journal of Agricultural Economics Editorial Council.

4. Reviewer, Agricultural Research Directors Symposium Best Paper Award in Rural Development 1982 and 1985.

5. Member, Agricultural Economics Association of Georgia Membership Committee.

Membership in Professional, Service and Honor Societies:

American Agricultural Economics Association
Southern Association of Agricultural Economics
The Agricultural Economics Association of Georgia
Texas Academy of Science
Gamma Sigma Delta
Chi Gamma Iota
Phi Beta Sigma Fraternity, Inc.

Research Grants:

GEOX-2105 - Capital Needs and Credit Problems of Small Farmers

1890 Regional Project RR-2 - Factors Influencing the Survival of Small Farms in the South

Publications: Journal and Bulletin Articles, Abstracts and Presentations:

1. "Economics of Soil Erosion Control." Journal of Land Economics, Vol. 55, No. 1:28-42. 1979.

2. "An Analysis of Soil Erosion Control in A Watershed Representing Cornbelt Conditions." North Central Journal of Agricultural Economics, Vol. 1, No. 2:173-196. July, 1979.

3. "Demand and Supply Factors of Black Agricultural Economists." American Journal of Agricultural Economics, Vol. 65, No. 5:988-990. December, 1983.

4. "Price Levels and Price Variability for Selected Types of Food Outlets Within and Among Markets." Rural Sociology in the South, [illegible]-86, 1982.

5. "Emerging Research Issues Directed at Small, Low-Income, Limited Resource Farmers." American Journal of Agricultural Economics, Vol. 60, No. 5, December, 1978.

6. "Alternative Policies for the Control of Non-point Sources of Water Pollution from Agriculture." U. S. Environmental Protection Agency, May, 1978. 349 pages.

7. "Economic Impacts of Policies to Control Erosion and Sedimentation in Illinois and Other Corn-Belt States." Illinois Agricultural Economics Staff Paper 78E-44, 1978.

8. "A Comparison of a Risk Proxy with Levels of Income for Selected Georgia Farmers, presented at the annual meeting of the Southern Association of Agricultural Scientists, Atlanta, Georgia, 1983.

9. "Economic Impacts of Policies to Control Erosion and Sedimentation in Illinois and Other Corn-Belt States," presented at the Tenth Annual Best Management Practices for Agriculture an Silviculture, Rochester, New York, April, 1978.

10. "Analysis of Resources on Small, Low-Income Farms. The Economic Augmentation, Development and Alternative Uses." A USDA-CSRS Report. The College of Agriculture, Prairie View A&M University, Prairie View, Texas.

11. "Factors Associated with Families Escaping Poverty in Selected Middle Georgia Counties," presented at the CARD National Conference on Rural Research Needs, Technology and Development, May, 1979, Nashville, Tennessee.

12. "An Economic Analysis of Selected Soil Loss and Nitrogen Use Controls in a Representative Corn-Belt Watershed," presented at Population, Food, Resource and Environmental National Conference, February, 1980, Philadelphia, Pennsylvania.

13. "An Historical, Theoretical Analysis of the Poor: Perspectives on the Causes and Consequences of Poverty," presented at the annual conference of the Association of Social and Behavioral Scientists, March, 1980, Nashville, Tennessee.

14. "Price Levels and Price Movements for Selected Types of Food Outlets." ARD Research Symposium, November, 1980, Atlanta, Georgia (Abstract).

15. "Factors Affecting the Adoption of Farm Practices and Farm-Generated Income on Part-time Farms in Five North Georgia Counties," October, 1982, Orlando, Florida.

16. "Price Levels and Variability for Selected Types of Food Outlets," Southern Association of Agricultural Scientists, February, 1982, Orlando, Florida.

17. "Demand and Supply Factors of Black Agricultural Economists," Invited Paper, American Agricultural Economics Association Annual Meeting, August, 1983, Purdue University.

18. "A Comparison of Resource Use on Georgia's Farms: By Size," Southern Association of Agricultural Scientists, February, 1984, Nashville, Tennessee.

19. "Resource Use on Farms By Size: The Georgia Example," Association of Social and Behavioral Scientists. 1984.

20. "A Logit Analysis of Farmers Use of Public or Private Sources of Information," American Agricultural Economics Association, July, 1986, Reno, Nevada.

21. "A Measure of Georgia Farmers' Productivity at Different Ages," Agricultural Research Directors Sixth Symposium, Atlanta, Georgia, 1985.

22. "Factors Influencing Farmers' Decision to Use Public or Private Sources of Information," Southern Association of Agricultural Scientists, Orlando, Florida, February, 1986.

23. "A Logit Analysis of Farmers' Use of Farm Records and Budgets," Southern Association of Agricultural Scientists, Nashville, Tennessee, February, 1987.

24. "A Comparison of a Risk Proxy with Levels of Income for Selected Georgia Farmers," Forthcoming Research Report, FVSC Agricultural Research Station.

CURRICULUM VITAE

NAME: Syed F. Rahman

DATE OF BIRTH: [redacted]

CITIZENSHIP: U. S. A.

MARITAL STATUS: Married

PHYSICAL HANDICAP: None

I. Education:

Ph. D. (Major - Agronomy; Minor - Botany), University of Wisconsin, Madison, U.S.A., 1967
M. S. (Horticulture), University of Wisconsin, Madison, U.S.A., 1962.
M. S. (Agriculture), Agra University, India, 1958.
B. S. (Agriculture) Bihar University, India, 1956
I. Sc. Muslim University Aligarh, India 1953.
High School - Patna University, India, 1951.

II. Employment Record:

A. Full-time

1. 1980 - Present
Professor of Plant Science, The Fort Valley State College (University System of Georgia) Dr. Luther Burse, President
(a) Teaching experience in: 1) Principle of Weed Control (2) Crop Ecology; (3) Plant Physiology; (4) Agronomy 101; (5) Soil Fertility and Fertilizer; (6) Forage Crops, (7) Plant Pathology; (8) Greenhouse Management; (9) Turf Management and (10) Geology

(b) Research: (Recipient of grants)
(1) Corn Performance Trials.
(2) Intensive and multiple cropping to improve returns for limited Resource Farmers

2. September 1967 - December 1980
Associate Professor of Plant Science, The Fort Valley State College (University System of Georgia); Dr. C. W. Pettigrew, President
(a) Teaching experience in: (1) Principle of Weed Control, (2) Crop Ecology, (3) Plant Physiology; (4) Agronomy 101; (5) Soil Fertility and Fertilizer; (6) Forage Crops; (7) Plant Pathology and (8) Biology

(b) Research: Recipient of CSRS (USDA)
Influence of Herbicide on Protein and Carbohydrates Content in Soybeans.

3. January - August 1967:
   Project Associate, Department of Pediatric, University of Wisconsin, Madison, Wisconsin.
   a. Study of some of the enzymes involved in carbohydrate metabolism RBC.
   b. Separation of unknown compounds by using paper chromatography (Preliminary Study).

4. July 1958 - August 1960:
   Senior Scientific Assistant for Research and Development Work, Director of Agriculture, Bihar, India

B. Part-time: 1962 - 1966

Project Assistant, Enzyme Institute, University of Wisconsin, Madison, Wisconsin. Dr. Henry A. Lardy, Director

a. Metabolic Study on Thyroid Actimized Rats.
b. Isolation of Malate Enzyme from Pigeon Liver.

III. Thesis and Dissertation Titles:

Ph. D. Absorption and utilization of iron and phosphorus by inbreds of maize (Zea mays L.)

M. S. Rooting in cutting of some of the citrus species with special reference to hormones

IV. Publication:

1. 1983 "Corn Performance Tests," The University of Georgia, College of Agriculture Experiment Station, Research Report 442:17-20. Nov.

2. 1982 "Corn Performance Tests," The University of Georgia, College of Agriculture Experiment Station, Research Report, 387:17 Nov.

3. 1981 Corn Performance Tests. The University of Georgia College of Agriculture Experiment Stations. Research Report 387: 17, 1981.

4. Corn and Grain Sorghum Performance Tests. The University of Georgia College of Agriculture Experiment Stations, Research Report, 1980.

5. Water Potential Variation in Corn, Third Biennial Research Symposium, p. 38. 1980.

6. Corn and Grain Sorghum Performance Tests. The University of Georgia Experiment Station. Research Report 305:10 January 1979.

7. Corn and Grain Sorghum Performance Tests, University of Georgia College of Agriculture Experiment Station Research Report. 268:17, 1978.

8. Chemical Detoxification of Atrazine by Dexon - Soil Science Society American Journal. 41:141-142, 1977.

9. Influence of AAtrex on growth and carbohydrate content of soybeans (Glycine max) Proc. So. Br. Amer. Soc. Agron. p. 2, 1976.

10. A herbicide-fungicide interaction Proc. So. Br. American Society of Agronomy, p. 3, 1976.

11. Effect of s-Triazine and Dinto Herbicides on growth parameters, crude protein, and carbohydrate content of soybeans (Glycine max.) Agron. Abstr. p36, 1972.

12. Influence of some of the herbicide on morphology and crude protein content of soybeans (Glycine max.) proc. So. Agril Workers, Inc. p74, 1968.

13. Influence of herbicides on morphology and crude protein content of soybean. Nut. Bull. 2:35-45, 1970.

14. Response of maize inbred to iron and phosphorus in nutrient solution. Agron. Abstr. p37, 1968.

15. Rooting of grapefruit (C. paradisi) with reference to hormones. Sci. and Cult., 1959.

16. Effect of hormones on rooting of cuttings of sweet lime (C. limettoides). Science and Culture. 23:615-616, 1958.

17. Investigations in rooting of Kagzi lime (C. auratifolia) Cuttings. Allahabad Farmers. 32(2):1-3.

V. Membership:

1. American Society of Agronomy
2. Crop Science Society of America
3. Weed Science Society of America
4. Georgia Weed Science Society
5. Few Others

VI. Foreign Experience:

1. Full-time
   July 1958 - August 1960: Senior Scientific Assistant for research and development works in the state of Bihar. Director of Agriculture, Bihar, India.

2. Short-term Employment (less than 1 year):
   1957-58: Agricultural Inspector for Bihar field experiment station for soil analysis and fertilizer recommendation. Soil chemist, Bihar, India.

VII. Foreign Languages:

Reading, writing, and speaking - *Arabic, *Persian, Hindi, and Urdu
Some knowledge of **French

* Out of touch for quite some time
** Need additional training and orientation

VIII. Address and Telephone Number:

The Fort Valley State College, P. O. Box 5579, Fort Valley, Georgia 31030; 825-6234 (Office)

3690 Sugar Creek Lane, Conyers, Georgia 30208; (404) 388-7830 (Home)

IX. References:

1. Dr. James I. Kirkwood, Director of International Programs
   Fort Valley State College
   Fort Valley, Georgia 31030
   (912) 825-6328

2. Dr. F. Jalali, Professor and Head of Electronic Engineering Technology
   Fort Valley State College
   Fort Valley, Georgia 31030
   (912) 825-6264

3. Dr. I. Crumbly, Professor of Biology
   Fort Valley State College
   Fort Valley, Georgia 31030
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R E S U M E'

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FORMAL EDUCATION

Iowa State University, Ames, Iowa. Received Ph.D. degree in Agricultural Education in August, 1978. Minor emphasis: Basic Research. Major Professor: Dr. David L. Williams.

Dissertation Title: Parental perceptions of vocational agriculture supervised occupational experience programs in Iowa (unpublished doctoral dissertation, Iowa State University Library, 1978, pp. 189).

Tuskegee Institute, Tuskegee, Institute Alabama. Received M.Ed. degree in Agricultural Education in December, 1974. Minor emphasis: Agricultural Science. Major Professor: Dr. Cecil L. Strickland.

Fort Valley State College, Fort Valley, Georgia. Received B.S. degree in Plant and Soil Science in August, 1972. Major Professor: Mr. M. C. Blount.

PROFESSIONAL AND RESEARCH INTEREST

- Supervision and Administration of Agricultural programs
- Teacher Education in Vocational/ Agricultural Education
- Program Development and Evaluation of Agricultural and Extension Education
- Research and Program Development Rural Educationally Related Problems in Agriculture
- International Agricultural Education

- Curriculum Development
- Instructional Materials Development

PROFESSIONAL EXPERIENCES
(1978 to present)

Head, Department of Agricultural Instruction and Associate Professor of Agricultural Education, School of Agriculture, Home Economics and Allied Program, Fort Valley State College, Fort Valley, Georgia. The department consists of thirteen faculty with a majority having joint appointments with research. Also, it consists of six curricula areas. They are: (1) agricultural economics, (2) agricultural education, (3) plant science, (4) ornamental horticulture, (5) animal science, and (6) agricultural engineering technology.

Major Responsibilities as Department Head: Provide innovative and assertive leadership in teaching, program development and research; development budget and manage all assigned resources; identify and recommend faculty and staff annually; collaborate with public school personnel and implement formative and summative program evaluations. Responsible to the Dean of the School of Agriculture, Home Economics, and Allied Programs.

Major Responsibilities for Agricultural Education: Provide cooperative leadership for agricultural education; develop and teach courses in agricultural education; supervise student teachers in agricultural education; advise students, assist in the development of a graduate program in agricultural education; plan, conduct and disseminate research findings in agricultural education; provide support to state agricultural programs and participate in state, regional and national organizations and activities.

Undergraduate Course Responsibilities:
- Methods and Principles
  Vocational agriculture
- Program Planning in Vocational
  Agriculture
- Seminar/conducting FFA programs
- Seminar/Student Teaching
- Student Teaching Experience

Extension Small Farms Specialist and Associate Professor of Agricultural Education, School of Agriculture, Home Economics, and Allied Progrms, Fort Valley State College, Fort Valley, Georgia. **Major Responsibilities for Extension:** Responsible for planning, implementation and evaluation of programs relating to small farm enterprises and development; interpretation and promotion of USDA Agency Programs; promoting and urging adoption of research results obtained by research associates, specialists and scientists for the support, promotion and further development of small farms; development and promotion of small farm record-keeping system; development and promotion of small farm marketing strategies; study and interpretation of agency rules and regulations which impact small farm development; packaging of some in understandable form for dissemination; studying and interpretation of tax laws, purchasing and financing packages which benefit and encourage small farm development and ownership; designing, developing and implementing in-service training activities related to small farm development for Extension personnel in accordance with assessed needs and program directions; participating and contributing to the development and evaluation of Plan of Work; participating in short term and long range planning and serving on various committees.

Major Responsibilities for Agricultural Education: Developed and taught courses in agricultural education; assisted in recruitment and student teaching activities; assisted in development and implementation of a graduate program in agricultural education, served on various committees and participated in professional organizations.

VISITING PROFESSOR, USDA/Farmers Home Administration. Major Responsibilities: Studied agency programs and operations to determine methods for improving Black-owned farms through greater understanding and adoption of financial programs.

HEAD OF AGRICULTURAL EDUCATION AND ASSOCIATE PROFESSOR, School of Education, Department of Vocational, Technical and Adult Education, Tuskegee Institute, Tuskegee Institute, Alabama. **Major Responsibilities:** Provided overall leadership for agricultural education; taught both undergraduate and graduate courses in vocational and

agricultural education; directed graduate student thesis research; advised collegiate FFA chapter, supervised student teachers in agricultural education; planned, conducted and disseminated research findings, recruited students for the department; advised both undergraduate and graduate levels students served on various departmental, school and institutional committees and participated in state, regional and national professional organizations and activities.

Graduate Course Responsibilities:

- Curriculum and Materials Development in Vocational/Agricultural Education
- Community Leadership
- Supervision and Administration of Cooperative Extension
- Research Techniques in Vocational/Agricultural Education
- Evaluation of Vocational Education Programs
- Occupational Experience Programs in Vocational/Agricultural Education
- Occupational Guidance in Vocational/Agricultural Education
- Advanced Techniques in Teaching
- Special Problems in Vocational/Agricultural Education
- Thesis Research

Undergraduate Responsibilities:

- History and Principles of Cooperative Extension
- Methods of Teaching Vocational Agriculture
- Program Planning in Vocational Agriculture
- Supervised occupational experience in Vocational Agriculture

- Organizational Leadership and Summer Programs in Agriculture

- Student Teaching Experience

HEAD OF AGRICULTURAL EDUCATION AND ASSISTANT PROFESSOR, School of Education, Department of Vocational, Technical and Adult Education, Tuskegee Institute, Tuskegee Institute, Alabama **Major Responsibilities:** Same as described for Associate Professor.

RESEARCH ASSISTANT, Department of Agricultural Education, Iowa State University, Ames Iowa.

Major Responsibilities: Team taught undergraduate courses in agricultural education; supervised first year teachers; developed instructional materials and conducted research efforts within the Agricultural Experiment Station to include efforts such as instrument construction, data collection, analysis and dissemination. Project was directed by Dr. David L. Williams (1976 - 1978).

TEACHER OF VOCATIONAL AGRICULTURE, Bradwell Institute, Hinesville, Georgia. **Major Responsibilities:** Taught the following courses: (1) general agricultural science, (2) general horticulture and (3) general forestry. Conductged adult program efforts in horticulture, advised FFA organization, served on various school committees and participated in professional development workshops and organizations sponsored by the Georgia State Department of Education (1974 - 1979).

TEACHER ASSISTANT, Department of Vocational Technical and Adult Education, Tuskegee Institute, Tuskegee Institute, Alabama. **Major Responsibilities:** Taught out-of-school young adults developmental education as a part of a Manpower Development Project. Project was directed by Dr. Grady W. Taylor (1973 - 1974).

RESEARCH ASSISTANT, Department of Agricultural Science, Tuskegee Institute, Tuskegee Institute, Alabama. **Major Responsibilities:** Research and activities related to a soil compaction project. Research was directed by Dr. Wesley Nelson (1972 - 1973).

SOLDIER, U.S. ARMY, served honorably both in the Continental United States and in Southeast Asia (Vietnam). Attained the rank of Specialist 4 while serving in the Helicopter Aviation Detachment of the Americal Division, U.S. Army. During the Vietnam conflict, received 3 awards (1968 - 1970).

International Experiences:

Burkina Fasco (Upper Volta), West Africa: Participated in the 4th World Congress of Young Farmers: Role of Farm Organizations in Economics, Social and Cultural Development. Sponsored by the National FFA Center, Alexanderia, Virginia and Fort Valley State College USAID Strengthening Grant Program, December 1984.

Libera, West Africa: Responsible for developing a concept paper - "Health Promotion through Adolescents -- for proposal development and possible funding. Proposal was ultimately funded by PRICOR. Sponsored by Tuskegee Institute International Health Program: A USAID Strengthening Grant, April, 1983.

Liaison and advisor to Manpower Technical Teachers Training Program for Nigerian students. A USAID funded project, 1982-84.

Guyana, South America: Responsible for Evaluation of Agricultural Education and Extension Programs. A Baseline Study of Agricultural Research, Extension and Education. Sponsored by the Southeast Consortium for International Development (SECID), February, 1981.

PROFESSIONAL AFFILIATIONS
(1978 to present)

Membership:

- National Education Association
- Georgia Education Association
- American Vocational Associatione
- American Educational Research Association
- American Vocational Education Research Association

- American Association of Teacher Educators in Agriculture
- National Vocational Agriculture Teachers Association
- Georgia Vocational Agriculture Teachers Association
- National FFA Alumni Association (Life Member)
- Fort Valley State College National and Agriculture Alumni Associations
- Gamma Sigma Delta
- Phi Delta Kappa

Offices Held:

- Chairman, Southern Region Research Conference in Agricultural Education, 1984 - 1985.
- Chairman, Southern Region Agricultural Education Seminar for Teacher Education, 1984 to 1985.
- President, Phi Delta Kappa - Tuskegee Institute Chapter, 1983 - 1984.
- Secretary, Southern Region Agricultural Education Seminar and Research Conference, 1980 - 1981.

Board Appointments:

- Managing Board Agricultural Education Magazine, 1986 - 1988.

Other Appointments:

- Southern Region Editor of the Atricultural Education Magazine, 1986 -1988.
- FVSC/ABAC/UGA Joint Agricultural Committee, 1986 to present.
- Liaison Professor for Alabama Center for Higher Education, 1979 - 1984.
- Full member of the Graduate faculty, Tuskegee Institute, 1981 to 1984.

INSTITUTIONAL GOVERANCE
(1978 to present)

College Level:

- Member, Teacher Education Council, 1986 to present
- Member, Comprehensive Program Review Committee, 1986 to present
- Member, Institutional Outreach Committee, 1985 to present
- Member, Curriculum Committee, 1986 to present
- Member, Long Range Planning Committee, 1986 to present
- Member, President's Search Committee for Dean, School of Agriculture, Home Economics and Allied Programs
- Member, Faculty Senate, Tuskegee Institute, 1982 to 1984

School Level:

- Chairman, School of Agriculture Sunbelt Exposition Planning Committee, 1987
- Chairman, School of Agriculture Career Day Planning Committee, 1986
- Co-chairman, School of Agriculture Career 1986 to 1986
- Member, Promotion and Tenure Committee, 1985

RECOGNITIONS

Honors and Awards:

- Plaque for Outstanding Service by Agricultural Education Students, 1985 - 1986
- Certificate of Outstanding Service, Tuskegee Institute, 1983 - 1984

- Certificate of Achievement, Iowa State University, 1977 - 1978

Speeches and Presentations:

- **Survival Options of Small Farmers: A Review of Problems and Strategies:** A paper prepared and presented as the Keynote Address at the 1986 Capitol Forum, Fort VAlley State College, Fort Valley, Georgia, May 1986, 18 pp. (mimeographed)

- **Improved Vocational Agriculture through Student Visitation:** A paper prepared and presented at the Opening Session of the In-service meeting of Georgia Vocational Agriculture Teachers Association, Atlanta Georgia, August, 1985, 12 pp (mimeographed)

- **A Review of Research Conducted on Supervised Occupational Experience Programs.** A paper prepared and presented at an In-service Education Workshop for Vocational Agriculture Teachers, The University of Georgia, Agusut, 1986, 10 pp. (mimeographed)

- **Survival Options for Small Farmers.** A presentation made at the Banquet of the Thomasville Adult Farmers Association, Thomasville, Georgia, 1985, 17 pp. (mimeographed).

- **Improving the Teaching of Supervised Occupational Experience in Vocational Agriculture Programs.** A paper prepared and presented at In-service meeting of Alabama Vocational Agriculture Teachers Association, August 1982, pp. 17 (mimeographed)

- **Factors that Influence Agricultural Education Majors Career Objective.** A paper prepared and presented at the Thirtieth Southern Region Agricultural Education Research Conference, The University of Georgia, Athens, Georgia July, 1983, 12 pp. (mimeographed)

- **Criteria Analysis of Agriculturally Related Problems of Small Farm Operators.** A paper prepared and presented at the Twenty-Ninth Southern Region Agricultural Education Re-

search Conference, Mississippi State University, July 1980, 9 pp. (mimeographed)

- **Cluster Analysis and Relationship Between Benefits and Assistance Parents Provide Students in Supervised Occupational Experience Programs.** A paper prepared and presented at the Twenty-Eighth Southern Region Agricultural Education Research Conference, Mississippi State University, July 1980, 9 pp. (mimeographed)

- **Analysis of Career Related Experiences Derived from Vocational Agriculture by Agricultural Education Majors from Selected Land-Grant Institutions.** A paper prepared and presented at the Thirty-First Southern Region Agricultural Education Research Conference, July 1983, 10 pp. (mimeographed)

Review Teams:

- Alabama State Department of Education/Program Review Team for Vocational Agriculture Programs, 1982 to 1984.

Consultant Participation:

- FFA Public Speaking Contest (official judge), The University of Georgia, 1986.

- Referee, The Journal of the American Association of Teacher Educators in Agriculture, 1983 and 1984.

- Louisiana Board of Regents: An Evaluation of Agriculture Teacher Education Programs in Louisiana--Southern University, Louisiana State University and Louisiana Tech, October 1981.

- FFA Public Speaking Contest (official judge), Montgomery, Alabama, 1979 to 1981.

APPEARANCE BEFORE LEGISLATURE COMMITTEES

U.S. House of Representatives:

- Hearing on "Does Farm Financing Face Fundamental Change or Current Credit Crisis?", Washington, D.C., 1986.

Professional Development and Creative Works

Conference Proceedings:

- Developed and disseminated proceeding of the Thirty-Fourth Southern Region Agricultural Education Research Conference, March 1985.

Curriculum Materials Development:

- An Instructional Packet for Improving Basic Skill Competencies of Students Failing the Alabama High School Graduation Examination, Alabama Center for Higher Education, 1984, pp. 283.

- An Instructional Packet on Supervised Occupational Experience Programs of Beginning Vocational Agricultural Teachers in Iowa, Department of Agricultural Education, Iowa State University, 1979, pp. 159.

- Problems of Black FMHA Borrowers and Strategies for Improvement: A Preliminary Report prepared and presented to USDA/Farmers Home Administration, Athens, Georgia, 1986.

- A Follow-Up Study of Education Graduates, School of Education, Tuskegee Institute, 1984.

Seminars, Conference and Workshops Participation (partial list):

- Georgia Vocational Agriculture into the Twenty-first Century, The University of Georgia, Athens, 1987.

- Southern Region Agricultural Education Research Conference and Seminar. Sponsorec by Virginia Polytechnical and State University, Williamburg, Virginia, 1987.

- Georgia Vocational Education Association Conference, Atlanta, Georgia, 1987.

- Georgia Vocational Agriculture Teachers Association Conference, Atlanta, Georgia 1987.

- Designing, Conducting and Analyzing Relational Research, The Ohio State University during AVA, Dallas, Texas, 1986.

- Presider, Opening Session of the Thirty-Fourth Southern Region Agricultural Education Conference, Mobile, Alabama, 1985.

- Presider, The Sisty-Fourth Agricultural Education Seminar for Teacher Educators in Agriculture, Mobile, Alabama, 1985.

- President, Second General Session of the Thirty-Fifth Southern Region Agricultural Education Research Conference in Little Rock, Arkansas, 1966.

- American Vocational Association Annual Meeting, Atlanta, Georgia, 1985.

- American Vocational Education Research Conference, Atlanta, Georgia, 1985.

- National Agricultural Education Research Conference, Atlanta, Georgia, 1985.

- Southern Region Agricultural Education Research Conference and Seminar. Sponsored by the University of Arkansas, Little Rock, Arkansas, 1985.

- USAID Seminar and Workshop on Developing Agricultural Education Strategies for Africa, Washington, D.C., 1983.

- Presider, Fourth General Session of the Southern Region Agricultural Research Conference in Agricultural Education, Raleigh, North Carolina, 1983.

- Seminar and Workshop on Proposed Writing for Funding and Publications. The Ohio State University, Columbus, Ohio, 1983.

- Seminar and Workshop on Proposal Writing for Funding and Publications, The Ohio State University, Columbus, Ohio, 1982.

- Presider, Second General Session of the Southern Regions Conference in Agricultural Education, Auburn University, Alabama, 1980.

PUBLICATIONS

Referred Articles:

- Rawls, Willie J. and Wilburn Weever. Factors That Influence Agricultural Education Majors Career Object. The Journal of the American Association of Teacher Educators in Agriculture. (IN REVIEW, 1987).

- Rawls, Willie J. and Lucas O. Fatunsin. Importance and Utilization of Professional Competency Areas Needed by Vocational Educators. The Journal of Vocational Education Research, Vol. X, No. 1, 1985.

- Findlay, Henry J. and Willie J. Rawls. Factors That Influence Agriculture Career Objectives Among Students Attending Historically Black Four-year Institutions. The Journal of the American Association of Teacher Education in Agriculture Vol. 25, No. 1, 1984, pp. 28-34.

- Rawls, Willie J. Analysis of Benefits Derived from Supervised Occupational Experience Programs. The Journal of the American Association of Teacher Educators in Agriculture, Vol. 22, No. 1, 1981, pp. 31-38.

- Rawls, Willie J. Relationship Between Parent Occu-Pation Selected Factors Related to Student Supervised Occupational Experience. The Journal of the American Association of Teacher Educators in Agriculture, Vol. 22. No. 1, 1981, pp. 35-40.

- Rawls, Willie J. Parental Perception of Benefits Vocational Agriculture Students Derived from Supervised Occupational Experience. The Journal of the American Association of Teacher Educators in Agriculture, Vol. 21, No. 3, 1980, pp. 14-17.

- Rawls, Willie J. and David L. Williams. Parental Assistance in Providing Supervised Occupational

Experience Through Vocational Agriculture. The Journal of Vocational Education Research, Vol. 4, No. 2, 1979, pp 31-42.

Non Referred Articles:

- Williams, David L. and Willie J. Rawls. Supervise Occupational Experience. The Agricultural Education Magazine. Vol. 49, No. 7, 1977, pp. 152-153.

- Rawls, Willie J. Parental Perceptions of Vocational Agricultural Supervised Occupational in Iowa. (Unpublished doctoral dissertation. Iowa State University Library, 1978, po. 189)

- Rawls, Willie J. Parental Involvement in Supervised Occupational Experience. The Agricultural Education Magazine, Vol. 54. No. 5, 1981, pp. 17-18.

Theses Directed:

- Daw, Alton A. Perceptions of Abilities and Skills for Farm Business Analysis Needed for Successful Farm Operation. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1984, pp. 163)

- Jedge, O. Analysis of Curriculum Content Needed for Training Preservice Agricultural Extension Agents. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1981, pp. 218)

- Fatunsin, Lucas. Perceived Importance and Extent of Use of Professional Agriculture Education Competencies Needed by Vocational Agriculture Teachers. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1983, pp. 119)

- McKay, Jennifer E. A Study of the Perceptions of Home Economics Majors and Non-Majors in Minority Colleges of Factors that Influence their Career Objectives. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1983, pp. 118)

- Weever, Wilburn. Analysis of Career Related Experiences Derived from Vocational Agriculture and Agricultural Education Majors from Selected Land-Grant Institutions. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1983, pp. 160)

- Findlay, Henry J. Factgors That Influence the Career Objectives of Agricultural Students. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1983, pp. 109)

- Graham, L. A. Role of Paraprofessionals in the Implementation of Programs of Small, Limited Resource Farmers. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1982, pp. 71)

- Muneo, Moses. Professional Agricultural Worker Perception of the Problems of Small Farm Operators in Selected Counties in Alabama. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1982, pp. 88)

- Gordon, Howard R. D. A Study of the Federation of Southern Cooperative Consortium in Working with Low-Income Farmers. (Unpubished Master's Thesis, Library, Tuskegee, Institute, 1981, pp. 102)

- Jenkins, Ivan A. A Study of the Human Resources Development Center's Community Education Program. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1984, pp. 218)

- Haynes, Douglas M. Professional Workers' Perceptions of Approved Agriculturally Related Practices Among Small Farm Operations. (Unpublished Master's Thesis, Library, Tuskegee Institute, 1980, pp. 102).

RESEARCH GRANTS AND PROPOSAL DEVELOPMENT

U.S. Department of Agriculture:

- Strategies for Curriculum Revision and Program Restructuring of Resident Instruction in Agriculture, 1987.

- USDA Strengthening Educational Capacities in Food and Agricultural Sciences: Student Recruitment/Faculty Development, 1987. $ 102,496

- Strengthening Educational Capacities in Food and Agricultural Series: Student Recruitment, 1985. 107,777

- Small Landowners Information Project A Pilot Project for Small and Family-Sized Black-owned Farms, 1985.	368,000
- A Program for Assisting Small Farmers in Fort Valley State College Cooperative Extension Program Target Counties in the Adoption of Information for Managerial Decision Making, 1984.	Not Funded
- Agriculturally Related Problems of Small, Low Income Farmers, 1980-1984.	27,782
- Consumer Problems Related to Stress and Frustrations Among Single Parent Families, 1979.	22,397

Other:

- Agricultural Career Awareness, Dupont De Nemours and the National 4-H Council, 1985.	13,000
- Improving Basic Skills of Students Failing the Alabama High School Graduation Examination, The Alabama Center for Higher Education.	1,960
- Research and Development of Vocational Agricultural Supervised Occupational Experiences Programs in Alabama, Talston Purina Foundation, 1981.	Not Funded

PERSONAL DATA

Date of Birth:	[redacted]
Place of Birth:	
Marital Status:	Married
Dependents:	Betty J. Rawls, wife Brandis M. Rawls, daughter, 6
Health:	Good
Hobbies:	Fishing, Hunting, Softball and Farming

REFERENCES

Available upon request.

CURRICULUM VITAE

Personal Data:

Name: Bharat P. Singh

Date and Place of Birth: July 5, 1942; India
Sex: Male
Marital Status: Married
Citizenship: U.S.A.
Children: Two
Mailing Address: P. O. Box 5392
Fort Valley State College
Fort Valley, Georgia 31030
Telephone: (Home) 912/923-0518
(Office) 912/825-6446

Academic Qualifications:

Montana State University, Ph.D., Crop and Soil Science, 1972
Bozeman, Montana

Bhagalpur University, M.S., Horticulture, 1965
Bhagalpur, India

Ranchi University, B.S., Agriculture, 1962
Ranchi, India

Thesis and Dissertation:

M.S. - Effects of plant growth regulators on growth, yield, and quality of tomato.

Ph.D. - Growth and developmental responses of height and leaf color isogenic barley, *Hordeum vulgare* L., lines to cultural treatments

Employment Record:

1978 to present - Associate Professor
School of Agriculture, Home Economics and Allied Programs
Fort Valley State College
Fort Valley, Georgia 31030

1972 to 1978 - Assistant Professor
Division of Agriculture
Fort Valley State College
Fort Valley, Georgia 31030

1970 to 1972 - Research Assistant
Plant Science Department
Montana State University
Bozeman, Montana

1966 to 1968 - Research Assistant
Crop Science Department
Oregon State University
Corvallis, Oregon

1962 to 1966 Agriculture Officer
Department of Agriculture
Government of Bihar, India

Professional Experience:

Teaching: Fourteen years of teaching experience. Courses taught: Introductory Crop Science, Crop Ecology, Crop Improvement, Plant Propagation, Vegetable Crops, Nursery and Greenhouse Management, and Chemistry of Soils.

Research: Twenty years in research. Research aimed at increasing the productivity of agricultural and horticultural crops. Areas of research include irrigation and water management, soil conservation and fertilization of crops, intensive crop management. Authored several journal articles, research bulletin articles, and abstracts in professional journals (list attached).

Extension: Two years in extension. Established and managed a 25-acre agricultural demonstration and seed multiplication farm. Conducted demonstration trials on fertilizer, improved seeds, and best management on farmers' plots.

Membership in Professional Societies:

American Society of Agronomy
Crop Science Society of America
Soil Science Society of America
American Society for Horticultural Scientists
Southern Association of Agricultural Scientists
Southern Region American Society for Horticultural Science
Georgia Chapter of American Society for Horticultural Science

Research Grants:

Have acted a principal or co-investigator on the following Cooperative State Research Service (CSRS) research grants

1. Nitrogen fertilization studies in soybean.

2. Water stress and soybean yield.

3. Higher soybean yields from organic fertilizers: a causal analysis.

4. Antitranspirants and plant character effects on moisture stress tolerance by soybeans.

5. Evaluation of soybean germplasm for stress tolerance and biological efficiency.

6. Asparagus as a high income cash crop for small farmers.

7. Effect of soil conservation practices on the loss of soil and nutrients from agricultural watersheds.

8. Irrigated trellised cucumber as a high income per acre cash crop for small farmers.

9. Irrigation studies with selected vegetable crops.

PUBLICATIONS:

A. Journal Articles

1. Singh, B. P. and E. N. Whitson. 1976. Evapotranspiration and Water Use Efficiency by Soybean Lines Differing in Growth Habit. Agron. J. 68:834-835.

2. Singh, B. P. 1977. Response of Height Isogenic Barley Lines to Cultural Treatments. Yield and Yield Components. Cereal Research Communication. 5:409-417.

3. Singh, B. P. 1978. Effect of Shade on Growth of Spring Barley. Phyton. 36:53-59.

4. Singh, B. P. 1978. Effect of Leaf Color on Growth of Spring Barley. Cereal Research Communication. 6:35-42.

5. Singh, B. P. 1979. Growth Responses of Barley Height Isogenics to Cultural Treatments. Phyton. 37:41-48.

6. Singh, B. P. and S. Mahotiere. 1980. Effects of Soil Profile Properties on Soybean Growth. Phyton. 39:147-152.

7. Singh, B. P. and B. A. Phillips. 1980. Adaxial and Abaxial Stomatal Frequency in Soybeans. Phyton. 38:81-84.

8. Singh, B. P. and B. A. Phillips. 1983. Seasonal Nodule Activity Profile of Field Grown Soybeans. Acta Agronomica 32:375-377.

9. Singh, B. P. 1987. Effect of Irrigation on the Vegetative Growth and Yield of Okra. HortScience(forthcoming).

B. Book and Bulletin Articles

1. Singh, B. P. and E. N. Whitson. 1976. Effect of Growth Habit on Soybean Water Use. Fort Valley State College Research Bulletin. 1:40-44.

2. Singh, B. P. and E. N. Whitson. 1976. Tillage and Fertilization Effects on Water Use and Yield of Soybean. Fort Valley State College Research Bulletin. 1:45-51.

3. Singh, B. P. 1978. Use of cattle manure as a soybean fertilizer. Fort Valley State College Research Bulletin. 2:33-38.

4. Sepra, V., C. C. Tiwari, P. E. Igbokwe, S. Edung, L. Russel, B. P. Singh, M. Rangepper, P. S. Benepal, R. P. Pacumbaba, R. B. Dodson, J. Joshi, L. Murphy, A. S. Bhagsari, M. Floyd, R. Garner, M. Molchergi, M. M. Reddy, and J. R. Allen. 1984. Evaluation of Soybean Germplasm for Stress Tolerance and Biological Efficiency. Soybean Genetics Newsletter. 11:61-79.

5. Singh, B. P. 1987. Effect of Water Stress on Dry Matter Accumulation and Yield of Soybean. Fort Valley State College Research Bulletin (forthcoming).

C. Abstracts

1. Singh, B. P. and J. H. Brown. 1972. Agronomic Studies with Isogenic Lines of Barley. Western Soc. Crop Sci. Abst. p. 8.

2. Brown, J. H. and B. P. Singh. 1972. Effects of Shading and Leaf Color on Barley Growth and Water Use. Western Soc. Crop Sci. Abst. p. 10.

3. Singh, B. P. 1973. Vegetative and Grain Yields of Maturity Isogenes of Barley Grown on Dry Land as Affected by Nitrogen Fertilization. Proc. Sou. Assoc. Agri. Workers. p. 53.

4. Singh, B. P. 1974. Analysis of Interrelationships Among Vegetative Growth Parameters, Plant Nitrogen Content, and Grain Yield in the Soybean. Sou. Assoc. Agri. Sci. Abst. p. 14.

5. Singh, B. P. 1975. Growth and Yield Responses of Nodulation Isogenic Soybean, Glycine max L. Merrill, to Organic and Inorganic Forms of Nitrogen Fertilization. Agron. Abst. p. 86.

6. Singh, B. P. 1976. Yield and Water Use in Soybeans as Affected by Deep Chiseling and Cattle Manure Fertilization. Sou. Assoc. Agri. Sci. Abst. p. 1.

7. Singh, B. P. 1976. Water Use by Soybeans on Georgia Light Textured Soils. First Biennial Symposium. Historically Black Land-Grant Colleges and Universities. p. 54.

8. Singleton, M. E. and B. P. Singh. 1977. An Automated Light Weight Prefabricated Rain Shelter for Field Moisture Studies. Agron. Abst. p. 92.

9. Bhagsari, A. S., B. A. Phillips and B. P. Singh. 1977. The Effect of Phenylmercuric Acetate on the Diffusive Resistance of Field Grown Soybeans. Sou. Assoc. Agri. Sci. Abst. p. 9.

10. Singh, B. P., B. A. Phillips and A. S. Bhagsari. 1977. Nitrogenase Activity and Leaf Diffusion Resistance in Soybean: Effect of Soil Moisture. Sou. Assoc. Agri. Sci. Abst. p. 1.

11. Bhagsari, A. S. and B. P. Singh. 1978. Effect of Antitranspirants on Diffusive Resistance and Yield of Soybeans. Georgia Agron. Abst. p. 6.

12. Bhagsari, A. S. and B. P. Singh. 1978. Diffusive Resistance, Nitrogenase Activity and Yield of Hair Isogenic Soybean Under Moisture Stress. Agron. Abst. p. 70.

13. Wahctiere, S. and B. P. Singh. 1978. Growth, Carbohydrate and Nitrogen Content of Soybean as Affected by Soil Profile Properties. Sou. Assoc. Agri. Sci. Abst. p. 2.

14. Bhagsari, A. S. and B. P. Singh. 1978. Effect of Moisture Stress on Diffusive Resistance, Nitrogenase Activity and Yield of Soybeans. Sou. Assoc. Agri. Sci. Abst. p. 5.

15. Singh, B. P. 1979. Flowering and Fruiting in Soybeans Under Moisture Stress During Early Reproductive Period. Sou. Assoc. Agri. Sci. Abst. p. 9.

16. Singh, B. P. 1979. Responses of Soybeans to Soil Moisture Stres. Proc. World Soybean Res. Conf. II. p. 57.

17. Singh, B. P. 1980. Yield-component Variations Among Soybeans Grown at Different Moisture Regimes. Third Biennial Symposium. Historically Black Land-Grant Colleges and Universities. p. 31.

18. Singh, B. P., S. F. Rahman, and N. Pariyadath. 1981. Variation in Water Potential Among Corn and Soybean Strains. Sou. Assoc. Agri. Sci. Abst. p. 14.

19. Pariyadath, N. and B. P. Singh. 1981. Nitrogen Fixation by Soybeans Under Progressively Increasing Soil Moisture Stress. Sou. Assoc. Agri. Sci. Abst. p. 7.

20. Singh, B. P. and N. Pariyadath. 1982. Changes in the Uptake and Distribution of Nitrogen in the Soybean Plant as Affected by Variation in Soil Moisture Levels. Fourth Biennial Symposium. Historically Black Land-Grant Colleges and Universities. p. 24.

21. Singh, B. P. and C. A. Lee. 1984. Diurnal Variability in Diffusive Resistance, Transpiration and Water Potential in Soybean at Optimum and Stress Soil Water Conditions. Fifth Biennial Symposium. Historically Black Land-Grant Colleges and Universities. p. 27.

22. Singh, B. P. and C. A. Lee. 1984. Effect of Soil Water Conditions on Early Growth of Soybean and Wheat. Agron. Abst. p. 136.

23. Singh, B. P. and C. A. Lee. 1985. Irrigation Needs in Okra Production. HortScience 20:551.

24. Singh, B. P. and C. A. Lee. 1985. Effect of Soil Water Regimes on Snap Bean Yield. HortScience 20:657.

25. Singh, B. P. and C. A. Lee. 1985. Vegetative Growth and Fruit Yield in Eggplant at Different Irrigation Levels. HortScience 20:665.

26. Carter, J., B. P. Singh and S. Mahotiere. 1986. Influence of Trellising and Three Methods of Irrigation on Cucumber Production. HortScience 21:945.

THE MOREHOUSE SCHOOL OF MEDICINE

Daniel Blumenthal, M.D., M.P.H.
Frank Cook, M.D.,
Charles Finch, M.D.
Michael Finch, M.D.
Virginia Floyd, M.D.
James Goodman, Ph.D.
Robert Holland, Ph.D.
Rudolph E. Jackson M.D. 146

Virgil Jacobs, Ph.D
Gordon Leitch, Ph.D
David R. Mann, Ph.D
Cyril Moore, Ph,D
Ramchandra Navalkar, Ph.D
Thomas Norris, Ph.D
Elena Perry-Thornton, M.D. 147

James Reed, M.D.
Stanford A. Roman, Jr. M.D.
Louis W. Sullivan, M.D.
F.C. Sung, Ph.D 148

Niranjan Talukder, Ph.D
Paul Urso, Ph.D 149

Daniel Blumenthal, M.D., M.P.H., Professor and Chairman, Department of Community Health and Preventive Medicine. Dr. Blumenthal was a Fellow in tropical medicine at the Gorgas Memorial Laboratory in Panama. He has had two, three-month stints (1974-1978) with the World Health Organization. Dr. Blumenthal served in India and Somalia in the Smallpox Eradication Program, and has a background in parasitology and nutrition. Dr. Blumenthal has travelled extensively in Africa.

Frank Cook, M.D., Clinical Assistant Professor, Department of Medicine, served as a Visiting Lecturer at the Annual Congress of the Belize Medical and Dental Association at the invitation of the USAID/Belize Mission.

Charles Finch, M.D., Assistant Professor, Department of Family Medicine. Dr. Finch spent the summers of 1982 and 1983 in Senegal observing methods utilized by traditional healers, and learning how modern and traditional medicines are integrated.

Michael Finch, M.D., Associate Professor, Department of Pediatrics. Dr. Finch has served as a Visiting Professor of Pediatrics at the School of Medicine of the Federal University of Bahia in Salvador de Bahia, Brazil. He has lectured and done extensive research on oral rehyradation therapy.

Virginia Floyd, M.D. formerly Coordinator of Family Practice Residency Program at Morehouse School of Medicine, and who is now Director, Family Health Section, Georgia Department of Human Resources. Dr. Floyd was a medical officer for the Centers for Disease Control, stationed at Yaounde, Cameroon. She also studied at Sophia University in Tokyo, Japan. While in Japan, she served as a tutor of English at Hitotsuhashi University and as a volunteer Caseworker/Hospital Volunteer with the American Red Cross at Tachikawa Hospital.

James Goodman, Ph.D., Executive Vice President of the School. Dr. Goodman served the U.S. Agency for International Development from 1977 to 1979, as Director of the Office of International Training. In this capacity, he travelled extensively in Africa, serving in Nigeria, Kenya, Tanzania and Lesotho, as well as the Middle East and Asia.

Robert Holland, Ph.D., Professor and Chairman, Department of Anatomy. Dr. Holland was a member of the Rockefeller Foundation Field Staff and a Visiting Professor of Anatomy at Mahidol University in Bangkok, Thailand.

Rudolph E. Jackson M.D., Professor/Acting Chairman, Department of Pediatrics. Dr. Jackson is a member of the

Research Manpower Review Committee of National Heart, Lung, and Blood Institute; American Academy of Pediatrics, and Former Chief, Sickle Cell Disease Branch, NIH. His research interests include: Sickle Cell Disease, Leukemia Lead Poisoning, AIDS, Education and specific health problems in minority children.

Virgil Jacobs, Ph.D., Associate Professor, Department of Anatomy. Dr. Jacobs has served as Exchange Instructor, University of the Philippines, College of Medicine, Postdoctoral Fellow in Anatomy, Netherlands Central Institute for Brain Research, Holland, and Anatomy Advisor and Deputy Chief of Party for Basic Sciences, University of Saigon, South Vietnam.

Gordon Leitch, Ph.D., Professor and Chairman, Department of Physiology. Dr. Leitch served as a Visiting Professor Physiology, Mahidol University Bangkok, Thailand, and as External Examiner in Physiology a the National University of Malaysia.

David R. Mann, Ph.D., Professor, Department of Physiology. Dr. Mann's area of expertise is reproductive endocrinology in primates. His research findings have been presented at regional, national and international meetings of societies on endocrinology and reproduction. Because of its utility in Third World nations, his work on a gonadotropin-releasing hormone agonist as a male contraceptive has been funded by USAID.

Cyril Moore, Ph.D., Professor and Chairman, Department of Biochemistry. Dr. Moore is a native of Trinidad and served as a biochemist in Trinidad for several years. His research interests are in the biochemistry of the cardio-vascular system.

Ramchandra Navalkar, Ph.D., Professor and Chairman, Department of Microbiology/Immunology. Dr. Navalkar has conducted leprosy research in India and served as a member of the National Institutes of Health Site Visit Committee for tuberculosis research programs in India. In addition, Dr. Navalkar was Coordinator of the Immunology of Leprosy Project in Egypt, and served as Consultant to the Chinese Academy of Medicine, Leprosy Research Program, People's Republic of China.

Thomas Norris, Ph.D., Senior Associate Dean for Academic Affairs. Dr. Norris served as Director, U.S. Government Surplus Food Program and Senior Science Master at the Government School, Dominica, West Indies.

Elena Perry-Thornton, M.D., Assistant Professor, Department of Pathology. Born and educated in Panama. Dr. Perry-Thornton did social work in remote rural areas of Panama and Nicaragua. She taught at the National

University of Panama, College of Medicine, for three years. She is currently conducting research related to Benzo(a)pyrene, a carcinogen to which poor rural women in Third World countries are frequently exposed because of primitive cooking methods. Her other research interests are: Human Papilloma Virus and Cervical Cancer and Neuropathy associated with AIDS. Dr. Perry-Thornton is fluent in Spanish.

James Reed, M.D., Professor and Chairman, Department of Medicine. Dr. Reed has practiced in Germany, served as a Medical Education Consultant and Consultant in Endocrinology and Metabolism in Saudi Arabia, and as the Chief Medical Consultant in the U.S. Army for the region that includes Puerto Rico and Panama. His research includes endocrinology, metabolism and nuturition.

Stanford A. Roman, Jr., M.D., Dean and Vice President for Academic Affairs. Dr. Roman is the former Director of the Boston Comprehensive Sickle Cell Center and Professor of Community and Family Medicine at Dartmouth Medical School. He was Medical Director for the District of Columbia General Hospital, Washington, D.C. He is a member of the American Public Health Association and Selection Committee of National Foundation for Medical Education. His research interests include Family Planning, Health Maintenance Organizations, Primary Care Training, and Public Hospital Policy.

Louis W. Sullivan, M.D. President and Professor of Medicine. Dr. Sullivan was the former Director of Sickle Cell Projects and Professor of Nutrition and Physiology at Boston University. He is a member of the Institute of Medicine, National Academy of Science and National Cancer Advisory Board. His research interests include nutritional anemias, effects of alcohol on hematopoiesis, metabolic interrelations of vitamine B_{12} and folate.

Walter W. Sullivan, Ph.D., Vice President for Sponsored Programs, has been active in international health activities. He was a consultant for a Tulane University study on the feasibility of a Mobile School of Public Health for Botswana, Lesotho and Swaziland. In February 1985 he was among a meeting of health professionals in Botswana. He later travelled to Senegal, Zimbabwe, Liberia, Tanzania, Nigeria, and Burkina Faso to explore collaborative international health ventures with these nations and Morehouse School of Medicine. Dr. Sullivan participated in the University of Zimbabwe's International Innovative Medical Curriculum Conference in 1987. He serves as a member of the Advisory Committee for the School of Public Health in Zaire.

F.C. Sung, Ph.D., Assistant Professor and Epidemiologist, Department of Community Health and Preventive Medicine.

Born, reared and educated in Taiwan, Dr. Sung did social work in remote rural areas of the country. He taught and conducted research at the National Taiwan University College of Medicine for nine years. Dr. Sung is fluent in Mandarin, Hakanese and Fukienese.

Niranjan Talukder, Ph.D., Research Consultant, Department of Surgery. Dr. Talukder, a native of Bangladash, studied Mechanical Engineering at the Tenische Hochschule Aachen, West Germany. He also served as a Research Scientist in the Department of Physiology at the University of Ulm, Emission and Environmental Research Center, GSF-Munich, West Germany. Talukder is fluent in German.

Paul Urso, Ph.D., Assistant Professor, Department of Microbiology and Immunology. Dr. Urso conducts research on the effects of environmental carcinogens on the immune system. His work on benzo(a) pyrene, a well known and widely encountered pollutant in developing nations, has been presented at conferences in Germany and England. This work is so relevant to health care of people in West Africa, for example, that it is being funded by USAID. Additionally, Dr. Urso is exploring a collaborative research effort with scientists in Ile-Ife, Nigeria.

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VITA DATA

N.C. A&T State University
Department of Plant Science and Technology

NAME: Godfrey Alexander Gayle

ADDRESS: 313 Village Lane
Greensboro, North Carolina 27409

TELEPHONE: 919-852-2548

MARITAL STATUS: Married, 2 dependent children

EDUCATION: Jamaica School of Agriculture, Spanish Town, Jamaica, 1961-64. Diploma in Agricultural Science, 1964.

Sugar Industry Authority Sugarcane Course, 1964. Certificate in Sugarcane Cultural Practices and Production.

North Carolina Agricultural and Technical State University, Greensboro, North Carolina, 1972-74. B.S. in Agricultural Science (Agricultural Engineering option), with highest honor, May 1974.

North Carolina State University, Raleigh, North Carolina 1974-76. M.S. degree in Biological and Agricultural Engineering, June 1976.

North Carolina State University, Raleigh, North Carolina, 1978-82. Ph.D. degree in Biological and Agricultural Engineering, August 1982. Dissertation topic: "A Water Management Model for Predicting the Effect of Soil Properties, Excessive and Deficient Soil Water Stresses, and Drain Spacings on Long-Term Sugarcane Production under Subtropical Conditions"

WORK EXPERIENCE: Innswood Sugar Estate (Innswood, Jamaica, West Indies), 1964-1972.

Position: Field Supervisor, 1964-66.
Duties: Weed and pest control for the entire estate.

Position: Assistant Field Engineer, 1966-68.
Duties: Supervised surveying crew which carried out complete topographic surveys, traversing, and mapping of new fields to be cultivated and old fields for replanting.

Position: Field Engineer, 1968-1972.
Duties: Organized, planned, and set goals of section. Responsible for surveying, land preparation, planting, water distribution, and the layout of irrigation and drainage systems.

North Carolina Agricultural and Technical State University, Greensboro, North Carolina, July 1976-Present.

Position: Lecturer and Researcher, 1976-79.
Duties: Duties included teaching soil physics, soil and water conservation engineering and land surveying. Carried out studies on the effect of domestic waste on groundwater elevation and quality.

Position: Assistant Professor of Agricultural Engineering, 1979-87.
Associate Professor, 1987-Present.
Duties: Duties include the teaching of courses in Agricultural Engineering, Soil and Water Conservation, Water Resources Engineering, Hydrology conducted research on the movement of effluent from septic fields into groundwater, and studies on the effect of biological and environmental stress on soybean cultivars. Assisted in upgrading the B.S. curriculum in Agricultural Engineering and in developing a M.S. program in Agricultural Science. In this position, the following duties were also performed.

--Designed and constructed a weather station.

--Developed a 44 acre watershed for hydrology studies.

--Designed and supervised installation of inverted siphon so as to control incoming flow (excess water from outside research site).

--Designed and installed pressure system for developing moisture release curves.

--Designed irrigation system for research in water management.

PROFESSIONAL MEMBERSHIPS: American Society of Agricultural Engineers.

Alpha Epsilon (The Honor Society for Agricultural Engineers).

Gamma Sigma Delta

International Soil Tillage Research Organization

Soil and Water Conservation Society

Water Resources Research Institute Technical Committee

Dr. G.A. Gayle

AWARDS:

Awarded the All Island Banana Growers Association (AIBGA) Scholarship in 1961 to the Jamaica School of Agriculture.

Scholarship from Sugar Industry Research Institute and Innswood Estates Limited in 1972 for undergraduate study at North Carolina Agricultural and Technical State University, Greensboro, North Carolina.

Awarded University of North Carolina Board of Governor's Study Scholarship in 1979 for graduate study at North Carolina State University, Raleigh, North Carolina.

Awarded Title XII Faculty Development Fellowship in 1981 to assist in completing research requirement for the Ph.D. degree.

PUBLICATIONS:

Gayle, G.A. 1978. Surface storage on bedded cultivated lands. J. of Am. Soc. of Ag. Engineers, 1978.

Gayle, G.A. The importance of soil properties, site parameters and water table measurements in septic system designs. N. C. A&T Faculty Review, 1979-1980.

Gayle, G.A. Factors to be considered in disposing domestic waste on problem sites and appraisal of water quality in a Piedmont setting. Water Resources Research Institute of the University of North Carolina, June 1981.

Gayle, G.A. Evaluation of a water management model for S.E. Louisiana. Abstract published in Sugar Y Azuca. 1983. This paper was presented at the annual meeting of the ASSCT in Florida and also at the summer meeting of the American Society of Agronomy in Washington, D.C. Published in ASSCT, 1985.

Gayle, G.A., R.W. Skaggs, and C.E. Carter. A water management model for predicting the effects of excessive soil water conditions on sugarcane yield. Paper presented at the ASAE winter meeting in December, 1983.

Gayle, G.A. and A. Shirmohammedi. Determining the hydraulic properties of two soil types in a Piedmont setting of North Carolina: One site partially cleared and grassed, the other, an undisturbed Pine stand. Agricultural Research Technical Bulletin No. 100, December, 1984.

Gayle, G.A. R.W. Skaggs, and C.E. Carter. Effects of Excessive Soil Water Conditions on Sugarcane Yields. Transactions of the ASAE, Vol. 30, No. 4, pp. 933-997, 1987.

UNPUBLISHED DATA: Gayle, G.A. 1964. Leaf spot control in banana cultivation in Central Jamaica. Jamaica School of Agriculture Thesis.

Deshield, M.A., M.R. Reddy, G.A. Gayle, and S.J. Dunn. 1986. Soybean response to soil moisture stress under greenhouse conditions.

CURRENT RESEARCH: Effects of water stress and weed competition on soybean growth, yield, and lipid changes.

Controlled traffic effects on soil physical properties and erosion.

Evaluating soil physical properties on selected soil types in North Carolina for use in the new Water Erosion Prediction Program (WEPP).

OTHER INTERESTS: The evaluation of a water management model for Tropical conditions.

To examine the transport and effects of pesticides and other contaminants on groundwater.

Water resources development and management--water re-use irrigation, timing, efficiency, and drainage.

Name: Robin G. Henning

KEY QUALIFICATIONS:

Dr. Henning has more than thirty years consulting/advising, research, and teaching experience in developing, implementing and evaluating industry and sector-wide programs involving marketing, price policy, business management of individual farm and agribusiness firms, and rural development, in the U.S. and developing countries. He worked more than seven years in Latin America in Ministries of Agriculture as an Advisor for planning, implementing, and evaluating policies and programs involving agricultural prices and marketing, and farm/agribusiness management in these countries. Experience also includes 14 years with U.S.D.A. where he had responsibilities for developing, implementing, and evaluating industry marketing programs for specialty crops, as well as several years' experience as Market News Reporter. Has advised and participated in formulating policy and program decisions with industry and sector-wide scope: also for individual farm/ agribusiness firms. He has conducted analyses and forecasts of supply-demand relationships, prices, and other market factors, and marketing practices in domestic (U.S.) and foreign markets; analyses of efficiency and returns to inputs for farm and agribusiness enterprises. Presently is Assistant Professor of Agricultural Economics at North Carolina A&T State University, where he has responsibilties for research, international programs, and teaching in Agricultural Economics, and Economic and Rural Development. The emphasis of his academic and work experience has been on prices and marketing of agricultural products, management of farm/ agribusiness firms, and the impact of government regulation on business organization and operation. Background includes living/working on a dairy-general family farm.

Education:

Ph.D. in Agricultural Economics, Cornell University, Ithaca, N.Y. 1967.
M.Sc. in Agricultural Economics, The Ohio State University, Columbus. 1954
B.Sc. in Agricultural Economics, The Ohio State University, Columbus. 1951

Experience:

1979 - present Assistant Professor of Agricultural Economics, North Carolina A&T State University, Greensboro

Teaching undergraduate courses in Agricultural Economics, Marketing, Farm Management, and graduate courses in Economic and Rural Development; research on technology adaptation by small farmers, marketing, and cooperatives; and International Development program activities, including writing/developing proposals for projects, participating in, and backstopping overseas assignments, and coordinating on-campus seminars and other activities in support of foreign development programs.

1975 - 1977 USAID/USDA/PASA Team Leader and Farm Management Advisor to Ministry of Agriculture, Paraguay

Designed and coordinated implementation of farm management research/extension project by MAG Research and Extension Division, involving farm record keeping by small farmers, and analysis of data for program and farm planning.

1973 - 1975 USAID/USDA/PASA Marketing Advisor to Paraguay Ministry of Agriculture, Asuncion, Paraguay

Advised/worked with MAG Marketing Division in developing and implementing grain storage/marketing, and fruit and vegetable marketing projects; and selecting, and coordinating training of Marketing Division technicians.

1971 - 1973 Marketing Specialist, Fruit & Vegetable Div., A.M.S., U.S.D.A., Washington, D.C.

Participated in development, supervision, and economic analysis and evaluation associated with the formulation and administration of marketing programs for specialty crops, including marketing agreements and orders, surplus removal through diversion, purchase, or export market development, and marketing research and promotion activities.

1968 - 1971 USAID/USDA/PASA Agricultural Economics Advisor (Marketing) to Colombia Ministry of Agriculture, Bogota, Colombia.

Served as Marketing Economist Advisor on a USAID/USDA/PASA advisory team in the Planning Office of the Ministry of Agriculture, on a project to improve the data-gathering, analytical, and planning capabilities of MAG.

1962 - 1968 Marketing Specialist, and Agricultural Economist, (Marketing Programs), with Fruit & Vegetable Div. AMS. USDA, Washington, D.C.

As Agricultural Economist was responsible for data gathering, organization and analysis for development, administration, and evaluation of impact of marketing agreements and orders and other marketing programs for specialty crops. Also participated in the development, supervision, and monitoring of these marketing programs for these crops.

1960 - 1962 Graduate Assistant, Department of Agricultural Economics, Cornell Univ., Ithaca, NY.

1957 - 1960 Marketing Specialist, (Programs), with Fruit & Vegetable Div., AMS, USDA, Washington, D.C.

Participated in the development, administration, and evaluation of operations of marketing agreement and order programs for tree nuts.

1954 - 1956 Market News Reporter, with Fruit & Vegetable Div. AMS, USDA, Chicago, Ill., and Jackson, Miss.

Collected information on prices, supplies and market conditions for fruits and vegetables, grains, and poultry, and summarized this information in a daily market news report, disseminated to the public by mail and radio.

1952 -1954 Graduate Assistant with Department of Botany & Plant Pathology (1 year) and Department of Agricultural Economics and Rural Sociology (2 years).

CONSULTING: (Short-term assignments during periods of permanent employment.)

1988 (Jan.) Marketing Economist member of USAID advisory team developing strategy for Project for Consolidation of Northern Zone of Costa Rica. (International Resources Consultants.)

1984 (Jan.) Marketing Economist member of USAID advisory team to make an assessment of Agribusiness development potential in the Dominican Republic, and formulate strategy for Agribusiness Development project. (Devres)

1983 (June-July) Marketing Economist member of USAID advisory team developing an agricultural production/ marketing project for St. Vincent. (MUCIA)

1981 (Oct.) Develop proposal for development project for assistance in marketing of fruits in Paraguay. (Urban Resources Consultants)

1978 (June-July) Marketing Economist member of USAID advisory team to evaluate the capacity and operations of the Produce Marketing Corporation, and develop a strategy for its role in a comprehensive agricultural production/ marketing development project for Lesotho, southern Africa.

1973 (March) (& Nov 1972) Marketing Economist Consultant to develop marketing assistance projects for fruit in Paraguay. (USAID/USDA/PASA)

1972 (Mar-Apr) (& Nov-Dec 1971) Marketing Specialist consultant and Leader of interdisciplinary team for study of Economic Impact of the Mediterranean Fruit Fly in Central America. (USAID/USDA/PASA)

LANGUAGES: Native: English
Other: Spanish (fluent)
French (Reading good; Speaking fair)

PERSONAL: Date of birth: [redacted]
Citizenship: U.S.A.
Address: [redacted]
Telephone: Home: [redacted]
Office: 919/334-7901

RESUME

DONALD RAY McDOWELL

HOME ADDRESS:

P. O. Box 21384
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(919) 274-9661

BUSINESS ADDRESS:

Department of Agricultural
Economics and Rural
Sociology
251 Carver Hall
N. C. A&T State University
Greensboro, NC 27411
(919) 379-7530

EDUCATION:

Ph.D., 1985, University of Illinois
Urbana-Champaign, Illinois
Major: Agricultural Economics
Specialization: Marketing and International Development

M.S., 1979, University of Illinois
Urbana-Champaign, Illinois
Major: Agricultural Economics
Concentration: Agricultural Marketing

B.S., 1976, Southern University
Baton Rouge, Louisiana
Major: Agricultural Economics

Leadership Development Fellow, March 1986
Resources for the Future, National Center
for Food and Agricultural Policy
Washington, DC

Intensive French Language Training Course, July 1985
University of Florida
Gainesville, Florida

Project Design and Implementation Course, May 1985
PRAGMA Corporation
Washington, DC

LANGUAGES: French: reading, writing and speaking

EXPERIENCE:

1/85 - Present: Assistant Professor, N. C. A&T State University Department of Agricultural Economics and Rural Sociology, Greensboro, North Carolina.

Teach the following courses: Marketing, Price Analysis, Economic Theory, Applied Research Methodology and Agribusiness Management. Involved in research pertaining to the marketing of food and fiber, managing the agribusiness, energy usage in agriculture, various crop production analysis and international trade. Also responsible for student advisement and various committee assignments (9 months teaching position).

Summer 1986 Visiting Professor, USDA, Economic Research Service, Africa Middle East Branch, Washington, DC.

Planned and carried out a regional and country-specific study evaluating the probability of technology adaptation in agricultural production in the sub-saharan country of Senegal.

8/84 - 1/85: Technical Assistant, Basse Casamance Rural Development Project, Ziguinchor, Senegal, West Africa.

Developed and Implemented a survey to access the impact women have in african farmer decision making process.

Summer 1984: Visiting Professor, Farmer's Home Administration, District Office, Greensboro, North Carolina.

Represented the department in a program designed by FmHA to acquaint professors about the variety of FmHA Programs, their requirements, policies and procedures.

8/81 - 5/84: Instructor, North Carolina A&T State University Department of Agricultural Economics and Rural Sociology, Greensboro, North Carolina.

Taught Agribusiness and Marketing courses to undergraduate and graduate students, respectively. Co-Principle Investigator on a research project, monitored the work of research assistants, trained interviewer, coded and input data in computer and analyzed and presented the results.

April 1981: Visiting Professor, Lincoln University, Lincoln, Missouri.

Taught an Introduction to Agricultural Economics and an International Development course and gave a seminar on how to work effectively with AID personnel referring to experience gained while employed by AID. I was stationed in Nepal.

1/77 - 8/81: Graduate Research Assistant, University of Illinois, Champaign-Urbana, Illinois.

Responsible for library research, development of various annotative bibliographies, collection and upkeep of research data, computer input, data analysis and monitoring of classrooms.

9/76 - 12/76: Research Assistant, Southern University, Baton Rouge, Louisiana.

Prepared short annotative bibliographies on issues relating to sugar and soybean production and marketing in Louisiana.

1/76 - 9/76: Research Assistant/Student Intern, Agency for International Development (AID), Washington, DC and Nepal.

Working with the host government, traveled throughout Nepal gathering data for a temporal and spatial analysis of rice production and marketing.

Summer 1975: Student Intern/Research Assistant, USDA/ Economic Research Service/Commodity Economic Division, Washington, DC.

Assisted the staff in the collection of marketing data, computer input, editing and data analysis.

PUBLICATIONS:

"A Logit Analysis of Poverty Differentials in the Nonmetro Southeast," Alton Thompson and Donald McDowell, Ushering in the Twenty-First Century--Emphasis on the Rural South, Thomas T. Williams, (Ed), Tuskegee University: Human Resource Development Center, 1987 (Forthcoming).

"Agricultural Production in Senegal: Probability of Technology Adaptation," Donald McDowell and Joyce E. Allen, Paper presented at the Sixth International Federation of Organic Agriculture Movement, Santa Cruz, California, Aug. 18-21, 1986 (To be published in the proceedings).

"Allocative Efficiency of Part-Time and Full-Time Farms in North Carolina," Donald McDowell, Donald Bellamy and Charles Kambauwa. Paper presented at ARD Conference, Atlanta, Georgia, October 20-22, 1985.

"Decision Making: Characteristic Differentiation Between Men and Women Involved in Agricultural Operation, Donald R. McDowell, Paper Submitted to South East Consortium for International Development, Washington, DC, July 1985.

Convention Production Function Versus Energy-Term Production Function: Energy Used for Crop Production in Midwest Agriculture, Donald R. McDowell, Unpublished Ph.D. Thesis, University of Illinois at Urbana-Champaign, May 1985.

"Energy Used for Pesticides," Folke Dovring and Donald McDowell, Illinois Agricultural Economics Staff Paper, No. 80 E-150, December 1980.

"Energy Used for Fertilizers," Folke Dovring and Donald McDowell, Illinois Agricultural Economics Staff Paper, No. 80 E-102, February 1980.

"Costs and Returns of Pesticide Use," R. B. Schwart and Donald R. McDowell, Fuel Shortages in Future? Save Oil, Save Soil, Cooperative Extension Service, University of Illinois at Urbana-Champaign, September 1979.

"Pesticide Practices on Illinois Farms, 1976 Costs and Returns," R. B. Schwart and Donald McDowell, Illinois Agricultural Economics Staff Paper, No. 79 E-79, May 1979.

Direct and Indirect Energy Analysis of Illinois Corn and Soybean Production, 1976, Donald R. McDowell, Unpublished M. S. Thesis, University of Illinois at Urbana-Champaign, January 1979.

PROFESSIONAL AFFILIATIONS: American Agricultural Economic Association
Southern Agricultural Economic Association
National Agri-Marketing Association

HONORS AND AWARDS:

Salutatorian of High School Class of 1972.

Academic Scholarship to attend Southern University, 1972 - 1976.

Dean's List: 1972 - 1976.

Grand Marshall for College of Agriculture, Southern University, Fall, 1976.
Graduate Magna Cum Laude from Southern University.

Member: Alpha Chi Honor Society
Alpha Kappa Mu Honor Society
Kappa Phi Kappa Professional Educational Fraternity

REFERENCES:

Furnished upon request.

Curriculum Vita
John M. O'Sullivan

Personal Data

Date of Birth:	[redacted]
Martial Status:	Married
Physical Condition:	Excellent
Citizenship:	U. S. Citizen

Present Position

Farm Management Marketing Specialist, N. C. Extension Program, NC A&T State University - This position is responsible for economic analysis and training of the Farm Opportunity Program Paraprofessionals and Farmers in approximately 20 counties with six hundred cooperators, record keeping, financial analysis, and marketing are prime areas of involvement. Also Home Campus Coordinator of the Guinea Smallholder Production Preparation Project.

Professional Experience and Interest

Application of economic analysis to agricultural development work through extension. Over eight years experience with small farm development in French speaking West Africa and rural Southern United States. Working familiarity with farming systems research, small scale irrigation and agricultural extension in Senegal and Mali, West Africa. Experience with marketing and record keeping problems of limited resource farmers in U.S and evaluation of extension programs. Interested in econometric and analysis of exchange rate and international monetary factors on agricultural prices and policy. Thirteen years teaching in higher education. One year as the Director of the Center for Rural Development at Tuskegee Institute.

Education

1983	M.S	Agri. Econo.	Auburn Uni.	Auburn, Alabama
1976	Ph.D	African History	U.C.L.A	Los Angeles, CA
1973	M.A	African Studies	U.C.L.A	Los Angeles, CA
1968	B.A	History	Stanford Uni.	Stanford, CA

Languages

Speak and read French well, also speak Bambara (Malinke).

Research and Consulting Position

1985	Social Soundness Analyst for Guinea Smallholder Production Planning Project, Project Paper, Member of a five person team November - December.

1985	Ampart Lecturer, United States Information Agency. Presented series of seminars on agricultural development issues to government officials in Congo, C.A.R and Chad, September 1985.
1985	Consultant. University of Massachusetts. Department of Food and Resource Economics. Study of Irrigated Vegetable Production in Eastern Massachusetts March - September, 1983.
1983	Consultant SECID, Environmental Planning Seminar, ETMA. Project, Abidjan, Ivory Coast: July 1983.
1981-1982	Director, Center for Rural Development, Tuskegee Institute, Alabama. Directed a USAID funded 211-d grant for international agricultural development with an annual budget of $150,000. Coordinated research and teaching efforts of a public health sociologist and agricultural economics for a farming systems approach to both domestic and international programs.
1977-1981	Research Associate. Center for Rural Development. Tuskegee Institute Alabama. Team Leader, Farm Management Workshop, USAID, Mali, July, 1982. Presented a seminar to USAID funded agricultural development, Malien government project personnel. Workshops were conducted in Goa and Mopti with the Institut d'Economie Rurale's cooperation. Team Leader, costs of Production on Small Scale Irrigation Primeters, Bakel, Senegal. July, 1981. Research Associate, Agricultural Extension Officer Training Project (CAA), USAID, Mali. July, 1978; July, 1979.
1973-1975	Research Associate, Universite d'Abidjan. Field work for dissertation in northwest Ivory Coast.
1968-1970	Peace Corps Volunteer. Ivory Coast. Rural development project.

Academic Position

1983-Present	Adjunct Professor. Dept. of Agricultural Economics NC A&T SU.
1981-1982	Associate Professor of African History, Tuskegee Institute, Alabama.
1977-1981	Assistant Professor of African History, Tuskegee Institute.
1973-1976	Instructor of African and Afro-American History, California Polytechnic State University, San Luis Obispo. (Position held for four semester total).

Professional Associations

North Carolina Society of Farm Managers and Rural Appraiser

North Carolina Association of Cooperative Extension Specialists

American Agricultural Economics Association

Southern Agricultural Economics Association

African Studies Association

Royal African Society

Articles, Chapters and Essays

" The French Conquest of Northwest Ivory Coast. The Attempt of the Rulers of Kabadugu to control the situation". Cashiers d'etudes africaines: 23, (1-2), 89-90, 1983; 123-139.

"Farming Systems Research" in The Role of U. S. Universities in Rural and International and Agricultural Development; edited by Brook Schoepf. Tuskegee Institute, 1981; 141-145.

"Slavery in the Malinke' Kingdom of Kabadougou, "International Journal of African History: 13, 4; 1980; 633-649.

"Ivory Coast", in Atlas of Africa; edited by J. Murray. Oxford, Phaidon Press, 1981; 193.

"The 'Franco-Baoule War, 1891-1911, "in Journal of African Studies; 5,3; Fall 1978; 329-456.

"The U.P.C. in Cameroun," in UFAHMU; 3, 1; 1972; 53-72.

Dissertation and Thesis

1983 Disaggregated Econometric Analysis of the Impact of Interest Rates on International Trade in U.S. Soybeans, Soyoil and Soymeal, M.S. Thesis. Auburn University, Auburn Alabama.

1976 Development in the Social Stratification of the Northwest Ivory Coast During the 18th and 19th Centuries. Ph.D. Thesis, U.C.L.A. University Microfilms.

Professional Papers

"Agricultural Production In transition. The French experience in the region of Timbuktu, from 1900-1930", in preparation.

"The Application of American Farm Management Principles in the Sahel, West African - Experience from Mali and Senegal". Presented at the Arid Lands Studies Conference, April 1982.

"International Development Efforts for Food Production in West Africa: Irrigated Perimeters (Bakel, Senegal) and Action Riz-Sorgho (Gao, Mali). "An invited paper presented at the Spring SERSAS meeting, Western Carolina University, Cullowhee, N. C., March 1982.

"Gao, Mali: Modes of Production at the Edge of the Desert". Presented at the Arid Lands Studies Conference, April 1981

"The Dyula Revolution". Presented at the African Studies Conference, April 1980.

"Agricultural Development In Mali". Presented the Arid Lands Studies Conference, October 1980.

"Survey of Malian Farmers". USAID/Bamako, July 1979.

"Survey of Agricultural Moniteurs".USAID/Bamako, 1978 in Collaboration.

VITA SHEET

Richard Douglas Robbins
North Carolina A&T State University
Greensboro, North Carolina 27411
Telephone (919) 379-7943

EDUCATION

B.S., Agricultural Economics, North Carolina Agricultural and Technical State University, 1964.

M.S., Agricultural Economics, North Carolina State University, Raleigh, N.C., 1968.

Ph.D., Economics, North Carolina State University, Raleigh, 1973.

PROFESSIONAL EXPERIENCE

1982 - Present	North Carolina A&T State University, Greensboro, Professor and Chairman, Department of Agricultural Economics and Rural Sociology, and Interim Coordinator, International Agricultural Programs (Since 1984).
1981 - 1985	Adjunct Professor of Agricultural Economics, Cornell University, Ithaca, New York.
1981 - 1982	USAID, Office of Agriculture, Science and Technology Bureau, Washington, D.C., Farm Management Specialist.
1979 - 1981	North Carolina A&T State University, Greenboro, Associate Professor of Agricltural Economics, Director of USAID funded 211 (d) Project.
1971 - 1979	North Carolina A&T State University, Greensboro, Associate Professor of Economics.
1966 - 1970	North Carolina State University, Raleigh, N.C., Research Associate.
1964 - 1965	North Carolina Agricultural Extension Service, Raleigh, N.C., Assistant Agricultural Agent.

OTHER

Member and Secretary, Greenboro Public School Fund , 1984 - 1987.

Member, Governor's Oversight Committee for Official Labor Market Information, 1983 - 1985.

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Richard D. Robbins
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Member, Committee for Governer's Conference on Balanced Growth and Economic Development, 1977 - 1978.

PROFESSIONAL ORGANIZATIONS:

American Agricultural Economics Association - Chairman, Committee on Status and Opportunities for Blacks in Agriculture, 1982 - 1985; member, AAEA Nominating Committee, 1983 - 1985
Gamma Sigma Delta Honor Society of Agriculture.

HONORS:

Graduated Magna Cum Laude (1964)
Kellogg Fellowship to Study Rural Poverty

CURRENT ACTIVITIES:

Project Director for "Training for Small and Family Sized Farmers in North Carolina." A project designed to teach Bookkeeping, Financial Management and the Coordinated Financial Statements system to target farmers. Also designed to study financial problems of small farms.

PUBLICATIONS:

Robbins, Richard D., "The Training for Small Farmers in North Carolina: A Project funded by Farmers Home Administration" in Does Farm Financing Face Fundamental Change on Current Credit Crisis (Part A), Hearings Before A Subcommittee on Government Operations, House of Representatives, Ninety-Ninth Congress, First Session, July 15; September 27; and November 15, 1985, Printed for the Use of the Committee on Government Operations, U. S. Government Printing Office, Washington, 1986.

Khan, Anwar S. and Richard D. Robbins. "An Economic Analysis of Part-time and Full-time Farming in North Carolina". The Research Bulletin Series, North Carolina A&T State University, Greensboro, N. C., October 1985.

Parks, Alfred L. and Richard D. Robbins. "Human Capital Needs of Black Land-Grant Institutions." Southern Journal of Agricultural Economics, Vol. 17, No. 1, July 1985.

Richard D. Robbins and Sidney H. Evans. "Characteristics of Black Agricultural Economists," American Journal of Agricultural Economics, Volume V. 66(5), December 1983.

Richard D. Robbins, "Financing the Small Farms." AGRICLUTURE IN THE TWENTY-FIRST CENTURY, John W. Rosenblum, ed., John Wiley and Sons, New York, 1983.

Marhatta, Hari P., Richard D. Robbins, Anwar S. Khan, Robert Mabele and Lucian Msambichaka. "Farm Management Research in Central Zone of Tanzania - Village Profile". North Carolina A&T State University, Greensboro, NC. Volume II. April 1982.

Marhatta, Hari P., Answar S. Khan, Richard D. Robbins, Robert Mabele and Lucian Msambichaka. "Profile of Farmers in the Central Zone, Tanzania: Descriptive Analysis." North Carolina A&T State University, Greensboro, N.C., Volume I, November 1981.

Robbins, Richard D. and Anwar S. Khan. "Accidents: Farm Machinery and Equipment - Selected Counties." The Research Bulletin Series, North Carolina A&T State University, Greensboro, N.C., Summer, 1981.

Marhatta Hari, Richard D. Robbins and Lee Plummer. "Agricultural Marketing System in St. Lucia", Office of Rural Development, N.C. A&T State Unversity, Greensboro, 1979.

Richard D. Robbins, Anwar Khan and Johnson Adedeji. " Farm Accident as a Contributing Factor to the Problem of Poverty in North Carolina". The Research Bulletin Series, N.C. A&T State University, Greensboro, Fall 1978.

Richard D. Robbins. "Blacks and Business". PATHS TOWARD FREEDOM. Centre for Urban Affairs, N.C. State University, Raleigh, NC, 1976.

Richard D. Robbins. "Agriculture and Labor". PATHS TOWARD FREEDOM. Centre for Urban Affairs, N.C. State University, Raleigh, NC, 1976.

Richard D. Robbins. "Agricultural Accidents in North Carolina". The Research Bulletin Series, N.C. A&T State University, Greensboro, NC, 1976.

Richard D. Robbins. "Returns to Nursing Training". Greensboro, N.C. A&T State University, Manpower Research Center, 1972.

Richard D. Robbins. "Cost and Returns to Investments in Vocational and Technical Training in North Carolina". Greenboro, North Carolina A&T State University, Manpower Research and Training Center, 1972.

Vita
Richard D. Robbins
Page 4

James A. Street and Richard D. Robbins. "A Survey of Regional Planning and Economics Research Concerning Water, Power, and Fuel in Coastal Plains Region" A REVIEW OF ECONOMIC AND PLANNING FOR THE COASTAL PLAINS REGION. Southern Regional Educational Board, Atlanta, GA., 1967.

Paul R. Johnson and Richard D. Robbins. "An Evalution of the Labor Mobility Demonstration and Project of the North Carolina Fund", Raleigh, North Carolina State University, Department of Economics, 1966.

RESUME

ANTHONY K. YEBOAH

[redacted]

Date of Birth: [redacted]
Health: Excellent
Citizenship: U.S. Citizen

EDUCATION

I have M.S. and Ph.D degrees both in Agricultural Economics from Iowa State University. Areas of concentration include Production Economics and Policy and Quantitative Methods including Statistics and Econometrics.

EXPERIENCE

I have been teaching graduate courses at North Carolina A&T State University since 1980 and currently hold the rank of Associate Professor. In addition, I have served on several administrative and academic committees.

Most of my research work has been geared towards limited-resource farmers, involving several USDA-funded agricultural research projects aimed at the transfer and adaptation of technology on small farms in North Carolina. Others included the potential of adding a small livestock enterprise to limited-resource grain farms. Currently, I am involved in the training of farmers in the area of record-keeping. This project is being funded by the Farmers Home Administration.

INTERNATIONAL EXPERIENCE

I spent two years (1985-1987) in Zaire working on an AID-funded Agricultural Project at the Ministry of Agriculture. As the advisor of the Research Bureau, my duties included the supervision of agricultural field-data collection throughout the country, and the processing and analysis of these data. Some of the resulting studies were developed into M.S. theses by Zairean students pursuing M.S. degrees in Agricultural Economics from several U.S. institutions. I also collaborated directly with USAID/ Kinshasa and the World Bank on several policy studies.

I have also served as a consultant to USAID, the PRAGMA Corporation (Washington, DC) and Michigan State University in various African and Caribbean countries including Zaire, Senegal and St. Vincent.

LANGUAGES

I speak, write and read French well. In addition, I am fluent in Twi, a language in Ghana, my native country.

RESEARCH AND PUBLICATIONS

1. Yeboah, Anthony K., Nseye Mara, "Resource Productivity Under Two Farming Systems in Kwilu Subregion of Zaire", International Agricultural Programs, North Carolina A&T State University, Report Number 2, May 1988.

2. Yeboah, Anthony K., Nseye Mara, "An Evaluation of Two Cropping Systems in the Kwilu Sub-region of Zaire. International Agricultural Programs, North Carolina A&T State University, Research Report Number 1-87

3. Ejimakor, A., Anthony Yeboah, "Size and Economic Viability of Small Farm Production Systems in the North Piedmont of North Carolina", Agricultural Research Program, North Carolina Agricultural and Technical State University, Bulletin T-133, January 1986.

4. Yeboah, Anthony K., Alan J. Perkinson, "Potential Returns from Hog Production on Limited-Resource Farms in North Carolina," North Carolina Agricultural Foundation, Nickels for Know-How Program, North Carolina A&T State University, Agricultural Economics and Rural Sociology Series, July 1986.

5. Yeboah, Anthony K., "Data Availability and Accessibility in Zaire". The PRAGMA Corporation, June 1985.

6. Yeboah, Anthony K. and Arbali Sukanal. "An Econometric Analysis of Commercial Bank Loans to Farmers in North Carolina." North Carolina A&T State University, Agricultural Economics and Rural Sociology, Bulletin Series No. 84-4., October 1984.

7. Yeboah, Anthony K. and Earl O. Heady. "Changes in Structural Characteristics and Estimates of Supply Response Elasticities in U.S. Hog Production." The Center for Agricultural and Rural Development Report 128. Iowa State University, April 1984.

8. Yeboah, Anthony K. "The Demand for Fertilizers in Cotton Production: Significance of Technical Change and Implications for Environmental Policy," North Carolina A&T State University, Agricultural Economics and Rural Sociology Bulletin Series No. 83-5, November 1983.

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RESUME

PERSONAL DATA

NAME: **THIAN HOR TEH**
ADDRESS: 14403 HARGRAVE ROAD
HOUSTON, TEXAS 77070-3806

TELEPHONE: (409-857-3916) OFFICE
(713-469-3369) HOME
CITIZENSHIP: NATURALIZED AMERICAN CITIZEN
PRESENT POSITION: RESEARCH LEADER
INTERNATIONAL DAIRY GOAT RESEARCH CENTER
PRAIRIE VIEW A&M UNIVERSITY
PRAIRIE VIEW, TEXAS 77446-2886

EDUCATIONAL BACKGROUND:

Ph.D. in Animal Science: University of Kentucky (1979-1982)
M.S. in Animal Science: University of Kentucky (1976-1979)
B.S. in Agriculture: Berea College, Kentucky (1973-1976)

HONORS:

1988 - Distinguished Adminstrator and Research Award, Cooperative Agricultural Research Center, Prairie View A & M University
1987 - First Place Competitive Scientist Paper, Association of Research Directors Seventh Biennial Research Symposium, Washington, D.C.
1985 - Distinguished Research Award, College of Agriculture Prairie View A&M University.
Awarded with the University of Kentucky's Graduate Research Fellowship.
Sigma Xi
Gamma Sigma Delta
Delta Tau Alpha

PROFESSIONAL SOCIETIES:

American Dairy Science Association
American Society of Animal Science
International Goat Association
American Registry of Professional Animal Scientists
International Dairy Federation - USA National Committee
Texas Dairy Goat Producers Association - Steering Committee Member and Advisor
Cashmere Producer of America, Inc (CAPRI) - Steering Committee Member

RESEARCH GRANTS:

Cooperative Soil Conservation Service, The Use of Goats to Increase Income of Limited Resource Farmers - $30,000 (1988)
United States Department of Agriculture: Cooperative States Research Service, Establishing a Breed of Cashmere Goat in Texas - $ 96,000 (1988)
Church and Dwight Corp. - Studies of Magnesium Oxide Interactions with Sodium Bicarbonate - $ 12,000

United States Department of Agriculture: Science and Education Special Grant- Determination and Optimum Feeding Frequency, Weaning Age and Weaning Weight of Nubian and Alpine Kids - $100,000 (1983)
Land O' Lakes Inc. - Protein and Energy Requirements of Goats' Milk Replacers - $2,130 (1983); $2,400 (1984) and $4,000 (1985)
Diamond V Mills - $ 2,500 unrestricted gift.

PROFESSIONAL EXPERIENCE:

Research Scientist, (1982-1987) - International Dairy Goat Research Center
Prairie View A&M University
Prairie View, Texas 77446

Work Accomplished: Established and supervised a foundation herd of 50 registered Holstein cows for research, teaching and extension.

Establish a foundation herd of cashmere goats.

Help founded the Texas Dairy Goat Producers Association.

Designed and established two functioning laboratories with grant money.

Chairman of Laboratory Equipment Committee
Led the committee in selecting the most advance equipment for new Agricultural Research Complex. Budgeted cost of equipment over $700,000.

Member of the Peer Review Committee
Major responsiblity is to review manuscripts and proposals.

INVITED ACTIVITIES:

Invited Speaker at the Third Goat Conference of AZETCA, "Mineral Requirement of Growing Goats". January, 1989. Mexico City, Mexico.
Invited Speaker at the Beijing Agriculture University, "Development of Dairy Goats in the World" October, 1988.
Invited Speaker at the Inner Mongolia College of Agriculture and Animal Science, " Nutrients requirement of Dairy Goats" October, 1988.
Invited Speaker at the 1987 Annual Convention of the American Dairy Goat Association, " Feeding and Managing the Growing Kids".October 1987 San Angelo, Texas.
Visited Panama on the invitation of Universitat de Panama to survey goat production problems in the country and also to establish linkages with the University.
Visited Brazil goat research centers at the request of the Director of Embrapa to exchange research findings.

TEACHING EXPERIENCE:

Graduate course in Dairy Goat Production, College of Agriculture, Prairie View A&M University, Prairie View, Texas

Graduate students - 5 M.S. candidates

CURRENT RESEARCH:

Nutrient requiremnts and management systems of goats kids.

Establishing a breed of cashmere goat in Texas.

PUBLICATIONS

Cutshaw, J.L., T.H. Teh, T. Sahlu and E.N. Escobar. 1987. Protein Requirements of growing Alpine and Nubian Goats. Association of Research Directors Seventh Biennial Research Symposium. Page 8.

Erdman, R.S., L.W. Douglass, R.W. Hemken, T.H. Teh and L.M. Mann. 1982. Effects of sodium bicarbonate on palatability of concentrates fed lactating dairy cows. J. Dairy Sci. 65:1647-1651.

Escobar, E.N., G.A. Reynolds and T.H. Teh. 1987. Alfalfa hay, mungbean hay and pinto bean hay as feed for dairy goats. Proceedings of the IV International Conference on Goats. 2:1375.

Escobar, E.N., G. Reynolds, T.H. Teh, and M.J. Potchoiba. 1986. Nutritional evaluation of alternative feedstuffs for dairy goat feeding: I. Voluntary intake and digestibility of three legume hays: alfalfa, mung beans and pinto beans. Proceedings of Association of Research Director Fifth Biennial Research Symposium.

Escobar, E.N., G. Reynolds, T.H. Teh, and M.J. Potchoiba. 1986. Nutritional evaluation of alfalfa hay, mung bean hay and pinto bean hay as feed for dairy goats. J. Dairy Sci. 69(Suppl 1).

Escobar, E.N. and T.H. Teh. Growth of dairy goats expressed by body measurement in relation to age. 1987. Proceedings of the IV International Conference on Goats. 2:1452.

Golakai, S.M., T.H. Teh and E.N. Escobar. 1987. Effect of magnesium phosphate on lactation performance of dairy goats.Proceedings Association of Research Directors Seventh Biennial Research Symposium. Page 6.

Golakai, S.M., T.H. Teh and J.L. Cutshaw. 1987. Calcium requirement for postweaned dairy goats. Proceedings Association of Research Directors Seventh Biennial Research Symposium.
Page 7.

Hemken, R.W., T.H. Teh, L.M. Mann and R.H. Hatton. 1981. Palatability of sodium bicarbonate when added to dairy cow rations. Beef Cattle, Dairy and Sheep Research

Report, Progress Report 251, University of Kentucky, Lexington.

Ivey, D.S., T.H. Teh, E.N. Escobar and T. Sahlu. 1986. Salt requirements for growing dairy goats. J. Dairy Sci. Vol. 69(Suppl 1).

Lu, C.D., T.I. Iglesias, T.H. Teh and M.J. Potchoiba. 1983. Meeting energy and protein needs for lactating dairy goats. First Field Day Report. Prairie View A & M University, Prairie View, Texas.

Lu, C.D., T.I. Iglesias, R.R. Nelson, J.L. Rubin and T.H. Teh. 1981. Response of lactating goats to dietary protein and energy levels. J. Dairy Sci. 67(Suppl 1).

Lu, C.D., J.L. Rubin, T.I. Iglesias, R.B. Skeete and T.H. Teh. 1984. Effect of forage particle length on chewing activity in the lactating dairy goat. J. Dairy Sci. 67(Suppl 1).

Lu, C.D., T.H. Teh, M.J. Potchoiba and E.N. Escobar. 1984. Weaning of goat kids. Proceedings of First National Conference in Goat Production. R. Lopez Trujillo and C. Luna Villarreal (editors), Saltillo, Mexico.

Potchoiba, M.J., T.H. Teh and E.N. Escobar. 1983. Effect of feeding frequency of feeding and management systems of growth of doelings. First Annual Field Day Report. Prairie View A & M University, Prairie View, Texas.

Samms, C.A., T.H. Teh and E.N. Escobar. 1985. Effect of increasing levels of dietary salt on digestibility and physiological parameters in growing goats. Proceedings Association of Research Directors Sixth Research Symposium.

Teh, T.H., L.S. Bull, D. Oberleas, R.W. Hemken and L.M. Mann. 1980. Effect of quality of milk replacers and zinc supplement on newborn calves. Abstract. J. Dairy Sci. 63(Suppl 1).

Teh, T.H. and E.N. Escobar. 1987. Effect of body condition and age of pregnant doelings on litter size and birthweight of goat kids and its influence on milk production. Proceedings of the IV International Conference on Goats. 2:1451.

Teh, T.H. and E.N. Escobar. 1987. Evaluation of protein requirement of milk replacer for goat kids. Proceedings of the IV International Conference on Goats. 2:1375.

Teh, T.H. and E.N. Escobar. 1985. Economical ways of raising goat kids. Second Field Day Report. Prairie View A & M University, Prairie View, Texas.

Teh, T.H., E.N. Escobar, D.S. Ivey, C.A. Samms and T. Sahlu. 1987. Effect of varying levels of salt on growth performance, digestibility and clinical responses of growing dairy goats. Proceedings of the IV International Conference on Goats. 2:1543.

Teh, T.H., E.N. Escobar and M.J. Potchoiba. 1985. Effect of restricted milk intake on performance of goat kids. J. Animal Sci. 61(Suppl 1).

Teh, T.H., E.N. Escobar, M.J. Potchoiba and C.D. Lu. 1984. Effect of body condition and age of pregnant doelings on litter size and birth weight of goat kids and its influence on milk production. J. Dairy Sci. 67(Suppl 1).

Teh, T.H., E.N. Escobar, F. Pinkerton and T. Stanton. 1983. Effects of frequency of feeding and management systems on growth of doelings. J. Dairy Sci. 66(Suppl 1).

Teh, T.H., R.W. Hemken, D.H. Bremel and R.J. Harmon. 1982. Effect of buffers on rumen turnover and abomasal gastric secretions. J. Anim. Sci. 58(Suppl 1).

Teh, T.H., R.W. Hemken, D.H. Bremel and R.J. Harmon. 1987. Comparison of buffers on rumen functions, turnover rate and gastric secretions in Holstein steers. Anim Feed Sci and Technology. 17:257-270.

Teh, T.H., R.W. Hemken and L.S. Bull. 1979. Evaluation of urea ammonium polyphosphate as a phosphorus source for dairy calves. J. Anim. Sci. 55:174-179.

Teh, T.H., R.W. Hemken and R.J. Harmon. 1981. Mechanism of action of buffers. Beef Cattle, Dairy and Sheep Research Report. Progress Report 254, University of Kentucky, Lexington.

Teh, T.H., R.W. Hemken and R.J. Harmon. 1982. Magnesium oxide interactions with sodium bicarbonate in early lactating cows. J. Dairy Sci. 65(Suppl 1).

Teh, T.H., R.W. Hemken and R.J. Harmon. 1985. Dietary magnesium oxide interactions with sodium bicarbonate on cows in early lactation. J. Dairy Sci. 68:881-890.

Teh, T.H., R.W. Hemken and R.J. Harmon. 1985. Comparisons of buffers and their modes in the rumen and abomasum. Nutr. Report International. 32:1339-1348.

Teh, T.H., R. W. Hemken, L.M. Mann and R.H. Hatton. 1981. Palatability of concentrates containing sodium bicarbonate for dairy cows. J. Anim. Sci. 54(Suppl 1).

Teh, T.H., M.J. Potchoiba and E.N. Escobar. 1981. Artificial rearing and weaning methods of goat kids. Proceedings Association of Research Research Directors Fifth Biennial Research Symposium.

Teh, T.H., M.J. Potchoiba and E.N. Escobar. 1985. The protein requirement of milk replacer for goat kids. J. Anim Sci. 61(Suppl 1).

Teh, T.H., M.J. Potchoiba and E.N. Escobar. 1984. Raising goat kids the artificial way. United Caprine News, Nov:43-45.

Teh, T.H., M.J. Potchoiba, E.N. Escobar and C.D. Lu. 1984. Weaning methods of goat kids. J. Dairy Sci. 67(Suppl 1).

Teh, T.H., M.J. Potchoiba, E.N. Escobar, C.D. Lu and M.A. Hines. 1983. Feeding and managing the young goat. First Annual Field Day Report. Prairie View A & M University, Prairie View, Texas.

Teh, T.H. and Tilahun Sahlu. 1986. Feeding the lactating goat for milk production. Third Dairy Goat Field Day Proceedings. Prairie View A & M University, Prairie View, Texas.

Teh, T.H., T. Sahlu and D.S. Ivey. 1986. Effect of increasing level of magnesium phosphate on rumen metabolism. J. Dairy Sci. Vol. 69(Suppl 1).

Teh, T.H., T. Sahlu, D. Rhodes and J.L. Cutshaw. 1987. Effect of magnesium phosphate supplementation on rumen metabolism of fistulated Holstein steers. Proceedings Association of Research Directors Seventh Biennial Research Symposium. Page 8.

Teh, T.H., T. Sahlu, E.N. Escobar and J.L. Cutshaw. 1987. Effect of live yeast culture and

sodium bicarbonate on lactating goats. J. Dairy Sci. Vol 70(Suppl 1).

Teh, T.H., T. Sahlu, E.N. Escobar and J.L. Cutshaw. 1987. Effects of magnesium phosphate on lactating goats. J. Dairy Sci. Vol 70(Suppl 1).

Teh, T.H., T. Sahlu, E.N. Escobar and J.L. Cutshaw. 1987. Effect of dietary buffer supplemented with or without live yeast culture on milk production of lactating goats. Proceedings Association of Research Directors Seventh Biennial Research Symposium. Page 6.

UNPUBLISHED MANUSCRIPT

Teh, T.H. Survey of Texas goats for cashmere production and the potential of a cashmere industry in the U.S.A. (in preparation)

Golakai, S.M., T. H. Teh and J. L. Cutshaw. The effect of graded level of calcium on growth performance and bone matrix of growing goats. (in review)

Teh, T.H., D. S. Ivey, E. N. Escobar and T. Sahlu. Salt requirement of growing goats. (in review)

SOUTHERN UNIVERSITY (BATON ROUGE)

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Calvin Walker 233

RESUME

Name: Kit Lin Chin

Address: Department of Plant and Soil Sciences
P.O. Box 11288
Southern University
Baton Rouge, LA 70813

EDUCATION:

College or University	Date Attended	Degree and Area of Specialization
Louisiana State Univ. Baton Rouge, LA 70803 USA	1972-1976	Ph.D. (Horticulture) Major: Crop Prod. and Plant Physio. Minor: Exp. Stat. and Nuclear Sci.
Louisiana State Univ. Baton Rouge, LA 70803	1970-1972	B.S.: (Horticulture-General)
College of Agri. Serdang, Selangor, Malaysia South East Asia	1967-1970	Diploma (Tropical Agri.) Training in Hort./Agro. husbandry, Agri. Econ. and Farm Management and Plant Protect.

Further Training

Gulf South Res. Inst.	1978	Cert. (Basic gas Chrom. and shooting touble of a gas Chromatographs)
Beckman Instrument Company	1980	Completed liquid Chromatograph practicum
Society for Analytical Chemist of Pittsburgh	1982	Certificate (The use of Infrared Group Frequency)
American Chemical Soc.	1984	1.) Statistic for the analytical chemists 2.) Sampling in capillary column chromatograph

The Center for Advan. Training in Cell and Molecular Biology (Catholic University of America, Washington D.C.)	1983	Certificate (Training in plant and cell tissue culture)

EMPLOYMENT:

Professor of Horticulture, Department of Plant and Soil Sciences, Southern University, Baton Rouge, Louisiana (August, 1987-to date).
Responsibilities: Teaching, research and outreach activities.

Associate Professor/Professor and Acting Chairman, Department of Plant and Soil Sciences, Southern University, Baton Rouge, Louisiana (1980-1987).
Responsibilities: Administration, research, teaching and outreach activities.

Work Includes: Managed the academic department, supervised horticultural and agronomic research and instructional farm; coordinator of research activities; served as consultant and coordinator of the Rockefellow funded Small Farmers Program; teached horticultural courses; served as a horticultural advisor (fruits vegetables/ornamental crops) to Southern University Cooperative Extension.

Assistant Professor, Department of Plant and Soil Sciences, Southern University, Baton Rouge, Louisiana (1976-1980).
Responsibilities: Teaching, research outreach activities and supervision of horticulture farm and greenhouse.

Research Associate, Department of Horticulture, Louisiana State University, Baton Rouge, Louisiana (1976)
Responsibilities: Varietal screening of vegetables breeding work and fertilizer studies on okra; studied the chipping and cooking quality of Irish potato and Sweet potato.

Research Assistant, Department of Horticulture, Louisiana State University, Baton Rouge, Louisiana (1972-1976).
Responsibilities: Studied the growth and development of pecan (Carya illinoensis) flowers and fruits; evaluated the herbicidal and plant growth regulator effects on pecan tree growth.

Agricultural Assistant, Department of Agriculture, Malaysia, (1969).
Responsibilities: Assisted in overseeing crop production with special emphasis on pest and disease management.

Research Trainee, Rubber Research Institute, Malaysia.

Responsibilities: Base-line study on small farm production problems and economic survey of small farmers.

Research Experiences

Evaluation of Muskmelon Cultivar Performance for Small Farm Production in Louisiana

Adaptability of Sweet Corn Hybrid Under Louisiana Weather Conditions

Studies on Adaptability and Physiology of Flower Abortion of Vegetable Type Soybeans: Phase II (Including effects growth regulators, pesticides, forms of inoculants on N -fixation)

Varietal trials on eggplant, sweet and hot pepper, and bean/pea, tomato, sweet potatoe, and cucumbers

Breeding work and fertilizer study on okra plants

Study on the chipping and cooking quality of different varieties of Irish potato and sweet potato

Evaluation of effects of herbicides on pecan tree growth

Effects of plant growth regulators on pre-mature shuck opening of pecan

Dates of pollen dehiscence and female flower receptivity of certain new and important pecan cultivars

Research Interests

Cultural practices on crop production and nutrition (fruits, vegetables, and ornamental plants)

Effect of agricultural chemicals on crop growth and development

Plant growth and development (N-fixation, plant growth regulators, and physiological study)

Cropping system of agronomic and horticulture crops

Trace methodology in plant sciences

CONSULTING, PROGRAM DEVELOPMENT AND INTERNATIONAL INVOLVEMENT:

1. Team developed a proposal entitled "Maximizing Crop Yield Through Intercropping of Sweet Potato, Cowpea and Corn in Sierra Leone" for Consideration by USDID (Decision-Pending).

2. Proposed and developed Master of Science degree program in Small Farm Crop Production Technology which is to be considered for implementation.

3. Developed recruitment brochure for the Department of Plant and Soil Sciences and the recruitment design for the University.

4. Developed concept proposal paper on USAID Haitian International Development Project.

5. Consultant - Rockerfellow's Small Farm Program (1979 to 1981).

6. Tropical Crop Production in Malaysia (1967-1970)

7. Visited and studied non-traditional agriculture potential in Costa Rica, Guatemala and Honduras, Central America

8. Evaluated and developed non-traditional agriculture in El Salvador and implemented an irrigation project for vegetable production for the Granja-Hogar-Escuela de Abogados.

9. Member of the Agriculture committee of the Louisiana-El Salvador Partners of the Americas.

10. Technical Assistance team member, USAID Jamicia Agriculture Education Project (198.7):

    Accomplished work includes curriculum and course syllabi development for the horticulture program of the College of Agriculture, teaching ornamental Horticulture, advisement of the farm structure and the implementation of farm practice, development of the plan and specifications of plant tissue culture laboratory, formulation of research program in horticulture and the development of two teaching manuals namely "vegetable Production Training Manual" and "Ornamental Horticulture Training Manual", and some other program development recommendation.

11. Assisted Jamaica-Western New York Partners of the America in developing an agricultural project that deals with shade housing establishment for the production of Heliconia and authurium both for training and outreach activities.

SCHOLARSHIPS ANS OTHER ACADEMIC AWARDS:

Out-of-state fee exemption honorary scholarship award, Louisiana State University, Baton Rouge, Louisiana 70808. 1971-1972

Julian C. Miller honorary scholoarship award, Louisiana State University, 1972.

John J. Mikell honorary scholarship award, Louiaiana State Universtiy, 1973 and 1975, respectively.

Recipient fo the International Lee Foundation Grant award, Singapore, 1972 and 1973, respectively.

Received Certificate of Merit in recognition of outstanding service in the Law Enforcement Training Program of Juvenile Officers Institute, Division of Continuing Education, Louisiana State University, 1972.

Outstanding Professor award, College of Agriculture, Southern University, 1979 and 1980, respectively by Agriculture Students Council.

Nominee of Plant and Soil Sciences Department for Southern University President Faculty Excellence Award 1980 - 2nd place.

PARTICIPATION IN WORKSHOP AND SYMPOSIA:

Workshop on Controlling Vigor in Fruit Trees, Beltsville, Maryland

Small Farm Research Symposium, Beltsville, Maryland

PROFESSIONAL SERVICES PERFORMED:

1. Technical paper review panelist for 1890 4th Biennial Research Symposium (1982) National Science Foundation-(1983), and Louisiana Academy of Science (1983)

2. Adjunct Professor-Teaching a Basic Horticultural Course, entitled "Horticulture 2050" (Spring, 1983) and "Growth Development of Horticultural Crops 7023" (Fall '85), Louisiana State University.

3. To conduct a workshop on "Ornamental Plant Culture, Care and Management.

4. Assisted in the Coordination of USAID Sierra Leone Adaptive Crop Research Extension Project at Southern University.

MEMBERSHIP IN PROFESSIONAL:

Louisiana Academy of Sciences
American Society for Horticultural Sciences
International Society for Horticultural Sciences
Council for Agricultural Science and Technology
Faculty Senator, 1981-1982
American Society of Agronomy

PUBLICATIONS:

(1) Chin, Kit L., 1976. A Study of Endogenous and Exogenous Growing Regulators on Norman and Abnormal Shuck Opening of Pecan, Carya illinoensis (Wang) K. Koch Ph.D. Thesis, Louisiana State University, Baton Rouge, Louisiana, 162 pp.

(2) Chin, Kit L., 1979. Incidence and Locations of Flower and Pod Abortion of Three Vegetable-Type Soybean Cultivars, Southern University SEA/CR Research Bulletin, Vol., 1, No. 1, p. 53-39

(3) Chin, Kit L. and W. J. Lee, 1980. Effects of CaNO on Flower Abortion and Yield of Vegetable-Type Soybean. Proc. (Fifty-fourth Annual Meeting) of Louisiana academy of Science, Vol. XLIII:174.

(4) Chin, Kit L. and W. J. Lee, 1980. Evaluation of Gyphosate as Post-Transplant Herbicides on Tomatoe, Lycopersicon esculentum. Proc. (Fifty-fourth Annual Meeting) of the Louisiana Academy of Science, Vol. XLIII:174.

(5) Chin, Kit L. and W. A. Young, 1980. Hormonal Changes in Developing and Dehiscing Pecan Shucks. Hort-Science 15 (4): 522-523.

(6) Chin, Kit L. and W. J. Lee, 1980. "Effects of GA and Daminozide on Flower and Pod Abortion and Yield of Vegetable-Type Soybean. Southern University Research Bulletin, Vol. 2, p. 58-63.

(7) Chin, Kit L. and T. Abayneh, 1984. Nitrogen-fixation yield and flower abortion of soybean in response to herbicides. Abstract. p. 29 Fifth Biennial Research Symposium. Dallas, Texas.

(8) Javius, M., Kit L. Chin and T. Abayneh, 1984. Observational trial of muskmelons for potential small farm production. Abstract. p. 36. Fifth Biennial Research Symposium, Dallas, Texas.

(9) Chin, Kit L., W. J. Lee, and V. R. Bachireddy. 1980. "Effect of Nematicides and Insecticides on Flower and Yield of Soybean". Abstracts. Third Biennial Research Symposium, p. 27.

(10) Chin, Kit L., W. A. Young, and D. W. Newson, 1981. "Effects of Gibberellic Acid and Alar on Pecan Shuck Diseases and Yield". The Proceedings of the Louisiana Academy of Sciences, Vol. XLIII: 18-21.

(11) Chin, Kit L. and W. J. Lee, 1981. "Effect of Some Herbicides on Soybean Plant Growth, Flower and Pod Abortion and Weed Control. Proc. (55th Annual Meeting) of Louisiana Academy of Science, Vol. XLIV: 156.

(12) Chin, Kit L. 1981. Some Horticultural Considerations on Yardlong Beans Growing in Louisiana. Proc. (55th Annual Meeting of Louisiana Academy of Science, Vol. XLIV:156.

(13) Chin, Kit L. and W. J. Lee. 1981. "Effect of Insecticide on Vegetable-Type Soybean Flower Abortion, Yield and N Fixation. Abstract. 78th Ann. Meeting of Amer. Soc. for Hort. Sci. Vol. 16 (3):432.

(14) Chin, Kit L. 1981. Yardlong Bean - A Potential New Vegetable Crop for Louisiana. Abstract. 78th. Ann. Meeting of Amer. Soc. for Hort. Sci. Vol. 16 (3):423.

(15) Chin, K. L. and Willie J. Lee. 1982. Response of Soybean (Glycines max (L.) Merr) to the Side-Dress of Calcium Nitrate. Southern Univ. Research Bulletin Vol. 3, p. 43-53.

(16) Chin, Kit L., W. J. Lee, T. Abayneh and W. Birchfield. 1982. An Evaluation of Pre-Emergence Herbicides on Flower and Pod Abortion, N -Fixation, Yield and Nematode Population of Soybean. Abstract. Fourth Biennial Research Symposium.

(17) Bachireddy, V. R., R. Payne, Jr. and K. L. Chin. 1983. Studies on the Effects of Nematicides and Insecticides on Plant Parasitic Nematodes Populations, Yield and Yield Components of Nematode-Susceptible Soybean Cultivars. Paper presentation. Annual Meeting of Amer. Society of Agronomy (Southern Region), Atlanta, GA (February 6-9, 1983).

(18) Chin, Kit L., T. Abayneh and W. J. Lee. 1983. Preliminary Evaluation of Sweet Potato Varieties Grown Under Oliver Meeting of LA Academy of Science. Shreveport, LA (February 4, 1983).

(19) Bachireddy, V. R., Kit L. Chin, T. Abayneh and R. Payne, Jr. 1984 Agronomy Abstract of American Society of Agronomy. (Nov. 25-30, 1984), p. 121.

(20) Chin, Kit L. and T. Abayneh. 1984. Nitrogen-Fixation, yield and flower abortion in response to three pre-emergence herbicides. Agronomy Abstract of American Society of Agronomy. (Nov. 25-30, 1984), p. 123.

(21) Chin, Kit L., Tesfaye Abayneh and Willie J. Lee. 1983. The Effects of Three Herbicides on the Growth Factors and N -Fixation of Two Soybean Cultivars. Southern University Research Bulletin Vol. 5 (1):26-35.

(22) Chin, Kit L. and Tesfaye Abayneh. 1984. Preliminary Screening of Muskmelon Production. Proc. (57th Annual Meeting of LA Academy of Science, Vol. VLVI).

(23) Chin, K. L. and W. A. Young. 1985. Association of endogenous growth substances to premature shuck opening of pecan. The Proc. of the LA Academy of Science. Vol. XLVIII: 1-5.

(24) Chin, L. L., V. R. Bachireddy and T. Abayneh. 1985. Effect of Cloethocarb on nematode population, flower abortion, yield and dinitrogen-fixation. Journal of Nematology. Vol. 17 (4):493 (Abstract).

(25) Bachireddy, . R., R. Payne, Jr., and K. L. Chin. 1985. Effects Application of nematicides on nematode population, flower and pod abortion, N -fixation, yield and other performance measurements of soybeans. Journal of nematology. Vol 17 (4):491 (Abstract).

(26) Chin, K. L., T. Abayneh and J. Jackson. 1985. Varietal trial of muskmelons in south Louisiana. Sixth Association of Research Directors Research Symposium. p. 19 (Abstract).

(27) Martin, T., K. L. Chin, T. Abayneh and J. Jackson. 1985. Response of muskmelon genotypes to summer weather conditions in south Louisiana. Sixth Association of Research Directors Research Symposium. p. 22 (Abstract).

(28) Craft, W., K. L. Chin, T. Abayneh and J. Jackson. 1985 Comparison of methods for growing muskmelons for small farm production. Sixth Association of Research Directors Research Symposium. p. 23 (Abstract).

(29.) Bachireddy, V.R., R. Payne, and K.L. Chin. 1985- Distribution of nematodes parasitic on soybeans in Louisiana. Research Report.

(30.) Chin, Kit L. and J. Jackson. 1986. Response of Muskmelon to methods of growing. The Proc. of the LA Academy of Sciences, Vol. 49:57. (Abstract).

(31.) Chin, K.L., A. Negatu and T. Abayneh. 1987. Effect of Planting Dates on Muskmelon Production. ARD Seventh Biennial Research Symposium. P.32.

(32) Abayneh, Tesfaye and Kit L. Chin. 1989. Response of intercropped muskmelon, Southern peas and Snapbeans to N-P-K Abstract. Amer. Soc. for Hort. Sci. Southern Region. Hort. Science.

(33) Chin, Kit, L. and T. Abayneh. 1989. Growing Muskmelons, Extension bulletin. Southern University, Baton Rouge.

RESUME'

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EDUCATION

1973-1976: Oklahoma State University, Stillwater, OK; Ph.D. (Entomology)
1965-1967: Oklahoma State University, Stillwater, OK; M.S. (Botany)
1959-1963: Oklahoma State University, Stillwater, OK; B.S. (Botany)
Additional:
- 1963: Columbia University, New York, NY
- 1967: Universidad de Costa Rica, San Jose, Costa Rica
- 1969: Oak Ridge Associated Universities, Oak Ridge, TN
- 1967,'71,'72: Oklahoma State University, Stillwater, OK; (16 Credit Hours not applied toward degree)

Graduate GPA: 3.95 (4.00 basis)

PROFESSIONAL EXPERIENCE

1984-Present: Associate Professor, Center for Small Farm Research, Southern University, Baton Rouge, LA 70813; conducting research and extension-type activities related to reduced input insect pest management for small farm vegetable production.

1977-1983: Associate Professor of Biology, Langston University Langston, OK; taught introductory biology, environmental biology, entomology, and zoology; advised departmental majors.

1976-1977: Research Assistant, Langston Research Program Langston University, Langston, OK; conducted studies to help identify a biochemical basis for disease resistance in cotton.

1973-1976: Graduate Research Assistant, Department of Entomology, Oklahoma State University, Stillwater, OK; conducted field research on biological and chemical control of cotton insect pests; maintained laboratory colonies of Heliothis zea (Boddie) and H. virescens (F.).

1972-1973: Graduate Teaching Assistant, Department of Biological Science, Oklahoma State University, Stillwater, OK; conducted laboratory/discussion sessions for non-major introductory biology course.

1968-1972: Instructor ('68-'71) and Assistant Professor ('71-'72) of Biology, University of Maryland, E.S., Princess Anne, MD; taught general biology, zoology, botany, plant taxonomy, and ecology; established audio-tutorial system for introductory botany; served as faculty advisor for biology majors; prepared requisitions, reports, inventories, etc. for Department of Biology.

1965-1967: Graduate Teaching Assistant, Department of Botany, Oklahoma State University, Stillwater, OK; assisted in initial organization of audio-tutorial system for general botany and served as quiz section leader.

INTERNATIONAL EXPERIENCE

1963-1965: Served as a Peace Corps Volunteer in Nigeria; taught general science and biology at levels equivalent to junior high and high school; taught botany at the junior college level; planned and equipped the first science laboratory at Anglican Girls' School, Benin City.

1967: Participated in an intensive summer study/research program in tropical ecology, conducted on location in Costa Rica by the Organization for Tropical Studies through the Universidad de Costa Rica; support provided by the National Science Foundation.

1977-1981: Made annual (8-10 days) visits to the International Cotton Research Center near Iguala, Mexico to assist in the evaluation of cotton plants for disease and insect resistance (associated with a Langston University/Oklahoma State University cotton disease project).

1987: Toured Jamaica and Belize to evaluate sites and make preliminary arrangements for an on-location field study in international agriculture to be offered jointly by Southern University and Louisiana State University.

1988: Served as Southern University faculty coordinator during the first Southern University/Louisiana State University Field Study in International Agriculture, conducted for two weeks at locations throughout Jamaica.

FELLOWSHIPS AND STUDY GRANTS

National Science Foundation Teaching Assistant Fellowship

Organization for Tropical Studies/National Science Foundation (support for summer study and research at OTS facilities in Costa Rica)

Atomic Energy Commission (support for summer study at AEC facilities in Oak Ridge, TN)

PROFESSIONAL ORGANIZATIONS

Entomological Society of America
Southwestern Entomological Society
American Institute of Biological Sciences
Southern Association of Agricultural Scientists
Institute for Alternative Agriculture

HONORARY ORGANIZATIONS

Sigma Xi
Phi Sigma

PUBLICATIONS

Ensey, Ethyl K. 1967. Variations in the Carbohydrate Content of Roots of Andropogon scoparius as Affected by Time of Shoot Removal. M.S. Thesis, Oklahoma State University.

*Johnson, Ethyl K. Ensey. 1976. Comparison of Three Insect Control Schemes on Populations of Cotton Insects and Spiders, Fruiting Characteristics, Fruit Damage and Yield of Cotton. Ph.D. Dissertation. Oklahoma State University.

*Johnson, E. Kay and William M. Johnson. 1988. Fly management for rabbitries. The Journal of Applied Rabbit Research II(1):16-20.

*Johnson, E. K., J. H. Young, D. R. Molner and R. S. Morrison. 1976. Effects of three insect control schemes on populations of cotton insects and spiders, fruit damage and yield of Westburn 70 cotton. Environ. Entomol. 5:508-510.

*Johnson, W. M., E. K. Johnson and L. A. Brinkerhoff. 1980. Symptomatology and formation of microsclerotia in weeds inoculated with Verticillium dahliae from cotton. Phytopathology 70:31-35.

*Young, Jerry H., E. K. Johnson and R. G. Price. 1976. Sampling cotton and other field crops for insects. Oklahoma State University Agric. Exp. Stn. Bull. B-723.

*PUBLISHED UNDER THE SURNAME JOHNSON.

TESFA G. GHEBREMEDHIN

MAILING ADDRESS

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PERSONAL DATA

Birth date: March 24, 1947
Marital Status: Married, two children
Height: 6'1" Weight: 166 lbs.
U. S. Permanent Resident

EDUCATION

Ph.D. in Agricultural Economics, Oklahoma State University (May, 1981), Minor: Economics. Areas of Emphasis: Community and Rural Development, Regional and Resource Economics, and Policy Analysis.

M.Sc. in Economics, Colorado State University (August, 1976), Minor: Agricultural Economics. Areas of Specialization: Economic Development, Resources Economics, Economic Theory, Quantitative Methods and General Agricultural Economics.

B.Sc. in Economics, H.S.I. University, Addid Ababa, Ethiopia (July, 1972), Minor: Public Administration. Areas of Emphasis: Statistical Economics

Diploma in Veterinary Science, Animal Health School, Debre-Zeit, Ethiopia (July, 1966).

OTHER EDUCATIONAL EXPERIENCES

"Program of Environmental Education," jointly sponsored by the United Nations Environmental Program (UNEP) and Center for the Biology of Natural System, Washington University, St. Louis, (June 14 - July 23, 1976).

"Seminar on Agricultural Commodity Trading," sponsored by the Chicago Board of Trade, Chicago, September 22-23, 1982.

"Teaching Workshop" sponsored by the American Agricultural Economics Association (AAEA), Purdue University, Lafayette, Indiana, July 27-30, 1983.

"A Short-Course on the Macroeconomics of Agriculture - With Special Emphasis on International Trade," sponsored by the American Agricultural Economics Association (AAEA), Cornell University, Ithaca, New York, August 8-10, 1984.

PROFESSIONAL EXPERIENCE

Associate Professor, Department of Agricultural Economics and Center for Small Farm Research, Southern University, Baton Rouge, Louisiana (May, 1986 - Present). Major responsibilities include teaching four courses a year in Introduction to Agribusiness, Land Resources Economics, Applied Statistics Operation Research, Farm Management and Production and/or Rural and Urban Development.

Assistant Professor, Department of Agricultural Economics, Southern University, Baton Rouge, Louisiana (February, 1981 - April, 1986).

Graduate Research Assistant, Department of Agricultural Economics, Oklahoma State University (September, 1977 - January, 1981).

Teaching Practicum, Department of Agricultural Economics, Oklahoma State University (Spring, 1978). Assisted in teaching Introduction to Agricultural Economics.

Economist, Planning and Programming Department, Ministry of Agriculture, Addis Ababa, Ethiopia (July, 1972 - June 1974).

A delegate from Ethiopia, participated and presented a paper in an International Conference on "Agricultural Credit for Africa," jointly sponsored by FAO/UN and the Government of Finland, Accra, Ghana, December 3-14, 1973.

High School Mathematics Teacher, Ethiopia University National Service Program, Ministry of Education, Ethiopia (September, 1970 - July, 1971).

Veterinary Assistant, Veterinary Science Department, Ministry of Agriculture, Ethiopia (July, 1966 - August, 1967).

Junior High School Science Teacher, Ministry of Education, Ethiopia (September, 1963 - July, 1984).

RESEARCH PROJECTS

"An Economic Analysis of Selected Specialty Enterprises for Small and Limited Resource Farm Operations in Louisiana." Center for Small Farm Research, Southern University, Baton Rouge, Louisiana, 1986-Present.

"Alternative Ways for Low Income Farmers to Raise Equity Capital to Invest in New and Existing Cooperative," Department of Agricultural Economics, Southern University, Baton Rouge, Louisiana, 1983 - 1985.

"An Economic Analysis of Off-Farm Employment in the Rural Economy of Louisiana," Department of Agricultural Economics, Southern University, Baton Rouge, Louisiana, 1982 - 1986.

"An Analysis of Credit for Small Farm Growth," Department of Agricultural Economics, Southern University, Baton Rouge, Louisiana, 1981 - 1982.

"A Social Accounting System and Simulation Model for Analyzing Alternative Energy Choices for Oklahoma," Department of Agricultural Economics, Oklahoma State University, Stillwater, Oklahoma, 1977 - 1980.

"A Critical Analysis on the Land Reform Policy with Particular Reference to Ethiopia," Colorado State University, Fort Collins, Colorado, 1974 - 1976.

HONORS AND AWARDS

Research Assistantship, Department of Agricultural Economics, Oklahoma State University (September, 1977 - January, 1981).

United States Assistance for International Development (USAID) scholarship for Masters Program (June, 1974 - May, 1976).

United Nations Environmental Program (UNEP) and Center for the Biology of Natural System, Scholarship for "Environmental Education," Washington University, St. Louis (June 14 - July 23, 1976).

PROFESSIONAL AFFILIATION

American Agricultural Economics Association (AAEA)
Western Agricultural Economics Association (WAEA)
Southern Agricultural Economics Association (SAEA)
Southern Regional Science Association (SRSA)
Louisiana Academy of Science (LAS)

LEADERSHIP ACTIVITIES

Public Relation Officer of Economics Student Association, Haile Selassie I University, Addis Ababa, Ethiopia (1971-1972).

Chairman, Academic Committee, Graduate Students' Association (GSA) Department of Agricultural Economics, Oklahoma State University, Stillwater, Oklahoma (1979-1980).

Committee Member of Publication and Review Committee, Catalog Committee, and Curriculum and Instruction Committee, College of Agriculture, Southern University, Baton Rouge, Louisiana (1981-present).

Chairman, Seminar Committee, College of Agriculture, Southern University, Baton Rouge, Louisiana (1981-present).

Senator for the College of Agriculture Faculty, Southern University Faculty Senate, Southern University, Baton Rouge, Louisiana (1983-1985).

Organizer and Moderator of a symposium entitled "Survival of Small Farms: Issues and Problems," Southern Agricultural Association Annual Meeting, Nashville, Tennessee, February 5-8, 1984.

Organizer and participant of an invited paper session entitled "The Role of Black Land Grant Institutions in Agricultural Economics, Teaching and Extension Programs." Southern Agricultural Economics Association Annual Meeting, Biloxi, Mississippi, February 3-6, 1985.

Organizer and participant of a symposium entitled "Problems and Issues of Black Operated Farms," American Agricultural Economics Association Annual Meeting, Ames, Iowa, August 4-7, 1985.

Member, Committee for Opportunities and Status of Blacks in Agricultural Economics Profession. American Agricultural Economics Association (AAEA), (1985-present).

Organizer and Discussant of an invited paper session entitled "Third World Development and Trade." American Agricultural Economics Association (AAEA) Annual Meeting, Reno, Nevada, July 27-30, 1986.

Organizer and participant of a symposium entitled "The Issues and Implications of Off-Farm Employment for Rural Communities" American Agricultural Economics Association Annual Meeting, Reno, Nevada, July 27-30, 1986.

Member, Committee for Distinguished Professional Contribution in Extension, Southern Agricultural Economics Association (SAEA), 1986-present.

REFERENCES

Dr. Dean F. Schreiner
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LIST OF PUBLICATIONS AND PRESENTATIONS

Thesis

1. Ghebremedhin, Tesfa G. "A Critical Analysis on the Land Reform Policy-Ethiopia." M.Sc. Thesis, Colorado State University, Fort Collins, Colorado, August, 1976.

2. Ghebremedhin, Tesfa G. "A Social Accounting System and Simulation Model for Analyzing Alternative Energy Choices for Oklahoma and Projecting Economic Variables from 1972 to 2000." Ph.D. Thesis, Oklahoma State University, Stillwater, Oklahoma, May 1981.

Refreed

1. Schreiner, Dean F., Tesfa G. Ghebremedhin and Shwu-Eng Webb. "Results of the Measurement of Quality of Employment Growth in Oklahoma, 1970-74." Oklahoma Current Farm Economics, Vol. 52, No. 3, Agricultural Experiment Station, Oklahoma State University, Stillwater, OK, Sept., 1979.

2. Ghebremedhin, Tesfa G. and Michael Salkin. "Potential Economic Impacts Resulting from Expansion in Oklahoma's Coal Industry." Oklahoma Current Farm Economics, vol. 53, No. 2, Agricultural Experiment Station, Oklahoma State University, Stillwater, OK, June 1980.

3. Schreiner, Dean F. and Tesfa G. Ghebremedhin. "Employment and Income Effects of Recreation Expenditures at the McClellan-Kerr Arkansas River Navigation System." Oklahoma Current Farm Economics, Vol. 54, No. 3, Sept. 1981.

4. Ghebremedhin, Tesfa G. "An Analysis of Louisiana Population Estimates and Projections." Proceedings, Louisiana Academy of Sciences, Vol. 55, 1982.

5. Ghebremedhin, Tesfa G. "Estimation and Projections of Louisiana Population, 1971-2000." Louisiana Rural Economist, Vol. 44, No . 3 Department of Agricultural Economics, Louisiana State University, Baton Rouge, Louisiana, August 1982.

6. Ghebremedhin, Tesfa G., Gilda Johnson and Leroy Davis. "Small Farm Credit Financing Practices in Louisiana." Louisiana Rural Economist, Vol. 45, No. 3, Department of Agricultural Economics, Louisiana State University, Baton Rouge, Louisiana, August, 1983.

7. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "An Input-Output Approach for Analysis of Energy and Economic Policies in Oklahoma." Proceedings, Oklahoma Academy of Sciences, Vol. 63, 1983.

8. Ghebremedhin, Tesfa G. "Economic Factors Influencing the Survival of Small Farms." in Strategy for Survival of Small Farms- International Implications. Human Resource Development Center, Tuskegee Institute, 1985.

9. Ghebremedhin, Tesfa G. and William M. Johnson. "Small Farm Research and Policy Implications." SJAE, Vol. 17, No. 1, July 1985.

10. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "An Input-Output Approach for Analysis of Alternative Energy Choices." The Review of Regional Studies. Vol. 13, No. 1, Spring 1985.

11. Ghebremedhin, Tesfa G. "Third World Development and Trade: Discussion." AJAE. Vol. 68, No. 5, December 1987 (forthcoming).

OTHER PUBLICATIONS

1. Ghebremedhin, Tesfa G. and Michael S. Salkin. "An Analysis of Oklahoma's Coal Industry". Research Report P-780, Agricultural Experiment Station, Oklahoma State University, Stillwater, November, 1978.

2. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "Demand and Price Relationship for Oklahoma Coal". Research Report P-789, Agricultural Experiment Station, Oklahoma State University, Stillwater, June, 1979.

3. Schreiner, Dean F., Tesfa G. Ghebremedhin and Shwu-Eng Webb. "Evaluating Quality of Employment Growth in Oklahoma 1970-74". Research Report P-788, Agricultural Experiment Station, Oklahoma State University, Stillwater, July 1979.

4. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "Data Base for Analysis of Alternative Energy Choices in an Energy Producing State." Professional Paper P-1033, Agricultural Experiment Station, Oklahoma State University Stillwater, May 1981.

5. Ghebremedhin, Tesfa G., Leroy Davis, Gilda Johnson, and Raymond H. Bridges. "Analysis of Credit for Small Growth." CSRS Research Report and an article also published in CSRS Research Bulletin, Vol. 4, No. 1, Cooperative Agricultural Research Program, Southern University, Baton Rouge, July 1982.

6. Ghebremedhin, Tesfa G. and Elzadia Washington. "Profiles of Louisiana Off-Farm Employment Characteristics and Distributions." CSRS Research Bulletin, Vol. 5, No. 1, Cooperative Agricultural Research Program, Southern University, Baton Rouge, Louisiana, September 1983.

7. Hirunruk, Vorawoot, Tesfa G. Ghebremedhin and Dean F. Schreiner. "Energy Date Base for Oklahoma By Economic Sector and Energy Source." Research Report A.E. 8326 Department of Agricultural Economics, Oklahoma State University, Stillwater, Oklahoma, February 15, 1983.

8. Ghebremedhin, Tesfa G. and Tammy Armand-Golden. "Sources and Problems in Seeking Off-Farm Employment." CSRS Research Bulletin, vol. 6, no.1, Southern University, Baton Rouge, Louisiana, 1984.

9. Ghebremedhin, Tesfa G. "Guide to the Techniques of Scientific Writing." A Hand Book to be used in the Special Problems (499) Courses, Department of Agricultural Economics, Southern University, Baton Rouge, LA, 1984.

10. Hirunruk, Vorawoot, Tesfa G. Ghebremedhin, Dean F. Schreiner and Chaipant Pongtanakorn. Energy Price Changes and Their Impact on Commodity Prices in Oklahoma: An Application of An Interregional Input-Output Price Model. Research Report P-864, Agricultural Experiment Station, Division of Agriculture, Oklahoma State University, Stillwater, April 1985.

11. Jones, Dewitt, Tesfa G. Ghebremedhin and Carolyn F. Branch. Financing Low-Resource Farmer Cooperatives. Staff Report, Department of Agricultural Economics, College of Agriculture, Southern University and U.S. Department of Agriculture, Agricultural Cooperative Service, May 1986.

12. Ghebremedhin, Tesfa G. (editor) Problems and Policy Implications of Black Operated Farms. General Publication 86-101, Center for Small Farm Research, Southern University, March 1986.

PRESENTED PAPERS

1. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "Estimation and Analysis of An Energy Information System for Oklahoma." (Abstract) Proceedings, Oklahoma Academy of Science. Vol. 60, 1980, Norman, Oklahoma, February 5-6, 1979.

2. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "Data Base for Analysis of Alternative Energy Choices in an Energy Producing State." Paper presented at the Mid-Continent Regional Science Association Annual Meeting, Cincinnati, Ohio, May 14-16, 1981.

3. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "Economic Impact of Recreation Expenditures: An Interregional Input-Output Approach." (Abstract) SJAE, Vol. 14, No. 1, July, 1982, Orlando, Florida, February 5-8, 1982.

4. Ghebremedhin, Tesfa G., Gilda Johnson and Leroy Davis. "Profiles of Lending Institution's Policy for Small Farm Operation in Louisiana." (Abstract) Proceedings, Louisiana Academy of Sciences, Vol. 55, 1982, Lake Charles, Louisiana, February 3-4, 1982.

5. Ghebremedhin, Tesfa G. "The Distribution and Characteristics of Louisiana Population." (Abstract) Proceedings, Louisiana Academy of Sciences, Vol. 55, 1982, Lake Charles, Louisiana, February 3-4, 1982.

6. Ghebremedhin, Tesfa G. and Dean F. Schreiner. "Economic Impact Analysis of Alternative Energy Choices: An Input-Output Approach." Paper presented at the Southern Regional Science Association Annual Meeting, Knoxville, Tennessee, May 30 - June 2, 1982.

7. Ghebremedhin, Tesfa G. "Potential Employable Rural Labor Force in Louisiana." (Abstract) Fourth Biennial Research Symposium, The Association of Research Directors of Historically Black Land Grant Colleges and State Universities. Orlando, Florida, October 27-30, 1982.

8. Ghebremedhin, Tesfa G., Gilda Johnson, and Leroy Davis. "Lending Policies of Financial Institutional and Small Farm Borrowing Practices." (Abstract) Fourth Biennial Research Symposium, The Association of Research Directors of Historically Black Land Grant Colleges and State Universities. Orlando, Florida, October 27-30, 1982.

9. Ghebremedhin, Tesfa G. and Elzadia Washington. "Profiles of Louisiana Off-Farm Employment Characteristics and Distributions." Paper presented at the Louisiana Academy of Science Annual Meeting, Shreveport, Louisiana, February 3-4, 1983.

10. Ghebremedhin, Tesfa G. and Dean F. Schriener. "Simulation Model for Analyzing the Impact of Alternative Energy Sources in the Oklahoma Economy." (Abstract) SJAE, Vol. 16, No. 1, July 1984, Nashville, Tennessee, February 5-8, 1984.

11. Ghebremedhin, Tesfa G., Gilda Johnson and Leroy Davis. "Capital Financing Policies and Practices on Small Farm Operation." (Abstract) Sociological Abstract, Suppl. 126 Southern Rural Sociology, February 1984, Nashville, Tennessee, February 5-8, 1984.

12. Ghebremedhin, Tesfa G. and Tammy Armand-Golden. "Sources and Problems in Seeking Off-Farm Employment." (Abstract) Proceedings, Louisiana Academy of Sciences, Vol. 57, 1984. New Orleans, Louisiana, February 3-4, 1984.

13. Ghebremedhin, Tesfa G. (Symposium Moderator and Organizer) "Survival of Small Farms - Issues and Problems." (Abstract) SJAE, Vol. 16, No. 1 1984, Nashville, Tennessee, February 5-8, 1984.

14. Ghebremedhin, Tesfa G. "An Economic Analysis of the Structure of Production Agriculture in Louisiana." (Abstract) Fifth Biennial Researc Symposium, The Association of Research Directors of Historically Blac Land Grant Colleges and State Universities, Dallas, Texas, October 23-26, 1984.

15. Ghebremedhin, Tesfa G. and Tammy Armand-Golden. "Small Farm Characteristics in Retrospect." (Abstract) Fifth Biennial Research Symposium, the Association of Research Directors of Historically Black Land Grant Colleges and State Universities, Dallas, Texas, October 23-26, 1984.

16. Ghebremehdin, Tesfa G. "Economic Factors Influencing the Survival of Small Farms." Paper presented at Professional Agricultural Workers Conference (PAWC), Tuskegee Institute, Alabama, December 2-4, 1984.

17. Ghebremedhin, Tesfa G. "The Controversy of World Food Insecurity: An Overview." Paper presented at the Southern Regional Science Association Annual Meeting, Washington, D.C., May 9-11, 1985.

18. Ghebremedhin, Tesfa G. "The Role of the Historically Black Land Grant Institutions in Research and Extension Programs for Black Operated Farms." Paper presented in an Organized Symposium, "The Problems and Issues of Black Operated Farms." American Agricultural Economics Association (AAEA) Annual Meeting, Ames, Iowa, August 4-7, 1985.

19. Ghebremedhin, Tesfa G. and Tammy Armand-Golden. "Characteristics of Small Farms Household Members Working Off-Farm Jobs in Louisiana." (Abstract) Sixth Biennial Research Symposium, The Association of Research Directors of Historically Black Land Grant Colleges and State Universities, Atlanta, Georgia, October 20-22, 1985.

20. Brown, Adell, Ralph Christy and Tesfa Ghebremedhin. "Structural Changes in U.S. Agriculture: Implications for Minority Farmers." Regional Conference on Small Farm Research and Extension in the Southern Region, Tallahassee, Florida, January 21-22, 1986.

21. Ghebremedhin, Tesfa G. "Potential Labor Force in the Rural Areas of Louisiana." Paper presented at the Southern Agricultural Scientists Association (SASA), Rural Sociology Section, Annual Meeting, Orlando, Florida, February 3-5, 1986.

22. Ghebremedhin, Tesfa G. "Off-Farm Employment of Farm Families: Characteristics, Trends and Distributions." Paper presented in Organized Symposium. "The Issues and Implications of Off-Farm Employment for Rural Communities." American Agricultural Economics Association (AAEA) Annual Meeting, Reno, Nevada, July 27-30, 1986.

23. Ghebremedhin, Tesfa G. "Third World Development and Trade: Discussion." Paper presented at American Agricultural Economics Association (AAEA) Annual Meeting (invited paper session), Reno, Nevada, July 27-30, 1986.

CURRICULUM VITAE

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HOME ADDRESS: 152 South Foster Drive #3, Baton Rouge, Louisiana 70806, Telephone Number (504) 926-8006

BIRTH: May 17, 1943 at Richland, Georgia

EDUCATION:

Ph.D., 1977. University of Illinois at Urbana-Champaign, Agronomy - Soil Science curriculum. Dissertation Title: Evaluation of selected types of soil maps for classifying agricultural land in Illinois on the basis of soil productivity indexes.

M. S., 1973. University of Illinois at Urbana-Champaign, Agronomy - Soil Science curriculum. Thesis Title: Characteristics of selected soils developed on sand dunes in the Kankakee Flood area.

B. S., 1968. Fort Valley State College, Agriculture - Agronomy curriculum.

EXPERIENCE:

September 1986 to present. Designing and conducting soil fertility research and educational programs for small-scale farm enterprises.

May 1984 to August 1986. **Research Scientist and Coordinator**, Agronomic Research Program, Prairie View A&M University, Prairie View, Texas. Designing and conducting research on forage crop management systems; and coordinating agronomic research planning and resource utilization.

September 1980 to May 1984. **Assistant Professor**, Prairie View A&M University, Prairie View, Texas. Teaching of graduate and undergraduate courses in soil science; advising graduate and undergraduate students; supervising graduate students in thesis research; and developing proposals for and conducting research on forage crop management systems.

July 1977 to August 1980. **Extension Program Specialist**, Prairie View A&M University, Prairie View, Texas. Developing and testing model for delivering soil science technology to traditional farmers in developing countries; conducting studies of crop yield response under various mixed cropping systems in Ghana, W. Africa; developing proposals for university international programs; and providing training and direction to county agents and aides in 28 Texas counties on methods to aid low-income farmers.

EXPERIENCE (continued):

September 1971 to May 1977. **Research and Teaching Assistant in Agronomy,** University of Illinois. Conducting field and laboratory studies and mapping of soils; providing laboratory instruction for introductory course in soil science; and operating computer terminal during evenings.

June 1968 to August 1973 (except periods of military and educational leave). **Soil Scientist,** USDA-SCS, Champaign, Illinois. Surveying soils in 5 counties, preparing soil maps and assisting individuals and groups of land users in the use of soils information.

January 1971 to July 1977. **Lieutenant,** U. S. Navy Reserve (ready reserve). Attending weekly or monthly readiness training drills; providing and receiving training in various skills; planning for and supervising activities for each drill; maintaining records of activities and of assigned personnel; and receiving training during annual two-week active duty periods.

September 1968 to October 1970. **Lieutenant (JG),** U. S. Navy Reserve (active duty). Completing officer candidate and mine warfare staff officer schools; planning and conducting training for U. S. and allied nation ships; serving as liaison operations officer on allied nation ships during joint training exercises; and preparing operation orders for exercises and daily briefs for allied and U. S. commanders in the Pacific area.

Summer 1967. **Survey consultant,** Heath Survey Consultants, Inc. Surveying along natural gas lines in cities in Maryland, Pennsylvania and New York for leaks by vegetative indicators; and preparing reports of detected leaks.

Summer 1966. **Soil Conservationist Trainee,** USDA-SCS. Developing and implementing soil conservation farm plans in Henry County, Georgia; surveying and designing farm ponds; and learning technical and administrative procedures of the SCS.

Summer 1965. **Field Reporter,** USDA-ASCS. Checking farms in Stewart County, Georgia, for crop acreage allotment compliance; and mapping and reporting findings.

June 1962 to June 1964. **Volunteer,** U. S. Peace Corps. Conducting demonstrations of improved methods of poultry production to farmers in northern India; assisting farmers in establishing and managing small poultry enterprises; and establishing poultry producers marketing cooperatives.

June 1961 to June 1962. **Family farm manager and worker.** Planning and implementing all farming operations for enterprises including peanuts, corn and other grains, cattle, swine and vegetable crops.

During childhood through high school graduation. **Family farm worker.** Assisting parents in carrying out general farm chores, including feeding livestock and cultivating and harvesting crops.

OTHER STUDIES:

Various Extension Short Courses, 1977 through 1980.

Dale Carnegie effective speaking course, 1967, 1969 and 1981.

PROFESSIONAL AFFILIATIONS:

American Society of Agronomy
Soil Science Society of America
Louisiana Association of Agronomy
International Congress of Soil Science

HONORS AND AWARDS:

American Society of Agronomy Outstanding Senior Award, 1968.

Who's Who Among Students in American Universities and Colleges, 1967.

FOREIGN LANGUAGES:

Hindustani - limited conversational use.
Japanese - studied basics while in military.
French - studied basics in high school.

FOREIGN TRAVEL:

Worked in **Ghana** over a two-year period as Agricultural Extension Specialist; visited three other African countries.

Served on U. S. ship home-ported in **Japan** for 14 months; traveled in 5 countries in the Western Pacific.

Lived and worked in **India** for two years as Peace Corps Volunteer; traveled in 14 countries in the Middle East and Europe during and after service.

COMPUTER EXPERIENCE:

Had college courses in computer science; use computers at work, as hobbyist, in consulting work and for completing office work at home; including high and low level programming languages and use of application programs.

Programming languages:

BASIC
IBM PC BASICA, GWBASIC, and TURBO BASIC
IBM 5110 system BASIC

Machine Language (Assembler Code)
Intel 8086/8088/80286
FORTRAN
C-Language

COMPUTER EXPERIENCE (Continued):

Application programs:

Word Processors/Text Editors	Proofreaders	Assemblers/Linkers
Electronic Spread Sheets	Data Base Managers	System Utilities
Statistical Analysis Packages	Language Compilers	Tele-communications

Computer Related Articles Published as Hobbyist:

Harris, Thom, Ph.D. 1985. Creating the perfect star-spangled banner (with OL-GLORY.BAS, STAR.BAS & FIGURE1.BAS programs to create geometrically perfect stars). Soft Sector 1 (12):28-33.

Harris, Thom, Ph.D. 1985. Oodles of doodles (with DOODLER.BAS - a program to create non-stop, high-resolution, random graphic designs). Soft Sector 1 (10):60-66.

PUBLICATIONS:

Harris, T. S., C. G. Brown, W. G. Watt, and A. S. Mangaroo. 1986. Effects of fall harvesting on bermudagrass production during succeeding years. In Forage Research in Texas (1986). Texas Agr. Exp. Sta. Publication CPR-4499.

Harris, T. S., V. L. Jones and L. Gordon. 1984. Effects of fall clipping on bermudagrass yields the following year. In Forage Research in Texas (1984). Texas Agr. Exp. Sta. Publication CPR-4253.

Harris, T. S., V. L. Jones and G. O. Akpobome. 1984. Effects of clipping heights and nitrogen on yields and protein content of Callie bermudagrass. In Forage Research in Texas (1984). Texas Agr. Exp. Sta. Publication CPR-4253.

Harris, T. S. 1981. Effects of companion crops on maize yields under West African polyculture systems. Special Publication 211(d) grant series. College of Agriculture. Prairie View A&M University. Prairie View, Texas.

Harris, T. S., S. S. Y. Opoku and H. B. Obeng. 1979. Testing of a system to aid small-scale farmers in Ghana (Transfer of soil research and other agronomic technology directly to small-scale farmers within the Kumasi District of Ghana). Bulletin No. 8. Soil Research Institute, CSIR. Kwadaso-Kumasi, Ghana.

Harris, T. S. 1978. Testing of a delivery system to transfer agricultural technology to small farmers in lesser developed countries. Special Report 211(d) grant series. College of Agriculture. Prairie View A&M University. Prairie View, Texas.

Fehrenbacher, J. B., I. J. Jansen, B. W. Ray, J. D. Alexander and T. S. Harris. 1977. Soil associations of Knox County, Illinois. Special Publication 46. College of Agriculture. University of Illinois at Urbana-Champaign, Illinois.

PUBLICATIONS (continued):

Fehrenbacher, J. B., B. W. Ray, T. S. Harris and E. E. Voss. 1974. Prime agricultural land in Illinois. Illinois Research 16: 14-15.

PUBLISHED ABSTRACTS OF PRESENTATIONS:

Brown, C. G., T. S. Harris and A. S. Mangaroo. 1986. Effects of fall harvesting on bermudagrass yields during succeeding years. Abstracts of the 83rd Annual Meetings of the Southern Assoc. of Agr. Scientists.

Watt, W. S., T. S. Harris and A. S. Mangaroo. 1986. Digestible dry matter of two bermudagrasses as a function of previous fall harvesting schedules and soil nitrogen levels. Abstracts of the 83rd Annual Meetings of the Southern Assoc. of Agr. Scientists.

Harris, T. S., V. L. Jones and L. Gordon. 1984. Effects of fall harvest schedules on winter tolerance in bermudagrasses. Abstracts of the 5th Biennial 1890 Research Symposium.

Harris, T. S., V. L. Jones and G. O. Akpobome. 1984. Effects of clipping heights and nitrogen of yields and protein content of Callie bermudagrass. Abstracts of the 5th Biennial 1890 Research Symposium.

Gordon, L., V. L. Jones and T. S. Harris. 1984. Effects of late fall clipping on bermudagrass winter tolerance. Abstracts of the 1984 Annual Meetings of the Southern Assoc. of Agr. Scientists.

Harris, T. S., G. O. Akpobome and V. L. Jones. 1984. Clipping heights on yields and protein of Callie bermudagrass. Abstracts of the 1984 Annual Meetings of the Southern Assoc. of Agr. Scientists.

Harris, T. S., and N. Nnamani. 1982. Effects of stubble height on winter hardiness of Callie bermudagrass. Abstracts of the 4th Biennial 1890 Research Symposium.

Jones, V. L., and T. S. Harris. 1982. Increasing winter hardiness of Callie bermudagrass through controlled fall clipping. Abstracts of the 4th Biennial 1890 Research Symposium.

Mickey, R., and T. S. Harris. 1981. Correlation of soil organic carbon with soil and environmental parameters of the Texas Gulf Coastal Prairie. Abstracts of the 1981 annual meetings of the Southern Assoc. of Agr. Scientists.

COPYRIGHTS:

Harris, T. S., Ph.D. 1985. EZMENU - the disk file manager for BASIC computer programs (unpublished collection of computer programs and documentation). U. S. Copyright Office Registration Number TXU 210 876.

JAMES I. MCNITT
CENTER FOR SMALL FARM RESEARCH
SOUTHERN UNIVERSITY
BATON ROUGE, LA 70813

EDUCATION AND QUALIFICATIONS

Universities

Cornell University, Ithaca, New York, Bachelor of Science with a major in Animal Science 1964

Colorado State University, Fort Collins, Colorado, Master of Science in Animal Breeding 1966

University of Wyoming, Laramie, Wyoming, summer course in Physics 1966

University of Iowa, Iowa City, Iowa, one year with a major in Zoology 1967

University of Wisconsin, Madison, Wisconsin, Doctor of Philosophy in Reproductive Physiology with a minor in Meteorology 1971

Additional Scientific Experience

Naval Arctic Research Laboratory, Barrow, Alaska, Research on circadian rhythms of captive polar bears

Other Qualifications and Skills

Fair reading knowledge of French and German, personal typing, working knowlege of IBM PC-XT use including PC-SAS and Wordstar.

PROFESSIONAL MEMBERSHIPS

American Rabbit Breeders Association
American Registry of Professional Animal Scientists
American Society of Animal Science
Council for Agricultural Science and Technology
Louisiana Commercial Rabbit Growers Association
The Society of the Sigma Xi

PROFESSIONAL AND EMPLOYMENT EXPERIENCE

1. Rabbit Production Specialist/Associate Professor of Animal Science (75% research, 25% outreach), Center for Small Farm Research and Department of Animal Science, College of Agriculture and Home Economics. Southern University and A&M College, Baton Rouge, LA, 70813, August 1984 to present

Duties, Responsibilities and Accomplishments:

Research: I established a Rabbit Research Project to conduct studies of some important commercial production problems faced by small-scale, limited resource rabbit producers of Louisiana. Research activities include investigations of methods of feeding, weaning procedures, development of a circular management calendar, characterization of the reproductive cycle of the doe and determination of the effects of extra feeding on suckling kits and development of methods for providing such extra feed. Long term research includes collection of data for breed comparisons and studies of the effect of climate on rabbit productivity.

Outreach: I established an effective outreach program to provide general production information and relevant research results to target clientele. Numerous short information sheets and several longer articles dealing with various aspects of rabbit production were developed for distribution to current and potential producers. I established a close working relationship with the Louisiana Commercial Rabbit Growers Association, Inc. (which awarded me honorary associate membership status) and the Louisiana Rabbit Breeders Association. The Rabbit Research Project, with the Louisiana Cooperative Extension Service, has staged three annual Rabbit Education Days each of which was attended by about 100 producers and others interested in commercial rabbit production. Proceedings of each conference have been produced for distribution to the participants and other interested persons. Through my association with the Louisiana Cooperative Extension Service, I have conducted a number of workshops for producers and 4-H club members throughout the state. I have also been a guest speaker at producer seminars at the University of Arkansas, and Michigan State University.

Administration: I have borne primary responsibility for development of the rabbit program including planning and equipping the physical facilities, establishment of the research herd, budgetary planning and execution and supervision of the research personnel attached to the unit. I have served on the College Promotion and Tenure, Publication Review and Research Review Committees as well as chairing several ad hoc committees for the Department and the College. I organized and bore primary responsibility for a College Display at Expo Tech '87 and am currently coordinating planning and execution of a college-wide Farmer education Day to be held April 30, 1988.

Teaching: Although teaching was not specified as a part of the job description, I shared responsibility for teaching "Reproduction of Farm Animals" in the Fall semester, 1987.

Reasons for Leaving: Desire for employment on hard funds with potential for tenure and long-term stability and participation in a graduate program.

2. Warehouse Foreman, G & G Equipment Co., 226 Broadway, Schenectady, New York, 12305, May 1983 to June 1984

Immediate Supervisor: Mr. Gerald Zuckerman, Vice-President, Telephone (518) 393-2183

Duties, Responsibilities and Accomplishments:

Supervision of receiving and warehousing of restaurant and bar supplies and equipment. Organization of deliveries, assisting with retail sales and cataloging and inventory of used equipment. Overall organization and supervision of three warehouse and delivery personnel.

Reason for Leaving: Desire to return to agriculturally oriented work.

3. Lecturer in Livestock Production, Bunda College of Agriculture, P.O. Box 219, Lilongwe, Malawi, Africa, September 1974 to November 1982; promoted to Senior Lecturer in January 1978

Immediate Supervisor: Professor M. H. Butterworth, Head of Department

Duties, Responsibilities and Accomplishments:

Teaching: Lecturing and demonstrating to students undertaking Diplomas and Degrees in Agriculture. Courses taught include Anatomy and Physiology, Livestock Improvement, Feeds and Feeding, Statistics, Invertebrate and Vertebrate Zoology, Animal Health, Milk and Meat Technology, various animal production courses and animal handling. I also supervised two final year student research projects each year.

Development: Involvement in the design of facilities and curricula for the ongoing expansion program of the College.

Administration: Participation in numerous committees of the Faculty of Agriculture and the University of Malawi. I was Acting Department Head in the absence of Professor Butterworth and was editor of the Research Bulletin of Bunda College of Agriculture, the College Farm Guide and the College Handbook.

Research: I initiated and carried out a project to investigate the feasibility of rabbit production in the smallholder sector and to develop a management 'package' to enable

the interested farmer to start rabbit production with minimum capital outlay. Other research included development of a program for physical and semen examination of bulls, design, construction and testing of a caliper for assessing the slope of the rump in zebu cattle and assessment of the body dimensions of the local cattle. Measurements studied included scrotal circumference, heart girth, withers height and body weight.

Reason for Leaving: End of contract and a desire to resettle in the United States.

4. Visiting Scientist, Rabbit Research Center, Oregon State University, Corvallis, Oregon, November, 1980 to June 1981 while on sabbatical leave from Bunda College of Agriculture.

Immediate Supervisor: Dr. P. R. Cheeke

Duties, Responsibilities and Accomplishments:

This period was devoted to research on the effects of cottonseed meal on growth rate and semen quality in rabbits. Additional work on the effect of frequency of use on male fertility and of season on fertility with a comparison between Oregon and Malawi was carried out.

5. Farm Manager, Hawane Farm, P. O. Box 404, Mbabane, Swaziland, Africa, November and December, 1973.

Immediate Supervisor: Mr. J. W. Dobson, Owner

Duties, Responsibilities and Accomplishments:

This was a temporary appointment to fill in between full time farm managers and to assist in developing the milking routine during the changeover from hand to machine milking. This involved installation of a pipeline system, training the dairymen and cows to milking machines and establishment of livestock identification and recording systems.

Reason for Leaving: Arrival of permanent farm manager.

6. Lecturer in Animal Husbandry, University of Botswana, Lesotho and Swaziland, P. O. Luyengo, Swaziland, Africa, November 1971 to November 1973 through affiliation with the Peace Corps.

Immediate Supervisor: Mr. E. A. Johnson, Head of Department

Duties, Responsibilities and Accomplishments:

Lecturing to students undertaking a two-year Diploma in Agriculture. Courses taught include Animal Breeding, Swine Production and Livestock Practicals. I was also responsible for management of the College livestock which included beef and dairy cattle, sheep and poultry. I carried out research on the

relationship between pasture yield and livestock productivity and on the use of a chemical defleecing agent with coarse-wooled sheep and prepared the first drafts of the poultry production unit for the Schools Agriculture Program and of Livestock Husbandry Techniques.

Reason for Leaving: End of contract

7. Research Specialist, Department of Meat and Animal Science, University of Wisconsin, Madison, Wisconsin, February to July 1971.

Immediate Supervisor: Dr. A. L. Pope, Head of Department

Duties, Responsibilities and Accomplishments:

This was a temporary appointment to substitute for a professor on sabbatical leave. My primary responsibility was teaching a course in Reproductive Physiology for upper classmen and graduate students

Reason for Leaving: End of appointment due to return of professor

8. Agricultural Statistician, New York Crop Reporting Service, Statistical Reporting Serivce of the United States Department of Agriculture, Albany, New York, June to September 1962 and 1963 as a student trainee, February to August 1964 on a full-time appointment

Immediate Supervisor: Mr. Wm. I. Bair

Duties, Responsibilities and Accomplishments:

I assisted in the compilation and analysis of survey data to formulate predictions of agricultural productivity. This involved some field evaluation of crops as well as questionnaire tabulation and analysis.

Reason for Leaving: Enrollment in graduate school

9. Other Employment: I have held a number of short term jobs including work as a counsellor in a Boy Scout Camp, laboratory technician, farm laborer working with dairy and beef cattle and chickens, combine driver, custodial work, work in gas stations and as a general laborer.

PUBLICATIONS

BOOKS

Cheeke, P. R., Patton, N.M., Lukefahr, S.D. and McNitt, J.I., 1987. Rabbit Production. 6th edition. Interstate Printers and Publishers, Danville, Illinois. 472 pp.

McNitt, J.I. 1983. Livestock Husbandry Techniques. Granada Publishing Ltd., London. 280 pp.

REFEREED PAPERS

McNitt, J.I. 1987. Behavior in the nestbox. J. Appl. Rabbit Res. (In Press).

McNitt, J.I. 1986. Waste water in rabbitries. J. Appl. Rabbit Res., 9:80-82.

McNitt, J.I. 1986. The effects of moving kits at weaning on subsequent performance. J. Appl. Rabbit Res., 3:109-110.

McNitt, J.I. 1986. A circular calendar for rabbitry management J. Appl. Rabbit Res., 9:122-124.

McNitt, J.I. 1985. The use of a simulation program for rabbit herd projections. J. Appl. Rabbit Res., 3:113-121.

McNitt, J.I. and Butterworth, M.H. 1984. The age of eruption of the permanent incisors of female Malawi Zebu cattle. Zimbabwe J. agric. Res., 22;101-103.

Butterworth, M.H. and McNitt, J.I. 1984. The Malawi Zebu. World Animal Review, 49:6-12.

Butterworth, M.H. and McNitt, J.I. 1983. Projection of cattle herd composition using a programmable calculator. Agricultural Systems, 11:211-223.

Butterworth, M.H. and McNitt, J.I. 1983. Slaughter and carcass characteristics of Malwawi Zebu steers and some observations on hindquarter conformation. Tropical Agriculture, 60:221-223.

McNitt, J.I. and Lukefahr, S.D. 1982. The effect of environment on conception rate and litter size of domestic rabbits in Oregon and Malawi. J. Appl. Rabbtit Res., 6:18-20.

McNitt, J.I., Cheeke, P.R. and Patton, N.M. 1982. Feeding trials with cottonseed meal as a protein supplement in rabbit rations. J. Appl. Rabbit Res., 5:1-5.

McNitt, J.I. 1981. Conttonseed meal in rabbit rations - A review. J. Appl. Rabbit Res., 4:115-118.

McNitt, J.I. 1981. Lexicography in the rabbitry. J. Appl. Rabbit Res., 4:100-102.

McNitt, J.I. 1980. The rabbit as a meat source in Malawi. J. Appl. Rabbit Res., 3(3):5-11.

McNitt, J.I., Tanner, C.B. and First, N.L. 1972. Thermoregulation in the scrotal system of the boar. I. Temperature distribution. J. Animal Sci., 34:112-116.

McNitt, J.I., Tanner, C.B. and First, N.L. 1972. Thermoregulation in the scrotal system of the boar. II. Evaporative heat exchange. J. Animal Sci., 34:117-121.

McNitt, J.I. and First, N.L. 1970. Effects of 72-hour heat stress on semen quality in boars. Int. J. Biomet., 14:373-380.

ABSTRACTS

McNitt, J.I. and Moody, G.L. Jr. 1987. Milks intake and growth rates of suckling rabbits. Abstracts of papers presented to the North American Rabbit Congress, Portland, OR, Oct. 10-11, 1987.

Moody, George L. Jr. and McNitt, J. I. 1988. Vulva color in rabbits as an indicator of probable reproductive performance. Abstracts of papers presented to the Southern Section, American Society of Animal Science, New Orleans, LA, Jan. 31-Feb. 3, 1988, #157.

McNitt, J.I. 1987. Age and weight in relation to scrotal circumference of Malawi Zebu bulls. Abstracts of papers presented to the Southern Section, American Soceity of Animal Science, Feb. 1-4, 1987, Nashville, TN, #157.

McNitt, J.I. 1971. Thermoregulatory mechanisms of the scrotum of the boar. Diss. Abstr. Int. 32B:643.

McNitt, J.I. and Folk, G.E., Jr. 1967. The day-night activity of polar bears exposed to continuous light. American Zoologist, 7:807.

McNitt, J.I. 1966. Genetic aspects of estimated breeding soundness in beef bulls. J. Animal Sci., 25:585.

OTHER PUBLICATIONS

McNitt, J.I. 1988. Practical Rabbit Housing. Center for Small Farm Research, Southern University, 63 pp.

McNitt, J.I. 1988. Artificial insemination of rabbits. Domestic Rabbits, 16(1):22-23.

McNitt, J.I. (ed). 1987. Proceedings, Third Annual Rabbit Education Day, April 4, 1987. Southern University, Baton Rouge, LA 65 pp.

McNitt, J.I. 1987. Ear mites. Domestic Rabbits, 15(2):21.

McNitt, J.I. (ed). 1986. Proceedings, Second Annual Rabbit Education Day. April 19, 1986. Southern University, Baton Rouge, Louisiana, 52 pp.

McNitt, J.I. 1986. Cleanliness in the rabbitry. Rabbits, 9(5):15-17.

McNitt, J.I. 1986. Starting a commercial rabbit enterprise. Missouri Farm, 3(1):25.

McNitt, J.I. 1986. Economics of commercial meat rabbit production. Missouri Farm, 3(2):12-13.

McNitt, J.I. 1986. Disinfection. Domestic Rabbits, 14(3):11, 12,19.

McNitt, J. I. and G. L. Moody, Jr. 1985. Caring for your Pet Rabbit. 8 pp. Center for Small Farm Research, Southern University.

McNitt, J.I. (ed). 1985. Proceedings, First Annual Rabbit Education Day. April 18, 1985, Southern University, Baton Rouge, Louisiana, 45 pp.

McNitt, J.I. 1985. Fryer growth and rabbitry profitability. Domestic Rabbits, 13(3):31-32.

McNitt, J.I. 1978. Methods of smallholder rabbit production. Proceedings, Workshop on Rabbit Production in Africa, Morogoro, Tanzania, December 16-21, 1978, International Foundation for Science, Stockholm.

McNitt, J.I. and Makhambera, P.E. 1977. Hearthgirth:body mass relationships in Malawi Zebu cattle. Research Bulletin of Bunda College of Agriculture, 8:97-99.

McNitt, J.I. and Kamwanja, L.A. 1976. Semen and physical examination of bulls. Research Bulletin of Bunda College of Agriculture, 7:119-132.

McNitt, J.I. 1971. Thermoregulatory mechansims of the scrotum of the boar. PhD Thesis, University of Wisconsin.

McNitt, J.I. 1966. Genetic aspects of estimated breeding soundness in beef bulls. Master of Science Thesis, Colorado State University.

VIDEO TAPE

McNitt, J. I. (Producer). 1987. Selecting rabbits for breeding. 9 minute training video.

R E S U M E

PERSONAL DATA

Name	Kirkland Earle Mellad
Social Security #	421-74-0754
Marital Status	Married, two sons
Health	Excellent
Citizenship	United States

HOME ADDRESS:

5720 Tarrytown Avenue
Baton Rouge, Louisiana 70808
Phone (504) 924-2940

BUSINESS ADDRESS:

Department of Animal Science
College of Agriculture & Home Economics
Southern University,
Baton Rouge, LA 70813
(504) 771-3111

EDUCATIONAL BACKGROUND

Junior College 1964	Jamaica School of Agriculture. Received Diploma in Agriculture,
B.S. Degree 1970	Tuskegee Institute, Tuskegee, Alabama. Received degree in Animal Science
M.S. Degree 1972	The Ohio State University, Columbus, Ohio. Majored in Dairy Science and minored in Biochemistry
Ph.D.	The Ohio State University. Received degree in Dairy Science specializing in Reproductive Physiology and Immunogenetics
Certification:	Certified by the Louisiana Division of Radiation Control to handle certain radioactive materials. Possesses skills in radioimmunoassays, electrophoretic techniques, artificial insemination, chromotagraphy, surgery, and versatile with the use of liquid scintillation counters and research microscopes.

HONORS AND AWARDS

Academic Scholarship, Tuskegee Institute, 1968-1970. Awarded the University Fellowship, The Ohio State University 1970-74 ($ 4,000 per year)

PROFESSIONAL AND OTHER EXPERIENCES

1965-1968

AGRICULTURAL OFFICER, Jamaica Agricultural Marketing Corporaation. Primary responsibilities were purchasing of agricultural commodities and providing consultation to limited resource farmers in the areas of crop production and marketing.

1968-1970

UNDERGRADUATE ASSISTANTSHIP at the Tuskegee Institute Dairy. Assisted in the milking of cows, administration of medication and the general management of the dairy program.

1970-1974

GRADUATE FELLOWSHIP at The Ohio State University. The Fellowship covered both the MS and PhD Programs. Research conducted was in the area of bovine Reproductive physiology. Major Professor was Dr. H. E. Hines.

1974-1978

ASSISTANT PROFESSOR of Animal Science, Southern University. Responsibilities included teaching, research and administration of the dairy program. Research conducted was in the area of Estrus Synchronization. During my tenure as Assistant Professor the dairy grew from a 20-head herd to a size of 150. Facilities in this area improved considerably and the quality of the instructional program was enhanced. Assisted with the development of proposal for funding by the Rockefeller Foundation in the area of Small Farm Research.

1978-1981

ASSOCIATE PROFESSOR in Animal Science, Southern University. Research conducted during this phase of tenure emphasized bovine reproductive physiology with emphasis on the monitoring of reproductive activities through milk progesterone assays. Assisted in the revision of the Animal Science Curriculum

1978-Present

ASSOCIATE RESEARCH DIRECTOR. Primary responsibility is that of editing and publishing materials in the form of "Annual Progress Reports" or Research Bulletins.

1981-Present

PROFESSOR, Animal Science, Southern University. Major area of research included reproductive physiology and dairy cattle management. Studies have been conducted to determine the relationships between the uterine luminal secretions and bovine conception.

1985-1987

ACTING CHAIRMAN, Department of Animal Science, Southern University.

1987 - Present

CHAIRMAN, Department of Animal Science , Southern Universtiy

UNIVERSITY COMMITTEES

Member, Faculty Senate 1978-1980

Chairman, Resarch Committee, College of Agriculture

Member, Advisory Council for the Southern University Livestock Show.

Member, SEA/CR Research Review Committee.

Member, Council on International Development.

Member of the University Committee on Standardized Testing.

Member, University Research Council.

Member, University Tenure and Promotion

PROFESSIONAL ORGANIZATIONS

Member of American Dairy Science Association

Member of the American Society of Animal Science

Member of the Southern Association of Agricultural Scientists

Member of the Louisiana Academy of Sciences

Member of the Association of Research Directors (1890 Institutions.)

HONOR SOCIETIES

Member, Phi Delta Kappa Honor Society

Member, PHi Sigma Biological Honor Society

PUBLICATIONS

Mellad, K. E. and, H. C. Hines. 1974. Partial Characterization of some Bovine Iso-Antigenicity of Bovine Spermatozoa. Journal of Dairy Science 55:697 (Abstract)

Mellad, K. E. and H. C. Hines. 1974. Partial Characterization of some Bovine Iso-Antigens. Animal Blood Group and Bio-chemical Genetics 5:12.

Mellad, K. E. and H. C. Hines. 1977. Partial Physio-chemical and Immunological Characterization of Bovine Semen Iso-Antigens. J. Anim. Sci. 45:1353.

Mellad, K. E. 1976. Bovine Semen Iso-Antigens and Their Possible Implications in the Reproductive Process. Proceeding of the Louisiana Academy of Science. (1975)

Mellad, K. E. 1978. Norgestomet Synchronized Estrus and Reproductive Performance in Dairy Cattle. Proceeding of the Louisiana Academy of Science: 51:148 (Abstract)

Mellad, K. E. 1978. Reproductive Management in Dairy Cattle with SC21009. Proceedings of the 55th Annual Meeting of the American Dairy Science Assoc. Southern Division

Mellad, K. E., G. Moody, B. Randhawa. 1979. Effects of Norgestomet on Plasma levels of Progesterone and Subsequent Fertility in Dairy Cattle. Southern University Research Bulletin. 1:18

Mellad, K. E. and B. K. Randhawa, 1980. The Effect of SC21009 on Conception Rate, Plasma Progesterone Levels and the Production of Cervical Mucus in Holstein Heifers. Proceedings 72nd Annual Meeting of the American Society of Animal Science (Abstract #477)

Mellad, K. E., B. K. Randhawa and L. F. Archbald, 1981. Effect of a Progestin (SC21009) on Plasma Progesterone, Cervical Mucus Production and Subsequent Fertility in Heifers. Proceedings of the LA. Acad of Sci. XLlll:86

Mellad, K. E. and B. K. Randhawa and H. Langley 1982. Milk Progesterone as a Monitor of Reproductive Activities in Postpartum Dairy Cattle. Proc. of the LA. Acad. of Sci. XLV:89-97

Mellad, K. E., R. Spikes, H. Langley (1985) Macromolecular components of the bovine uterine luminal fluid. Proc. of the LA. Acad. of Sci. XLVIII:137.

Mellad, K. E., R. Spikes, H. Langley (1985) Qualitative and quantitative examination of bovine uterine and follicular secretions at different stages of the estrous cycle. Am. Dairy Science Association (Supplement 1, :68).

ACTIVITIES IN PROFESSIONAL SOCIETIES AND MEETINGS

The 14th International Conference on Animal Blood Groups and Biochemical Polymorphism University of California, Davis June 24-28, 1974 (Presented paper)

Southern Association of Agricultural Scientists, New Orleans, LA. February 2-5, 1975 (Presented paper)

Proceedings of the Louisiana Academy of Science Southern University, Baton Rouge, Louisiana, February 6, 1976, (Presented paper)

The 71st Annual American Dairy Science Meeting North Carolina State University, State University, June, 20-23, 1976 (Participated in Reproductive Physiology Symposium Southern Agricultural Scientists Meeting, Atlanta, Georgia, February 6-9, 1977, (Presented paper)

Nitrogen Sources Conference, Atlanta, Georgia November 9-11, 1977, (Attended Conference)

Proceedings of the Louisiana Academy of Science. Nicholls State University, Thibodeau, Louisiana February 3, 1978 (Presented paper)

The 70th Annual Meeting of the ADSA, Michigan State University, East Lansing, MI. July 9-13, 1978 (Participated in Symposium)

The 77th Annual Meeting of the Southern Assoc. of Ag. Scientists. Hot Spring Arkansas, February 3-6, 1980 (Attended Meetings)

Joint U.S.D.A. 1980 Seminar on Employment Opportunities for Graduates from Historically Black Land Grant Institutions, Tennessee State University, Nashville, Tennessee, May 4-6, 1980 (Participated in Conference)

SEA/CR Administrations Workshop, Washington, D.C. May 20-23, 1980 (Participated)

The 75th Annual Meeting of ADSA, Virginia Polytechnic Institute, June 14-17, 1980 (Presented paper)

Proceedings of 72nd Annual Meeting of the ASAS, Cornell University, Ithaca, New York, July 27- 30, 1980 (Presented paper)

The 3rd Association of Research Directors, Symposium, Atlanta, Georgia, November 13, 1980 (Chaired the Production Management Section)
Proceedings of the Louisiana Academy of Science, LSU, Alexandria, La., Feb. 6, 1981. (Presented paper)

The Southern Association of Agricultural Scientists, Atlanta, Georgia, February 1-4, 1981. (Attended meetings)

ARD Research Symposium, Dallas, Texas on October 23-25, 1984. (Chaired Animal Science Section).

Chaired Agricultural Section of the 59th Annual Meeting of the La. Acad. of Sciences, 1986, Northwestern University, Natchitoches Agricultural Section.

The 80th Annual Meeting of the American Dairy Science Assoc. University of Illinois, Urbana June 9-12, 1985 (Presented paper)

INVOLVEMENT IN INTERNATIONAL DEVELOPMENT

Participated in the SULSU Adaptive Crop Research Project in Sierra Leone, West Africa, January 3-19, 1985 as a Consultant.

Member, Technical Assistance Team for the Jamaica Agricultural Education Project at the College of Agriculture in Port Antonio, Jamaica, W. I. August 17 - December 19, 1987.

Member, Technical Assistance Team for the Jamaica Agricultural Education Project at the College of Agriculture in Port Antonio, Jamaica, W. I. August 17 - December 19, 1987.

ITEMS OF NOTE

Developed brochures to serve as recruitment documents for the Department of Animal Science

Assisted with the development of a fund raising program for scholarships for agricultural majors

Reviewed proposals for the National Science Foundation

Participated in a Workshop entitled "Agriculture in the Liberal Arts" sponsored by the Kellogg, Foundation, January 1984

Actively involved in the recruitment of Students for the College of Agriculture

Conduct tours and demonstrations at the Dairy Unit to facilitate the Public School System and private organizations as a part of the College of Agriculture and Home Economics outreach thrust.

Several of my undergraduate Advisees have earned the MS degree from various 1862 Land Grant Institutions. One earned the DVM degree and another one is currently in his final year at LSU School of Veterinary Medicine

Received the award for the "best submitted Paper" in Animal Science at the Fourth Biennial Research Symposium, Atlanta, Florida, October 22, 1982.

Nominated twice for Outstanding Faculty of year at Southern University
Nominated by Students and received an award from the Animal Science Department for Outstanding faculty of the Year 1980

Submitted proposal and received strengthening grant aimed at Strengthening educational capacities in the food and agricultural sciences through curriculum development. Funds from this grant will be used to establish a Learning and Resource Center designed to facilitate computer assisted instruction.

REFERENCES

Dr. Harold Hines
Professor, Dairy Science
The Ohio State University
Columbus, Ohio43210

Dr. McKinley Mayes
Special Program
SEA/CR USDA
6418 South Building
Washington, D.C. 20250

Dr. George E. Robinson, Jr.
Professor, Emeritus
Southern University
Baton Rouge, La. 70813

BIOGRAPHICAL RE'SUME'
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EDUCATION

Cornell University, Ithaca, New York. Post Doctoral Fellowship sponsored by Cornell University and Rockefeller Foundation. Research areas consisted primarily of tomato breeding, production and evaluations. August 1975 - August 1976.

Louisiana State University, Baton Rouge, Louisiana. Received Ph.D Degree in August, 1975. Majored in Horticulture and minored in Agronomy. May 1972 - August 1975.

Louisiana State University, Baton Rouge, Louisiana. Received M.S. Degree in May, 1972. Majored in Horticulture and minored in Agronomy. May 1970 - May 1972.

Southern University and A&M College, Baton Rouge, Louisiana. Received B.S. Degree in May, 1968. Majored in Horticulture. September 1964 - May 1968.

PROFESSIONAL AND OTHER EXPERIENCES

Dean and Research Director, College of Agriculture and Home Economics, Southern University, Baton Rouge, Louisiana. Responsible for the administration and coordination of all academic and research programs throughout the College. August 1986 to Date.

Dean and Research Director, College of Agriculture, Southern University, Baton Rouge, Louisiana. Responsible for the administration and coordination of all academic and research programs throughout the College. July 1985 - August 1986.

Adjunct Professor, College of Agriculture, Cornell University, Ithaca, New York. Major areas of responsibility will include guest lectures and seminars, student recruitment, and exploring ways of developing joint research initiatives between faculty [illegible] Cornell and Southern University. Faculty exchange,

and summer internships will be sought for both Southern University students and faculty within the College of Agriculture and Home Economics. The appointment is in the departments of vegetable crops and pomology. September 1985 to Date.

Director, George Washington Carver Agricultural Experiment Station and Associate Director, The Carver Research Foundation of Tuskegee University. Major areas of responsibility included the planning and supervision of all areas of research under the Agricultural Experiment Station. December 1982 - July 1985.

Professor, Plant and Soil Science and Associate Director, Small Farm Program, Tuskegee University, Tuskegee Institute, Alabama. July 1981 - December 1982.

Associate Professor, Plant and Soil Science, Tuskegee University, Tuskegee Institute, Alabama. March 1979 - July 1981.

Assistant Professor, Plant and Soil Science, Tuskegee University, Tuskegee Institute, Alabama. August 1976 - March 1979.

Research Associate, Cornell University, Ithaca, New York and New York Agricultural Experiment Station, Geneva, New York. August 1975 - August 1976.

Graduate Assistant, Louisiana State University, Baton Rouge, Louisiana. Assistantship covered both Master and Ph.D programs, involving research on sweet potato and tomato crops respectively. September 1970 - August 1975.

Soldier-U.S. Army, served honorably both in the continental United States and in southeast Asia (Vietnam). September 1968 - May 1970.

Retail and Wholesale Salesman, Northaven Nursery, Dallas, Texas. July 1968 - September 1968.

Undergraduate Assistantship, Southern University and A&M College, Baton Rouge, Louisiana. September 1964 - May 1968.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS AND SOCIETIES

Agricultural Research Institute (ARI)
American Society for Horticultural Science (ASHS)
Association of Research Directors (ARD)
International Society for Horticultural Science (ISHS)

MEMBERSHIP IN OTHER ORGANIZATIONS

Alpha Phi Alpha Fraternity Inc., Chairman - Educational Programs Committee (1981 - 83)
ARD - Library Committee (1983 to Date)
ARD - Regional Research Review Committee (1983 to Date)
ARI - Policy, Research and Development Committee (1983 - 84, 1984 - 85 and 1986 - 87)
ASHS - Southern Region Nominations Committee (1982 - 84)
ASHS - Southern Region Education Committee, Chairman (1985 - 86)
ASHS - Southern Region L.M. Ware Outstanding Teacher Awards Committee, Chairman (1985 - 86).
Beta Kappa Chi Scientific Honor Society
Southern Region Collegiate Branch of the American Society for Horticultural Science, Faculty Advisor (1981 - 82)
US/AID Research Advisory Committee
(1986 - 1990)ARD - Long Range Planning Committee, Chairman
ARD - Symposium Committee, Chairman (1987)
Council of Agriculture Deans of Resident Instruction (1986 to Date)
ESCOP - Budget Committee (1989)
USDA - Division of Agriculture Budget Committee (1989)

SELECTED CAMPUS COMMITTEES

College of Agriculture and Home Economics Advisory Council, Executive Secretary
College-Wide Recruitment Committee
University Animal Health Committee
Council of Deans and Directors
International Programs Advisory Council
Center for Small Farm Research Advisory Council

INTERNATIONAL TRAVEL

Guyana, South America - Baseline Study on Agricultural Research, Teaching and Extension Programs, Research Team Leader
Somalia, East Africa - Refugee Agriculture Self Reliance Project Design Study, Team Leader
Rwanda, East Africa - Africare Refugee Agriculture Project. Review, Team Leader
Kenya, East Africa - Review of Agricultural and Teaching Program at University of Nirobia for possible collaboration, Team Leader
Toronto, Canada - Attended Tomato Breeders Rountable & Tomato Genetics Cooperative Meeting
South Vietnam, Southeast Asia - Assisted in curtailing the spread of communism, Flight Operations Coordinator
Van Couver, British Columbia, Canada - Attended National ASHS Convention

PROFESSIONAL AWARDS AND HONORS

American Men and Women of Science (14th Edition)
Outstanding Faculty of the Year (Departmental and School Nominee - 1979 and 1980).
Tuskegee Institute Chapter, Professional Secretaries International (PSI) Executive of the Year (Nominee 1985)
1985 Esquire Register (One of 4000 Nominees Nationally)

SELECTED RESEARCH PROJECT PARTICIPATION

Principal Investigator, USDA/CSRS - Development of disease and insect resistant tomato cultivars adapted to adverse weather conditions (1978 - 83).

Associate Investigator, USDA/CSRS - Recovery of N^{15} labeled urea and isobutylidene by sweet potato and tomato (1978 - 80).

Principal Investigator, USDA/CSRS - Development of sweet potato cultivars suitable for seedpiece propagation (1979 - 84).

Principal Investigator, USA/CSRS - Developing alternative methods for control of root-knot nematodes on vegetables (1979 - 82).

Member, USDA - Southern Regional Project No. S-161, Maximizing the use, nutritive quality and consumer acceptance of sweet potato and their products (1981 - 85).

Principal Investigator, USDA/ARS - Sweet potato foliage (leaves, petioles, and stem tips), as a vegetable for human consumption (1981 - 85).

PUBLICATIONS

Phills, B.R. and T.P. Hernandez. 1972. Effect of ethephon, temperatures, water submerged roots and cultivars on sweet potato plant production. Thesis: Louisiana State University.

Phills, B.R. and T.P. Hernandez. 1975. The combining ability in F_1 hybrids of tomato, Lycopersicon esculentum, Mill. Dissertation: Louisiana State University.

Phills, B.R., R. Provvidenti and R.W. Robinson. 1977. Reaction Solanum lycopersicoides to virus diseases of the tomato. Tomato Genetics Cooperative. No. 26.

Phills, B.R., R. W. Robinson and J.W. Shail. 1977. The evaluation of Solanum lycopersicoides for resistance to fungal diseases and nematodes. Tomato Genetics Cooperative. No. 28.

Robinson, R.W. and B.R. Phills. 1977. Solanum lycopersicoides: A source of tolerance to low temperatures. Tomato Genetics Cooperative. No. 28.

Whatley, B.T. and B.R. Phills. 1977. 'Rojo Blanco' Sweet Potato. HortScience. 12(3):266.

Whatley, B.T. and B.R. Phills. 1977. 'Carver' Sweet Potato. HortScience. 12(3):266.

Alvarez, M.N., B.T. Whatley, J.H.M. Henderson and B.R. Phills. 1978. Effect of Polaris on yield, dry matter, and soluble solids of sweet potato roots. J. Amer. Soc. Hort. Sci. 103(2):206-207.

Phills, B.R. and R.W. Robinson. 1978. Flowering of Solanum lycopersicoides and its hybrid with the tomato. Tomato Genetics Cooperative. No. 29.

Robinson, R.W. and B.R. Phills. 1979. Overcoming sterility in an intergeneric hybrid. Tomato Genetics Cooperative. No. 29.

Phills, B.R., N.H. Peck, G.E. MacDonald, and R.W. Robinson. 1979. Differential response of Lycopersicon and Solanum species to salinity. J. Amer. Soc. Hort. Sci. 104(3):349-352.

Bonsi, C.K. and B.R. Phills. 1979. Reaction of twelve sweet potato cultivars and breeding lines of two root-knot species with three experimental methods. HortSci. 14(4):539-541.

Quamina, J.E., W.A. Hill, and B.R. Phills. 1981. Comparative development of vine cuttings and rotted tuber sprouts from Yam (Dioscorea alata L.). HortScience. 16(6):777-778.

Quamina, J.E., B.R. Phills, and W.A. Hill. 1981. Vine Production from tuber pieces of various sizes and sections of Yam (Dioscorea alata L.). HortScience 17(1):73.

Henderson, J.H.M., B.R. Phills, and B.T. Whatley. 1984. The growth and culture of Ipomoea batatas L.: The Sweet Potato In Tissue Culture - Possible Used in Crop Improvement. Vol. 2, First Ed. (Academic Press).

Pace, R.D., G.G. Dull, and B.R. Phills. 1985. Proximate composition of sweet potato greens in relation to cultivar, harvest date, crop year and processing. Journal of Food Science. Vol. 50:537-538.

Pace, R.D., G.G. Dull, T.E. Sibiya, and B.R. Phills. 1985. Ca, Fe, and Zn content of 'Jewel' sweet potato greens affected by harvesting practices. Journal of Food Science. (In Press)

Pace, R.D., G.G. Dull, and B.R. Phills. 1985. Vitamin and mineral content of sweet potato greens in relation to cultivar, harvest date, crop year and processing. Journal of Food Science. (Submitted for Publication).

Phills, B.R. and Conrad Bonsi. 1985. Sweet Potato. World Book Encyclopedia. 1987 Edition. (Submitted for Publication.

Phills, B.R. and Conrad Bonsi. 1985. Yam. World Book Encyclopedia. 1987 Edition. (Submitted for Publication).

ABSTRACTS OF PRESENTATIONS AT SCIENTIFIC MEETINGS

Phills. B.R., and T.P. Hernandez. 1972. Effect of ethephon (2-cholrethyl phosphonic acid), temperature, water submerged roots, cultivars, and cutting versus pulling plants on sweet potato production. Seventeen Annual Proceedings of the Association of Southern Agricultural Workers, Inc.

Phills, B.R., and T.P. Hernandez. 1975. Combining ability in F_1 hybrids, Lycopersicon esculentum. 10(2):149.

Allen, Brenda M., and Bobby R. Phills. 1979. Evaluation of sweet potato cultivars and advanced breeding lines for desirable plant production with special emphasis on seedpiece propagation. HortScience. 14(2):124.

Phills, Bobby R., and Brenda M. Allen. 1979. Evaluation of selected sweet potato cultivars for seedpiece propagation. HortScience. 14(2):124.

Paul, Clifton and Bobby R. Phills. 1979. The effect of age of transplants and fertilizer levels on yield and quality of tomatoes (Lycopersicon esculentum). HortScience 14(2):121. This paper won first place in campus wide graduate student competition.

Richards, Marie A., Bobby R. Phills and Walter A. Hill. 1979. Evacuation of Lycopersicon species for drought tolerance. HortScience. 14(2):121. This paper won first plan in campus wide undergraduate student competition.

Wilson, Ervin G., Bobby R. Phills, and Walter A. Hill. 1979. Effect of NPK fertilizers on 'Carver' sweet potato (Ipomoea batatas L. in Southeast Alabama. HortScience. 14(2):124.

Fearon, C.G., W.A. Hill, L.G. Ogiste, and B.R. Phills. 1980. Response of sweet potato to isobutylidene diurea N-fertilizer under mulched and nonmulched conditions. Tech Papers South Assoc. Agr. Sci. No. 7.

Graham, L., W.A. Hill, and B.R. Phills. 1980. Root associated N_2 of sweet potato and tomato. HortScience 15.

Jones, L., W.A. Hill, and B.R. Phills. 1980. Effect of drip irrigation and time of N_{15} depleted NH_4NO_3 application on growth and fertilizer N uptake of tomato. HortScience 15.

Ogbugwo, J.O.A., and B.R. Phills. 1980. Some chemical changes occurring during fruit maturation in four tomato cultivars. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute.

Ogiste, L.G., W.A. Hill, C.G. Fearon, and B.R. Phills. 1980. Response of sweet potato to isobutylidene diurea N fertilizer under mulched and nonmulched conditions. Tech. papers South Assoc. Agri. Sci. No. 7.

Quamina, J.E., W.A. Hill, and B.R. Phills. 1980. Effect of seed piece size and section on number and vigor of yam sprouts. HortScience. 15.

Quamina, J.E., W.A. Hill, and B.R. Phills. 1980. The production and comparative development of vine cuttings and rooted sprouts from yam tubers (Dioscorea alata L.). HortScience 15. This paper won 2nd place in competition at the National ASHS Convention.

Uwaifo, E., B.R. Phills, and W.A. Hill. 1980. Foliar fertilization vs nonfoliar fertilization on tomato yield and quality. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute.

Phills, B.R., V. Khan, and B.T. Whatley. 1980. Preliminary studies on changes in sweet potato dry matter at different harvest intervals. Proceedings of the First Annual George Washington Carver Conference on Food Production and Nutrition. University of Maryland-Eastern Shore.

Barker, W.A., and B.R. Phills. 1981. Effect of plant density on selected growth parameters of rootpiece propagated sweet potatoes. HortScience. 16(3):288.

Bryant, H.M., and B.R. Phills. 1981. Differential response of sweet potato cultivars to rootpiece propagation using three fungicides. HortScience 16(3):288.

Crawford, G.I., and B.R. Phills. 1981. Effect of rootpiece size on sprouting decay and yield of sweet potato. HortScience 16(3):288. This paper won 3rd place in the local Sigma Xi-MBRS Student Research Symposium.

Khan, V.A., and B.R. Phills. 1981. Using BASIC programming techniques for progency selection and evaluation under the pedigree method of breeding. HortScience. 16(3):284.

Moore, Edward and Bobby R. Phills. 1981. A rapid method for screening sweet potato cultivars for drought tolerance. HortScience. 16(3):288. This paper won 2nd place in undergraduate Edmond Award competition at the Southern Regional Convention of ASHS.

Phills, B.R., and V.A. Khan. 1981. Percent dry matter of sweet potato as a function of stage of growth. HortScience. 16(3):288.

Stevens, C., and B.R. Phills. 1981. Evaluation of sweet potato breeding lines for resistance to fusarium wilt. ACHE's Sixth Annual Science Symposium.

Phills, B.R., and C. Stevens. 1981. Sweet potato breeding and production at Tuskegee Institute In 1981 Biennial Report of Vegetable Breeding in the Southern United States, Hawaii and Puerto Rico. U.S. Vegetable Laboratory, USDA/ARS.

Bryant, H.M., and B.R. Phills. 1982. Greenhouse and field evaluations of selected fungicides on rootpiece propagated sweet potatoes. HortScience 18.

Khan, V.A., and B.R. Phills. 1982. Differential response among five sweet potato cultivars selected for 0, 1, 2, and 3 storage roots. HortScience 18.

Morant, M., J.R. Allen, and B.R. Phills. 1982. Effect of root-knot nematode population on nodulation, nitrogen fixation and yield of southern pea. HortScience 18.

Phills, B.R., T.P. Blakley, J. McGee, and R. Pace. 1982. Sweet potato foliage removal and its effect on drought stress, growth and yield. HortScience 18.

Price, C., and B.R. Phills. 1982. Reaction of resistant and susceptible tomato cultivars to root-knot nematode infestation. HortScience 18.

Satar, A., and B.R. Phills. 1982. Effect of root-knot nematode infestation on growth and development of sweet potato. HortScience 18.

Bandele, O., B.T. Whatley, and B.R. Phills. 1982. Effect of honey bee pollination on yield of southern peas. Sigma Xi-MERS Student Research Symposium. Tuskegee Institute.

Barker, W., and B.R. Phills. 1982. Correlation of plant density on selected growth parameters of rootpiece propagated sweet potatoes. Sigma Xi-MERS Student Research Symposium, Tuskegee Institute.

Bryant, H.M., and B.R. Phills. 1982. Effect of Busan 30A, Clorox and Mertect-Botran on prevention of rootpiece in sweet potato. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute.

Khan, V.A., and B.R. Phills. 1982. Using number of storage roots in seedling stage as a selection index for yield and earliness of sweet potato (Ipomoea Batatas L.). Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute.

Price, C., and B.R. Phills. 1982. Differential response of selected tomato cultivars when grown in root-knot nematode infested soils. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute. This paper won 1st place in graduate student competition.

Satar, A., and B.R. Phills. 1982. Reaction of resistance and susceptible sweet potato cultivars to root-knot nematode infestation. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute. This paper won 1st place in undergraduate student competition.

Springer, F., and B.R. Phills. 1982. Evaluation of drought resistance in tomato using different screening procedures. HortScience. 17(3):513.

Phills, B.R. 1982. Sweet Potato U-Pick. A New Marketing Strategy. HortScience. 17(3):534.

Phills, B.R. 1982. Increasing nutrient availability in small fruits and vegetables through plant breeding. Presented at the 37th Annual Food and Nutrition Institute at Tuskegee Institute.

GRADUATE STUDENTS SUPERVISION

Conrad Bonsi*	Major Professor	Finished	1978
Brenda M. Allen	Major Professor	Finished	1978
Ervin G. Wilson	Major Professor	Finished	1979
Clifton Paul	Major Professor	Finished	1979
Joseph Ogbugwo	Major Professor	Finished	1979
L.E. Uwaifo	Major Professor	Finished	1980
Victor Khan	Major Professor	Finished	1982
Walter Barker	Major Professor	Finished	1982
Charmaine Price	Major Professor	Finished	1982
Fern Springer	Major Professor	Finished	1982
Owusu Bandele**	Major Professor	Finished	1982
Sampson Hopkinson	Major Professor	Finished	1986

*Completed Ph.D program at Cornell University and Post Doctorate at Penn State University.

**Completed Ph.D program at North Carolina State University.

Bryant, H.M., and B.R. Phills. 1982. Effect of Busan 30A, Clorox and Mertect-Botran on prevention of rootpiece in sweet potato. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute.

Khan, V.A., and B.R. Phills. 1982. Using number of storage roots in seedling stage as a selection index for yield and earliness of sweet potato (Ipomoea Batatas L.). Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute.

Price, C., and B.R. Phills. 1982. Differential response of selected tomato cultivars when grown in root-knot nematode infested soils. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute. This paper won 1st place in graduate student competition.

Satar, A., and B.R. Phills. 1982. Reaction of resistance and susceptible sweet potato cultivars to root-knot nematode infestation. Sigma Xi-MBRS Student Research Symposium, Tuskegee Institute. This paper won 1st place in undergraduate student competition.

Springer, F., and B.R. Phills. 1982. Evaluation of drought resistance in tomato using different screening procedures. HortScience. 17(3):513.

Phills, B.R. 1982. Sweet Potato U-Pick. A New Marketing Strategy. HortScience. 17(3):534.

Phills, B.R. 1982. Increasing nutrient availability in small fruits and vegetables through plant breeding. Presented at the 37th Annual Food and Nutrition Institute at Tuskegee Institute.

GRADUATE STUDENTS SUPERVISION

Conrad Bonsi*	Major Professor	Finished	1976
Brenda M. Allen	Major Professor	Finished	1978
Ervin G. Wilson	Major Professor	Finished	1979
Clifton Paul	Major Professor	Finished	1979
Joseph Ogbugwo	Major Professor	Finished	1979
L.E. Uwaifo	Major Professor	Finished	1980
Victor Khan	Major Professor	Finished	1982
Walter Barker	Major Professor	Finished	1982
Charmaine Price	Major Professor	Finished	1982
Fern Springer	Major Professor	Finished	1982
Owusu Bandele**	Major Professor	Finished	1982
Sampson Hopkinson	Major Professor	Finished	1986

*Completed Ph.D program at Cornell University and Post Doctorate at Penn State University.

**Completed Ph.D program at North Carolina State University.

HOBBIES

Bowling Gardening Fishing Tennis

PERSONAL DATA

Date of Birth:	[redacted]
Place of Birth:	[redacted]
Soc. Sec. No.:	[redacted]
Nationality:	American
Height:	6'0"
Weight:	225 lbs.
Health:	Excellent
Spouse:	Mary L. B.S. Degree Office Administration Member - Professional Secretaries International (PSI)
Children:	Bobby R., II - Age 17 Dwayne Armand - Age 12
Religion:	Methodist

REFERENCES

Dr. James L. Davis, Pastor
Washington Chapel AME Church
Old Montgomery Road
Tuskegee, AL 36083
(205) 727-4821

Dr. McKinley Mayes, Coordinator
USDA/CSRS 1890 Special Programs
119 Justin Smith-Morrill Bldg.
Washington, D.C. 20251
(202) 447-5620

Dr. Joffre T. Whisenton, President
Southern University System
J.S. Clark Administration Bldg.
Baton Rouge, LA 70813
(504) 771-4680

Dr. Gus Ridgel
Vice President of Academic Affairs
Southern University System
Baton Rouge, LA 70813
(504) 771-5150

Mr. Luther Davis
Field Programs Division
Tennessee Valley Authority
Muscle Shoals, AL 35660
(205) 386-2765

Dr. James Hefner, President
Jackson State University
1440 J.R. Lynch Street
Jackson, MS 39127
(601) 968-2323

Dr. Harold Wade
Executive Vice President
Southern University System
Baton Rouge, LA 70813
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Vita

Calvin Walker

Home Address: 3297 Ivanhoe
Baton Rouge, Louisiana 70802
(504) 346-8146

Permanent Address: 1408 Memphis Street
Homer, Louisiana 71040
(318) 927-2103

CAREER OBJECTIVES: Conduct large and small animal production, nutrition and breeding research. Teach a statistical course and/or experimental design course in the University's Honor College. Making appropriate contributions to 1862's and/or 1890's agricultural institutions and eventual research/administrative career with USDA.

EDUCATION:

September 1980 - 1983 - Oregon State University
Major Field: Animal Breeding and Genetics
Minor Fields: 1) Statistics, 2) Poultry Management
Thesis title: "Genetic and Environment Components of the Occurrence of Estrus in Confinement Gilts."
Ph.D. degree in April 1983.

September 1976 - August 1980 - Oregon State University
Major Field: Animal Breeding and Genetics
Minor Field: Crop Science
Thesis Title: "Reproductive Performance of Sows Mated During Lactation."
M.S. degree in August 1980.

September 1973 - May 1976 - Louisiana Tech University
Major Field: Animal Science
B.S. degree in May 1976.

September 1972 - September 1973 - Grambling College
Major Field: Animal Science. Transferred to Louisiana Tech because both Grambling and Louisiana Tech combined agricultural programs.

EXPERIENCE:

July 1985 - Present: Assistant Professor of Animal Science, Faculty Advisor of the Swine Farm and Principal Investigator (Swine Research Project).

May 1984 - June 1985: Assistant Professor and Research Associate at Alcorn State University. Teaching duties and/or assignments were to teach the following classes: Beef, Sheep and Swine, Selected Topics in Animal Breeding, Animal Product and Meats. Research duties included the review of research proposals receiving and/or requesting Cooperative State Research Service (CSRS) funds and development of an agriculture research five year plan. Assisted Dr. H.E. Grier in the detailed development of a Poultry Research Complex (broiler, laying processing plant and research laboratory). The complex $758,000 is currently completed. Additional duties included being one of three individuals initially responsible for securing $107,000 (USDA) for the Retention and Recruitment of students in the Division of Agriculture and Applied Sciences.

August 1983 - May 1984: Research Associate in Animal Science in beef and poultry Tennessee State University.

September 1976 - April 1983	Graduate Research Assistant. Duties consist of the analysis of data concerned with several aspects of swine production and reproduction during early lactation. Also, collection and analysis of data concerning gilts cycling activity in confinement. Plus, data collection for experimental projects. A portion of this work was for my thesis work and the remainder for the Department of Animal Science, Oregon State University.
July 1980 - September 1981	Senior Associate of U.K. International Consultant & Research Group. Work included development of Agricultural plans to raise poultry and swine in Nigeria.
June 1980 - August 1982	New Student Program Advisor. Program for advising incoming freshmen to Oregon State University in making the transition from high school to college.
June 1981 - August 1983	Part-time work at Oregon State University Meat Science Laboratory. Statistical analysis of research data along with the general day-to-day processing of livestock's for human consumption.
September 1979 - May 1980	Animal Science 101 Laboratory Instructor. Duties included the teaching and lab set up for the introductory to Animal Science laboratory class, sections.
May 1970 - September 1976	Part-time work at the Homer Livestock Commission. Duties included the check-in of livestock and the general handling of livestock before and after the auction.

TEACHING:

My teaching and peer evaluation average at Southern University (1985-88) is 3.8/4.0 and 3.9/4.0, respectively. I have the full responsibility for teaching two of the tree classes below per semester:

1. Introduction to Animal Science (AS 121).
2. Animal Breeding (AS 421).
3. Swine Production (AS 451).

Use of the farm unit's outdoor laboratories (dairy, beef, swine and poultry), filmstrips, field trips, library, video and guest lecturers are used to augment class lectures and labs.

STUDENT INVOLVEMENT:

Currently, I serve as advisor to the following student organizations:

1. Southern University Collegiate 4-H Club.
   Highlight: Six club members have been recipients of a National 4-H Club award totaling $24,000 over the last two years.

2. Agriculture and Home Economics Student Council.
   Highlight: The club has been able to improve from a negative $58 fund balance to an excess of $1,200 each year.

GRANTS FUNDED:

Walker, Calvin, and E.Q. Daniels. 1987. Promotion of Southern University Collegiate 4-H Club. Amt. $100.

Walker, Calvin, 1987. Assessment of Alternative Swine Production Systems. USDA/CSRS. Amt. $216,748 (approximately $54,187 per year)

Harris, Thomas, B.R. 'Phills, C. Walker, S. Gebrelul and T Ghebremedhin. 1988. International Training Short Course in Agricultural Research. Amt. $32,000.

UNIVERSITY AND DEPARTMENT COMMITTEES:

1. Committee on Academic Honors - Publicity Chairman (1987-Present)
2. Southern University/Scotlandville Clean-Up Campaign-Member (1989).
3. Southern University Annual Livestock and Poultry Show Committee - Swine Superintendent (1985-Present).
4. Agriculture and Home Economics Career Day - Coordinator (1986-Present).
5. Department of Animal Science Chairman Search Committee - Chairman (1987).
6. Southern University Alumni Thurston Property Committee - Member (1988-Present).
7. Animal Science Departmental Council - Chairman.

OUTREACH:

1. Consultant to the Swine Short Course for the Belize Extension Specialist. LSU/SU. 1985.
2. Consultant and statistician for Dr. Roy Jacob doctoral dissertation. 1987.
3. Statistician for Madeline Doucet master thesis. L.S.U. 1987.
4. Lecturer on the Honduran Vegetable Production Short Course - 1987.
5. Information coordinator for the nomination of Dr. George E. Robinson, Jr. for George Washington Carver Award for 1987. Dr. Robinson was recipient of the award in the Fall of 1987.
6. Program participant at Southern University Farmers' Education Day. 1988 and 1989.

FACILITY PLANNING:

I have assisted Dr. George E. Robinson, Jr. in the development of a master plan for the University Swine Facility since 1986. Phase I of the facility ($340,000) is near completion. The facility will be used for teaching, research and outreach. The facility is to be capable of supplying the University's cafeteria needs via the meat processing plant.

CREATIVE PRESENTATIONS:

Walker, C. 1985. The silent holocaust. Southern University World Food Day.

Walker, C. 1987. In every walk of life, there walks an alphaman. Nu Psi Chapter Smoker, L.S.U.

Walker, C. 1988. Let freedom ring. Claiborne Parish NAACP Fellowship Banquet. Homer, Louisiana.

Walker, C. 1988. If you slip, don't slide. Homer High School Science Day.

BOOK PROSPECTUS:

Walker, C. and J. Farmer. 1988. Boosting Ag Student Enrollment: An Interdiscliplinary Approach.

Two publishers have expressed an interest in the book manuscript.

PUBLICATIONS:

Walker, C., and D.C . England. 1977. Mating of sows during lactation. Special Report 404, pp. 28-335, Agri. Exper. Sta., Oregon State University.

England, D.C, and C. Walker. 1977. Within-herd sire production for non-inbred mating use. Proc. West. Sect. Amer. Soc. Anim. Sci. Vol. 28.

Walker C., and D.C. England, 1978. Reproductive and litter performance of sows mated during lactation. Proc. West. Sect. Amer. Soc. Anim. Sci., Vol. 29:11.

Walker, C., and D.C. England. 1979. Age at first farrow and interval between weaning and next farrowing. Special Report 564, pp. 56-60, Agr. Exp. Sta., Oregon State University.

Walker, C. 1980. Mating during lactation and litter productivity of sows in confinement subjected to a designed management regimen. Master's Thesis, Oregon State University.

Walker C., and D.C. England, 1981. Litter production of gilts of different weights. Special Report 543, pp. 20-26, Agri. Exp. Sta., Oregon State University.

PUBLICATIONS: (continued)

Walker, C., and D.C. England, 1983. Productivity of gilts exposed in various environmental groups. Special Report 712, pp. 10-17, Agri. Exp. Stat., Oregon State University.

Walker, C., 1983. The influence of heredity and environmental components on the occurrence of estrus on confinement Yorkshire gilts. Ph.D. Thesis.

Walker, C., 1983. Making genetics work. Tennessee Farm, Home and Ministers' Institute. November 4 issue.

Walker, C., 1983. Concepts and practices for increased litter productivity. Tennessee Farm, Home and Ministers' Institute. November 4 issue.

Walker, C., and D.C. England, 1983. Association of weight and breeding at third estrus with litter productivity at first and second parity. Journal of Animal Science, Vol. 58. Supplement 1.

Walker, C., C. Fenderson and R. Norman. 1983. Can the mating of sows during lactatio benefit small farm operators? Tennessee Farm, Home and Ministers' Institute, November issue.

Walker, C., C. Fenderson and R. Norman. 1983. A need for further evaluations of puberty and confinement gilts. Tennessee Farm, Home, and Ministers' Institute, November issue.

Walker C., H.E. Grier, 1985. Careers in Agriculture, Alcorn State University, May Issue of Alcorn Herald.

Walker, C., and A. Howard. 1986. Accessing the effect of grouping scheme on reducing stress on newly purchased feeder pigs. (Abstract) ARD Symposium, Washington, D.C.

Salaam, Abulkakeem, Y., and C. Walker. 1987. A comparative profile of agricultural majors attending land-grant universities in Louisiana. Louisiana Academy of Sciences, 62nd Annual Meeting, Hammond. La.

Walker, C.R., E.Q. Daniels, and S.B. Williams. 1989. Boosting agriculture undergraduate student enrollment. (Abstract) Louisiana Academy of Sciences, 63rd Annual Meeting, Alexandria, La.

Walker, C., E.Q., Daniels and S.B. Williams. 1989. Boosting animal science student enrollment. American Society of Animal Science: Southern Section. Abstract (pg. 70).

Walker, C. 1989. Feeding high fiber diets to finishing hogs. American Society of Animal Science. In press.

PROFESSIONAL & SOCIAL MEMBERSHIPS:

1. Life Member, Southern University Alumni
2. Scotlandville Kiwanis
3. Baton Rouge Council on Human Relations
4. Louisiana Pork Producers Association
5. Alpha Zeta Honorary Fraternity
6. Louisiana Gamma Chapter of Alpha Zeta
7. American Society of Animal Science
8. Beta Iota Lambda Chapter of Alpha Phi Alpha Fraternity
9. Alpha Phi Alpha Southwestern Education Board Committee
10. Sigma XI
11. Block and Bridle Club

PERSONAL DATA:

Born: 12/24/54
Health: No physical handicaps.
Hobbies: Shrimping and Crabbing.

Aspirations:

1. Striving to be a better human being today than I was yesterday.
2. Desirous of gigantic neon sign at the apex of the bridge to Southern that reads: SOUTHERN UNIVERSITY.
3. Hopeful that a building on the Southern University campus will be named after P.B.S. Pinchback and Dr. George E. Robinson, Jr.

REFERENCES:

Dr. David C. England
Major Professor
Oregon State University
Corvallis, Oregon 97330

Dr. H. Barker, Dean
College of Life Sciences
Louisiana Tech University
Ruston, Louisiana 71238

Dr. McKinley Mayes,
Coordinator of 1890 Programs
U.S. Department of Agriculture
Washington, DC 20250

Dr. Egeenee Daniels
College Veterinarian
c/o Department of Animal Science
Southern University
Baton Rouge, LA 70802

TENNESSEE STATE UNIVERSITY

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RESUME

Sammy L. Comer

Residence

[redacted]

Office

Tennessee State University
Department of Agricultural Sciences
Nashville, Tennessee 37209
Telephone: (615) 320-3473

PERSONAL DATA:

Date of Birth: [redacted]
Marital Status: Married

Sex: Male
Number of Children: 2

EDUCATION:

Degree	Institution	Year	Major
B.S.	Tennessee State University	1972	Agricultural Economics
M.S.	Tennessee State University	1974	Agricultural Science (Economics)

EMPLOYMENT:

Tennessee State University, Nashville, Tennessee - International Food and Agricultural Development (IFAD) and Department of Agricultural Sciences, October, 1988-present
Job Title: Administrative Coordinator and Assistant Professor

Tennessee State University, Nashville, Tennessee - Department of Rural Development, August, 1980-October, 1988
Job Title: Assistant Professor

Tennessee State University - Nashville, Tennessee - Department of Rural Development, May, 1974-July, 1980
Job Title: Research Associate
Area of Research: Small Farms

MILITARY RECORD:

Branch:	United States Army
Date:	January, 1968-January, 1970
Type of discharge:	Honorable
Highest Grade:	E-5
Duty:	Vietnam, One year

MEMBERSHIP;

Southern Association of Agricultural Scientists
American Agricultural Economics Association
Tennessee Association of Colleges and Teachers of Agriculture
National Association of State Universities and Land Grant Colleges

TEACHING AREAS:

Farm Management and Rural Finance
Rural and Community Development
Cooperatives
Agricultural Education

PUBLICATIONS AND PRESENTATIONS:

Publications will be furnished on request. Primary area of publication is small, limited resource and part-time farms.

INTERNATIONAL INTEREST:

International work consist of consultant - USDA/OICD seminars on farm management and agricultural finance.

Coordinator of short-term participant training

Countries visited include: Tanzania, Botswana, Malawi, Swaziland and Zimbabwe

OTHER:

Visiting Professor, Farmers Home Administration, October 1984-September 1985
Visiting Professor, Tennessee Valley Authority, Summer, 1985
Visiting Professor, Farmers Home Administration, August, 1986-July 1987
Served on various committees at the national level. Also participate in various seminars on Small Farms, Part-time Farmers, Small Scale Agriculture, Alternative Farming, Marketing and International Issues.

Survey Methods Research Short Course, USDA Cooperative Research Service, Orlando, Florida, July 9-13, 1984.

PUBLICATIONS AND PRESENTATIONS

Comer, Sammy L., "Resource Allocations for Maximizing Income on Limited Resource Farms in Giles County, Tennessee", Unpublished M.S. Thesis, Tennessee State University, December, 1974.

Comer, Sammy L. and Roger C. Woodworth, "Improving Incomes on Limited Resource Farms in South Central Tennessee", Tennessee State University, Bulletin Number 36, October, 1976.

Comer, Sammy L. and Roger C. Woodworth, "Looking at Small Farmers' Options", Rural development Research and Education, Southern Rural Development Center, Volume 1, Number 4, Summer, 1977.

Kanthi, M. S., Sammy L. Comer and Calvin Atchison, "Socio-Economic Dualism in India", Eastern Economist, Volume 69, Number 2, July 8, 1977.

Woodworth, Roger, Sammy L. Comer and Richard Edwards, "Comparative Study of Small, Part-time, Retirement and Large Farms: Three Counties in Central and West Tennessee", Tennessee State University, Bulletin Number 38, February, 1978.

Comer, Sammy L., et al, "Emerging Research Issues Directed at Small, Low Income, Limited Resource Farms", American Journal of agricultural Economics, Volume 60, Number 5, December, 1978.

Singh, Surendra P., Sammy L. Comer and Dan Bolton, "Some Methodological Problems in Socioeconomics Research in Rural Areas", Southern Rural Sociology Proceedings, February, 1979.

Jones, Dewitt, Ronald Hanson, John Crecink and Sammy L. Comer, "Off Farm Earnings and Small Farms", Paper V of the National Rural Center Small Farm Project, National Rural Center, Washington, DC, 1980.

Comer, Sammy L., Richard Edwards and Kenneth Schneeberger, "Improving Income and Family Living of Limited Resource Farm Families", Preliminary Report to the State Rural Development Committee, Federal Court House, Nashville, Tennessee, November 11, 1975.

Schneeberger, Kenneth, Sammy L. Comer and Richard Edwards, "Part-time and Full-time Farm Operators: Some Comparisons", paper presented to American Agricultural Economics Association, State College, Pennsylvania, August 17, 1976.

Comer, Sammy L., "Tennessee State University's Research Efforts Relative to Small Farm", Small Farms Researchers Conference, Southern University and A&M College, Baton Rouge, LA, April 3, 1978.

Comer, Sammy L., "Small Farm Research at Tennessee State University", Southern Research Conference in Agricultural Education, Tallahassee, Florida, July 25, 1978.

Comer, Sammy L., "Identification and Characterization of Small Farm Operators, Papers presented to the Agricultural Economics Association, Blacksburg, VA, August 7, 1978.

Comer, Sammy L., "The Role of Off-Farm Work in Increasing Incomes of Small Farmers", The 1978 Research Symposium of the Historically Black Land-Grant Colleges and State Universities, St. Louis, MO, November 9, 1978.

Singh, Surendra P., Sammy L. Comer and B. N. Hiremath, "U.S. Agriculture: Structural Dimensions and Consequences", presented at the Southern Rural Sociology Meeting, Atlanta, GA, February 1, 1981.

Singh, Surendra P., B. N. Hiremath and Sammy L. Comer, "Economic Profile of Black Farms in the South: Past Trends and Future", 1890 Research Symposium, Orlando, FL, October, 1982.

Bagi, Faqir S. and Sammy L. Comer, "Socioeconomic Aspects of Part-time Farming in Tennessee, Southern Rural Sociology Meeting, Nashville, TN, February, 1984.

Hiremath, B. N., Faqir S. Bagi, Surendra P. Singh, Sammy L. Comer and Afrasiab Kiani, "Relative Economic Performance of Individual Crop and Livestock Enterprises of Black and White Farms in Tennessee", Southern Rural Sociology Meeting, Tennessee State University, Nashville, TN, February 1, 1987.

Singh, Surendra P., Faqir S. Bagi, B. N. Hiremath, Sammy L. Comer and Rubka Tamerat, "Comparative Profile of Off-farm Employment of Male and Female Members of Black and White Farm Families in Tennessee", Southern Rural Sociology Meeting, Tennessee State University, Nashville, TN, February 1, 1987.

Bagi, Faqir S., Surendra P. Singh, B. N. Hiremath, Sammy L. Comer and Lawrence N. Ajekwu, "Factors Associated with Living Standards of Black and White Farm Families in Tennessee", Southern Rural Sociology Meeting, Tennessee State University, Nashville, TN, February 1, 1987.

Comer, Sammy L., Faqir S. Bagi, Surendra P. Singh, B. N. Hiremath and Fred Mugivane, "A Socioeconomic Profile of Black and White Farm Families in Tennessee", Southern Rural Sociology Meeting, Tennessee State University, Nashville, TN, February 1, 1987.

Singh, Surendra P. and Sammy L. Comer, "Design and Evaluation of Effective Training Programs for Agriculture and Rural Development", Rural Sociology Meeting, New Orleans, LA, February 1, 1988.

Comer, Sammy L., "Historically Black College and University Perspective", Western Regional Workshop on Relevancy in Participant Training Proceedings, Las Cruces, NM, February 28, 1988.

Singh, Surendra P., B. N. Hiremath and Sammy L. Comer, "Small Scale Agriculture in West Tennessee: Production and Marketing", R.D. Series, Research Bulletin Number 3, November 1987.

Singh, Surendra P., B. N. Hiremath and Sammy L. Comer, "An Analysis of Fresh Produce Markets in Tennessee: Choices for Small Producers", R.D. Series, Research Bulletin Number 4, May, 1988.

Hiremath, B. N., Surendra P. Singh, Sammy L. Comer and Faqir S. Bagi, "Pick Your Own Markets in Tennessee", presented at Southern Rural Sociology Meeting, Nashville, TN, February, 1989.

Hiremath, B. N., Surendra P. Singh, Faqir S. Bagi and Sammy L. Comer, "Marketing Alternatives for Small Farmers with Special References to Direct Marketing", presented at Southern Agricultural Economics Association Meeting, Nashville, TN, February, 1989.

RESUME

Julia M. Dinkins
7317 Weston Way Dr.
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(615) 320-3348: Office

EDUCATION

Ph.D:	Home Economics Education
Major:	Home Economics Education
Minor:	Educational Administration
Institution:	The Pennsylvania State University
Date:	August 1981

M.A.:	Education
Major:	Education
Minor:	Home Economics
Institution:	University of Connecticut
Date:	May 1973

B.S.:	Home Economics
Major:	Home Economics Education
Minor:	Related Sciences
Institution:	South Carolina State College
Date:	May 1972

POSITIONS AND ACCOMPLISHMENTS

Associate Professor of Consumer Education and Home Economics Education, Tennessee State University - Nashville, Tennessee (August 1981 to present)

Serves as principal investigator for a regional research project; conducted special local and international projects; served as university faculty representative to insure compliance with NCAA bylaws; served as local and national professional officer; represented department as TV guest on 3 local stations; teaches courses in management theory, consumer education and senior project writing; advises students in University College.

Graduate Assistant, The Pennsylvania State University - University Park, Pennsylvania (August 1976-November 1987 and July 1979-August 1981)

Planned and implemented workshops on evaluation of materials for food service programs and elimination of sex

bias from educational materials; assisted with development of a theoretical framework for home economics curriculum in Pennsylvania.

Program Specialist, The Pennsylvania Primary Health Care Association - Camp Hill, Pennsylvania (November 1987- July 1979)

Assisted with development, coordination and analysis of Title XX research project; edited the association's newsletter.

Consultant, The Pennsylvania Department of Education-Bureau of Vocational Education - Harrisburg, Pennsylvania (January 1979)

Developed performance objectives, criterion-referenced measures, performance guides and evaluation instruments for Future Homemakers of America/Home Economics Related Occupations (FHA/HERO) Child Care Events for state-wide competitive events.

Agricultural Extension Specialist, United States Department of Agriculture, Extension Service, Home Economics - Washington, D.C. (June-August 1975)

Developed a self-study learning package on infants' wear for consumers with low-level reading skills.

Instructor of Home Economics, South Carolina State College - Orangeburg, South Carolina (August 1973-May 1976)

Taught undergraduate general home economics courses; planned and conducted inservice workshop for high school home economics teachers; served as home economics club advisor.

PROFESSIONAL AND HONORARY MEMBERSHIP

The American and Tennessee Home Economics Associations
The American and Tennessee Vocational Associations
The International Federation for Home Economics
Phi Delta Kappa
Kappa Omicron Phi

PRESENTATIONS

International Conference on Open Higher Education: Innovations and Technology, Bangkok, Thailand (March 1987)

Southern Regional Symposium of Building Family Strengths, Fayetteville, Arkansas (April, 1986)

The Tennessee Home Economics Administrators Conference, Nashville, Tennessee (February 1984)

The Pennsylvania Home Economics Teacher Educators Conference, University Park, Pennsylvania (October 1977)

PUBLICATIONS

Conference Proceedings: "Building Strengths Through a Broader Definition of Income Resources".

Article: "Leadership: Some Symbolic Clusters", The Distaff, Spring 1984.

Article: "New Uses of Computer Technology for the Home", Farm and Home Bulletin, November 1984-85.

Article: "Managing Stress During Decade of Transition: Strategies for Adaptation", Farm and Home Bulletin, November 1982.

Final Report: Inservice Classes of COED Home Economics.

Final Report: Community Health Centers and the Title XX Social Services Program: An Examination of Human Services Integration.

Final Report: Furthering the Interest of Home Economics Through Professional/Self-Actualization: Workshops for Undergraduates".

Final Report: Annotated Bibliography for Home Economics Content Particularly Appropriate for COED Home Economics Classes.

Instructional Module: Am I Obligated to Conserve Energy?

Dissertation: Vocational Educators' Perceptions of Internal-External Control Related to Their Compliance Orientations with Regard to Federal Legislation and Regulations.

SERVICE TO THE COMMUNITY

Parent Aide: Exchange Club Center for the Prevention of Child Abuse

Guest Speaker: Looby Center, Pleasant Green Baptist Church, Reservior Hill Center, Vine Hill/Knowles Residence. (The topics related to consumer concerns of the elderly.)

Talk Show Guest: WDCN, Channel 8;WSMV, Channel 4; VIACOM, Channel 35. (The topics were related to consumer issues and National Education Week.)

GRADUATE COURSES

Major Area: Home Economics Education
Post-Secondary Adult Home Economics Education
Teacher Education
Program Evaluation
Educational Leadership
Appraising Student Progress
College Teaching
Research
Internship in Supervision and Administration

Minor Area: Educational Administration
Politics and Education
Economics of Education
Educational Administration
Legal Aspects of Administration
Individual Studies

Support Courses
Introduction to Statistics in Education
Applied Statistics in the Behavioral Sciences
Principles of Measurement
Research Methods
Psychological Foundations of College Teaching

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Support Courses Con't

Contemporary Philosophy
Social and Political Philosophy
Interdisciplinary Higher Education
Foundation of Curriculum Development
Audio Visual Methods in Education
Adult Education
Learning Implications of Education

REFERENCES

Dr. Elizabeth Ray
Professor Emeritus
Finley Point
Polson, MT 59860

Dr. Hazel O. Jackson
Assistant Professor
Department of Clothing and Textiles
The Ohio State University
Columbus, Ohio

Dr. Susan Weis
Professor
Rackley Building
The Pennsylvania State University
University Park, PA 16802

Dr. Gearldean Johnson
Department of Home Economics
Tennessee State University
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RESUME OF

CONSTANTINE L. FENDERSON

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Goodlettsville, TN 37072

TELEPHONE: (615) 859-6337 - Home
(615) 320-3339 - Office

PERSONAL

Married, 2 Children
Health: Excellent
Citizenship: American

EDUCATION

3/72 to 10/74	Michigan State University, East Lansing. Animal Husbandry and Institute of Nutrition. **Major:** Ruminant and Comparative Nutrition. **Ph.D. Degree.**
9/69 to 3/72	Michigan State University, East Lansing. Animal Husbandry. **Major:** Ruminant Nutrition; **Minor:** Biochemistry. **M.S. Degree.**
9/67 to 6/69	Tuskegee Institute, Tuskegee Institute, Alabama. Animal Science, **B.S. Degree.**
9/57 to 6/60	Jamaica School of Agriculture, Spanish Town, Jamaica. General Agriculture. **Diploma** (Associate Degree).
9/54 to 6/57	Dinthill Technical High School, Linstead, Jamaica, W.I., General Agriculture. Certificate.

OCCUPATIONAL RECORD

7/88 - Present	Tennessee State University - Acting Head Department of Agricultural Sciences
8/84 - 6/87	Tennessee State University - Head Department of Animal Science
8/85 - Present	Tennessee State University - Professor
8/80 - 8/84	Tennessee State University - Acting Head Department of Animal Science
9/79 - 8/85	Tennessee State Unviersity - Associate Professor Department of Animal Science
8/75 - 8/79	Tennessee State University - Assistant Professor Department of Animal Science

12/74 to 8/75	Michigan State University - Postdoctoral Fellow in the Animal Science Department. Primarily in the area of protein nutrition.
9/69 to 11/74	Michigan State University, Graduate Research Assistant in the Department of Animal Science.
6/69 to 9/69	Reynolds Mining Corporation (Arkansas) - General labor pool. Summer employment.
9/61 to 9/67	Reynolds Metal Co. (Jamacia Division). Senior Livestock Supervisor in charge of beef cattle, pigs and poultry.
8/60 to 9/61	Ministry of Agriculture and lands (Jamaica) - Agricultural Assistant directly in charge of pig breeding, nutrition and management (Research).

CONSULTANTSHIP

1. Animal Science consultant to Haiti - Feasibility Study on small farm livestock production in Haiti, OIC International/U.S. AID, December 1977.

2. Nutrition consultant to International Multisectorial Nutritional Planning Workshop. Meharry Medical College/U.S.AID, Nashville, July 24 - August 11, 1978.

3. Agricultural Consultant to Nashville Chapter of the United Nations Association of the United States of America Workshop on Transfer of Agricultural Technology to Developing Nations. Nashville. September 26, 1978.

4. Animal Science Consultant - Member of a fact finding trade mission team from the Institute of African Affairs (T.S.U.) to four (4) African Countries - The Cameroons, Gabon, Sao Tome' and Kenya - November 1986.

AWARD AND HONORS

Irving C. Peoples Award (Top Poultry Student) 1969.
Honor Roll, Tuskegee institute, 1968

PROFESSIONAL AFFILIATIONS

Member of the American Society of Animal Science
Member of Sigma Xi - The Scientific Research Society of North America
Sgt. Army and Air Cadet Force - Jamaica, 1954-1957.

PUBLICATIONS

Bergen, W.G. and C.L. Fenderson. 1971. Amino acid metabolism in sheep. Mich. Agr. Exp. Sta. Res. Rpt. 136:62.

Fenderson, C.L. and W.G. Bergen. 1972. Effect of ration composition and protein level on plasma free tryptophan and ruminal microbial tryptophan content in sheep. J. Ani. Sci. 35:896.

Fenderson, C.L. and W. G. Bergen. 1971. Tryptophan metabolism in sheep. J. Ani. Sci. 33:1167(ABS).

Fenderson, C.L. 1972. Tryptophan metabolism in sheep. Master's Degree Thesis. Michigan State University.

Fenderson, C.L. and W.G. Bergen. 1973. Amino acid requirements of growing steers. Mich. Agr. Exp. Sta. Res. Rpt. 245:77.

Fenderson, C.L. 1974. Animo acid requirements and effect of excess dietary crude protein on voluntary feed intake and nitrogen metabolism in growing steers. Ph.D. Dissertation. Michigan State University.

Fenderson, C.L. and W.G. Bergen. 1974. Amino acid requirement of growing steers. J. Ani. Sci. 39:237 (ABS).

Fenderson, C.L. and W.G. Bergen. 1974. Effect of excess dietary protein in steers. J. Ani. Sci. 39:998 (ABS).

Fenderson, C.L. and W.G. Bergen. 1975. An assessment of the essential amino acid requirements of growing steers. J. Ani. Sci. 41:1759.

Fenderson, C.L. and W.G. Bergen. 1976. Effect of excess dietary protein on feed intake and nitrogen metabolism in steers. J. Ani. Sci. 42:1323.

Fox, D.G., C.L. Fenderson and R.G. Crickenberger. 1977. Sources of supplemental protein for growing and finishing Holstein steers. Mich. Agr. Exp. Sta. Res. Rpt. 328:104.

Fox, D.G. and C. L. Fenderson. 1977. The influence of oven drying, NPN addition and silage dry matter on error in determining true corn silage dry matter. Mich. Agr. Exp. Sta. Res. Rpt. 328:130.

Fenderson, C.L. 1977. A report on livestock production as it now exists in Haiti and recommendations for increasing production through farmer training. Report (38p) presented to O.I.C. International. Research sponsored by O.I.C. International/U.S.A.I.D.

Fenderson, C.L. 1977. Pink-eye problem in cattle. T.S.U. Farm and Home Bulletin, p. 3.

Resume
Constantine L. Fenderson

Fox, D.G. and C.L. Fenderson. 1978. Influence of NPN treatment, oven temperature and drying time on error in determining true corn silage dry matter. J. Ani. Sci. 42:1152.

Fenderson, C.L. 1978. Land utilization systems for maximizing beef production with a cow-calf operation. Abstracts from the 1978 Research Symposium of the Historically Black Land-Grant Colleges and Universities. p. 8 (ABS).

Fenderson, C.L. and M. Byars. 1980. Feeding and management systems for beef cattle operations. Abstracts from the 1980 Research Symposium of Historically Black Land-Grant Colleges and Universities. p. 1 (ABS).

Onwu, C., C.L. Fenderson, R. Coppings, M. Byars and K. Vo. 1982. Effect of feeding average quality hay at two-percent body weight to light weight angus calves. Abstracts from the 1982 Research Symposium of Historically Black Land-Grant Colleges and Universities. p. 5 (ABS).

Fenderson, C.L., and B.N. Hiremath. 1982. An economic analysis of methods of storing corn silage. Abstracts from the 1982 Research Symposium of Historically Black Land-Grant Colleges and Universities. p. 4 (ABS).

Vo, K.V., F.E. Okpebholo, C.L. Fenderson and H. Williamson. 1983. Feed restriction during the finishing period as it affects abdominal fat and performance of commercial broilers. J. Poultry Sci. Vol. 62.

Fenderson, C.L., R. Coppings, M. Byars, B. Hiremath and K. Vo. 1983. Effects of feeding management systems on performance of postweaned light weight angus calves. J. Ani. Sci. 57. Supplement 1:392 (ABS).

Fenderson, C.L., R.J. Coppings, N. Adefope, C. Boykins and R. McNeil. 1984. Performance of growing-finishing swine fed rabbit excreta. (ABS). American Society of Animal Science, Southern Section, p. 59 #154.

Coppings, R.J., K. Vo and C.L. Fenderson. 1984. Experience with student diversity within Animal Science (ABS), American Society of Animal Science, Southern Section, p. 7, #18.

Vo, K.V., H. Khapour, N. Adefope and C.L. Fenderson. 1984. An evaluation of feed additives on performance of commercial broilers. J. Poultry Sci. Vol. 63, p. 42. (ABS).

Vo, K.V., N. Adefope, F.O. Ehizielen, C.L. Fenderson and H. Williamson. 1984. Rearing density as a stressor in commercial egg production. J. Poultry Sci. Vol. 63. p. 43 (ABS).

Fenderson, C.L., R. Coppings, B.N. Hiremath, M. Byars and K. Vo. 1984. Feeding protein supplement and ground shelled corn on performance of light weight Angus yearlings. Abstracts from the 1984 Research Symposium of Historically Black Land-Grant Colleges and Universities. P. 2. (ABS).

Vo, K.V., N.A. Adefope, C. Fenderson and H. Williamson. 1984. Diet density as it affects performance and interior egg quality of commercial layers. Abstracts from the 1984 Research Symposium of Historically Black Land-Grant Colleges and Universities. p. 1 (ABS).

Vo, K.V., E.J. Esah, N.A. Adefope, C.L. Fenderson and H. Williamson. 1984. Rearing density as it affects performance and certain blood parameters of growing guinea fowl. Abstracts from the 1984 Research Symposium of Historically Black Land-Grant Colleges and Universities. p. 1. (ABS).

Fenderson, C.L., M. Byars and B.N. Hiremath. 1985. Feeding systems for wintering post-weaned calves. Abstracts of Papers Presented at the Sixth Association of Research Directors Research Symposium. p. 1. (ABS).

Fenderson, C.L., B.N. Hiremath, K. Vo, R. Coppings, M. Byars and D. Bills. 1987. Effect of storage methods on nutritional quality of round bale hay. Seventh Biennial Research Symposium Abstracts. Sponsored by The Association of Research Directors of Historically Black Land-Grant Colleges and Universities. p. 5 (ABS).

Vo, K.V., N.A. Adefope, C.L. Fenderson and R. Norman. 1987. Energy requirements during the first four weeks and its effect on performance and carcass composition of guinea keets. Seventh Biennial Research Symposium, Abstracts, Sponsored by The Association of Research Directors of Historically Black Land-Grant Colleges and Universities. p. 6 (ABS).

Fenderson, C.L., B.N. Hiremath, M. Byars and K. Vo. 1988. The use of broiler litter as a source of nutrients for wintering beef cows. J. Ani. Sci. 66. Supplement 1:347 (ABS).

PAPERS PRESENTED

1. *Tryptophan metabolism in sheep. Presented at the Annual Conference of the Midwestern Section of the American Society of Animal Science, Chicago, November 1971.*

2. *Amino acid requirement of growing steers. Presented at the Annual National Conference of the American Society of Animal Science. Unviersity of Maryland, August 1974.*

3. *Effects of excess dietary protein in steers. Presented at the Annual Conference of the Midwestern Section of the American Society of Animal Science, Chicago, November 1974.*

4. *Management tips for your beef cattle herd. Paper presented to farmers at the Eighteenth Annual Farm, Home and Ministers' Institute. Tennessee State University. November 6, 1976.*

5. *Beef cattle research at Tennessee State Unviersity. Paper presented to farmers at the Eighteenth Annual Farm, Home and Ministers' Institute, Tennessee State University, November 3, 1978.*

6. Land utilization systems for maximum beef production with a cow-calf program. Paper presented at the 1978 Research Symposium of the Histori cally Black Land-Grant Colleges and Universities. St. Louis, November 1978.

7. Feeding and management Systems for limited resource beef cattle operations. Paper presented at the 1980 Research Symposium of the Historically Black Land-Grant Colleges and Universities. Atlanta, Georgia, 1980.

8. Effect of feeding average quality grass hay at two-percent body weight. Paper presented at the 1982 Biennial Research Symposium of Historically Black Land-Grant Colleges and Universities. Orlando, FLorida, November 1982.

9. An economic analysis of methods of storing corn silage. Paper presented at the 1982 Biennial Research Symposium of Historically Black Land-Grant Colleges and Universities. Orlando, FLorida, November 1982.

10. Effect of feeding management systems on performance of postweaned light weight angus calves. Paper presented at the 75th Diamond Jubilee Meeting of the American Society of Animal Science. Washington State University, July 1983.

11. Performance of growing-finishing swine fed rabbit excreta. Paper presented at the Southern Section of Annual Meeting of the American Society of Agricultural Scientists. Nashville, Tennessee, February 1984.

12. Feeding Systems for wintering post-weaned calves. Paper presented at the Sixth Association of Research Directors Research Symposium. Atlanta, GA. October 1985.

13. Effect of storage methods on nutritional quality of round bale hay. Paper presented at the Seventh Biennial Research Symposium, Sponsored by the Association of Research Directors of Historically Black Land-Grant Colleges and Universities. Washington, D.C. October 1987.

14. The use of broiler litter as a source of nutrients for wintering beef cows. Paper presented at the 80th Annual National Meeting of the American Society of Animal Science. Rutgers University, New Brunswick, New Jersey, July 1988.

FUNDED RESEARCH

Land utilization systems for maximum beef production with a cow-calf operation. Funded by C.S.R.S. (Now S.E.A/C.R.) Washington, D.C. March 1973. Became Principal Investigator October 1975. Total funds, $195,260 over 5 years.

Feeding and management systems for maximizing pounds of beef per acre on limited resource beef cattle operations. Funded by S.E.A/C.R. Washington, D.C. November 1977 - Principal Investigator. Total funds, $195,248 over 2 years.

Feeding and management systems for maximum beef production on limited beef on limited resource farms, II, 1979. Principal Investigator. Total funds $400,000 over 5 years.

Management systems for small beef cattle operations. Funded by C.S.R.S., Washington D.C. through CARP 1984. Duration of project = 5 years. First year funding = $83,848. Second year = $97,924. Third year = $86,772. Fourth year = $86,367. Fifth year = $107,574.

OTHER SCHOLARLY ACTIVITIES

1. Chaired an Animal Science Session at the 1982 Biennial Research Symposium of Historically Black Land-Grant Colleges and Universities, Orlando, FL November 1982.

2. Chaired an Animal Science Session at the Sixth Association of Research Directors Research Symposium in Atlanta, GA, October 1985.

3. Chaired a Session on Forage production and management at the 78th Annual National Meeting of the American Society of Animal Science, Kansas State University, Manhattan, Kansas, August 1986.

4. Member of C.S.R.S. (USDA) research evaluation team to Florida A & M University, March 1984.

5. Chaired two Animal Science Sessions at the Seventh Biennial Research Symposium of Historically Black Land-Grant Colleges and Universities, Washington, D.C. October 1987.

RESUME OF:

Robert E. Harrison
Ornamental and Fruit Tree Improvement Research Center
Cooperative Agricultural Research Program
Tennessee State University
3500 John A. Merritt Blvd.
Nashville, TN 37209-1561
(615) 367-4692

PROFESSIONAL EXPERIENCE

July, 1988 to Present: Professor, Associate Investigator, Nematologist; Department of Agricultural Sciences, and Cooperative Agricultural Research Program; Tennessee State University; Nashville, TN.

July, 1987 to July, 1988: Professor; Department of Agricultural Sciences; Tennessee State University; Nashville, TN.

July, 1975 to July, 1987: Head, Nematology Section; Tennessee Department of Agriculture; Nashville, TN.

Sept., 1972 to July, 1975: Research Assistant; Department of Entomology and Nematology; University of Florida; Gainesville, FL.

June, 1972 to Sept., 1972: Post-Graduate Research Assistant; Department of Zoology; Louisiana Tech University; Ruston, LA.

Sept., 1969 to June, 1972: Research Assistant; Department of Zoology; Louisiana Tech University; Ruston,LA.

EDUCATION

Ph.D. (1975): University of Florida, Gainesville, FL; Major: Nematology; Minor: Plant Pathology; Dissertation Title: The corky ringspot disease of potatoes: Biology of *Trichodorus christiei* and *Trichodorus proximus* and evidence for the existence of unstable tobacco rattle virus in corky ringspot-infected potatoes.

M.S. (1972): Louisiana Tech University, Ruston, LA; Major: Zoology; Thesis Title: Effects of prescribed burning on population dynamics of pine forest soil nematodes.

B.S. (1970): Louisiana Polytechnic Institute, Ruston, LA; Major: Zoology; Minor: Chemistry.

RESUME OF:

Robert E. Harrison
Ornamental and Fruit Tree Improvement Research Center
Cooperative Agricultural Research Program
Tennessee State University
3500 John A. Merritt Blvd.
Nashville, TN 37209-1561
(615) 367-4692

EDUCATION

Ph.D. 1975	University of Florida Gainesville, FL Major: Nematology Minor: Plant Pathology Dissertation Title: The corky ringspot disease of potatoes: Biology of *Trichodorus christiei* and *Trichodorus proximus* and evidence for the existence of unstable tobacco rattle virus in corky ringspot-infected potatoes.
M.S. 1972	Louisiana Tech University Ruston, LA Major: Zoology Thesis Title: Effects of prescribed burning on population dynamics of pine forest soil nematodes.
B.S. 1970	Louisiana Polytechnic Institute Ruston, LA Major: Zoology Minor: Chemistry

PROFESSIONAL EXPERIENCE

July, 1988 to Present	Professor and Associate Investigator, Department of Agricultural Sciences and Cooperative Agricultural Research Program, Tennessee State University, Nashville, TN. Duties: to determine the effects of plant-parasitic nematode populations on the acclimatization of several species of ornamental plants in interior plantscapes; to determine the effects of proper acclimatization of ornamental plants on population increases of plant-parasitic nematodes; to carry out activities under the direction of the Research Director as required to support the management, operation, maintenance and enhancement of the Ornamental and Fruit Tree

Improvement Research Center; to provide service and technical guidance as requested by the Research Director in the field of Nematology and related plant sciences and plant pest control to the University, associated individuals and industries, to include collection, processing and identification of plant- and animal-parasitic nematodes; to perform laboratory and computer analysis and testing as it relates to virus-free research in Nematology and to carry out and assist in training activities as needed by the Cooperative Agricultural Research Program; to assist in maintenance, monitoring and keeping an accurate inventory and control of all property at the Virus-Free Fruit Tree Improvement Research Station; to assist in management and operation of production, promotion and fulfillment of sales requests and accounting of virus-free materials and the proper disposal of property; to participate in hosting tours of the Ornamental and Fruit Tree Improvement Research Center; to assist in the preparation of special reports and assist in field days and/or workshops, presentation and information development for dissemination as requested by the Research Director; to perform other related duties, tasks and assignments as required by the Research Director; to serve as instructor in Economic Entomology and Weed Science.

July, 1987 to July, 1988

Professor, Department of Agricultural Sciences, Tennessee State University, Nashville, TN.
Duties: to serve as instructor in Weed Science and in Animal Biology I and II; to perform activities to support the management, operation, maintenance and enhancement of the Virus-Free Fruit Tree Improvement Research Center; to assist in management and operation of production, promotion and fulfillment of sales requests and accounting of virus-free materials; to participate in hosting tours of the Virus-Free Fruit Tree Improvement Research Center; to assist in preparation of special reports; to provide service and technical guidance in the field of Nematology and related plant sciences and plant pest control to the University, associated individuals and industries, to include collection, processing and identification of plant- and animal-parasitic nematodes.

June, 1975 to July, 1987

Head, Nematology Section, Division of Plant Industries, Tennessee Department of Agriculture, Nashville, TN.
Duties: to perform identification, survey and

instructional duties in Nematology and related plant sciences; to provide regulatory consultative service and technical guidance in the fields of Nematology and Plant Pest Control to associated individuals and industries; to collect, process and identify plant- and animal-parasitic nematodes; to conduct a delimiting survey for Soybean Cyst Nematode, and to maintain and revise Tennessee's Soybean Cyst Nematode Quarantine; to perform laboratory analysis and identification of honeybee diseases; to assist in administration of Pesticide Applicator Certification testing; to train supervisory and managerial personnel in Interaction Management, Management Reinforcement, Performance Evaluation, Employee Assistance, and Supervisor Intervention programs; to serve as Division New Employee Orientation Coordinator.

Sept., 1972 to June, 1975

Research Assistant, Department of Entomology and Nematology, University of Florida, Gainesville, FL.
Duties: to conduct independent research in Nematology; to present reports and research results to international Nematology organizations; to instruct laboratory and lecture courses in General Nematology and in Morphology of Nematodes.

June, 1972 to Sept., 1972

Post-Graduate Research Assistant, Department of Zoology, Louisiana Tech University, Ruston, LA.
Duties: to complete the organization and permanent establishment of a Nematology research program in the Department of Zoology; to serve as instructor in Animal Parasitology.

Sept., 1969 to June, 1972

Research Assistant, Department of Zoology, Louisiana Tech University, Ruston, LA.
Duties: to conduct independent research in Nematology, and present reports and results to international Nematology organizations; to instruct laboratory and lecture courses in General Zoology, Invertebrate Zoology, Animal Parasitology, Helminthology, Electron Microscopy, and Scientific Photography; to manage the use and maintenance of departmental electron microscope laboratory; to manage and maintain departmental photography laboratory and darkroom.

RESUME OF:

Roger J. Sauve
Ornamental and Fruit Tree Improvement Research Center
Cooperative Agricultural Research Program
Tennessee State University
3500 John A. Merritt Blvd.
Nashville, TN 37209-1561
(615) 367-4692

PROFESSIONAL EXPERIENCE

July, 1988 to Present: Professor, Associate Investigator, Plant Pathologist; Department of Agricultural Sciences, and Cooperative Agricultural Research Program; Tennessee State University; Nashville, TN.

July, 1987 to July, 1988: Professor; Department of Agricultural Sciences; Tennessee State University; Nashville, TN.

July, 1975 to July, 1987: Head, Plant Pathology Section; Tennessee Department of Agriculture; Nashville, TN.

June, 1970 to June, 1975: Research Assistant; Department of Plant Pathology; University of Florida; Gainesville, FL.

March, 1971 to Sept., 1971: Instructor of Plant Pathology and Mycology at Jamaica School of Agriculture, Spanish Town, Jamaica, W.I.; and Phytopathological Advisor to Banana Board, Plant Protection Agency and Forestry Department.

EDUCATION

Ph.D. (1978): University of Florida, Gainesville, FL; Major: Plant Pathology; Minor: Mycology; Dissertation Title: Studies on spore production and host infection by three *Pythium* species.

M.S. (1972): University of Florida, Gainesville, FL; Major: Plant Pathology; Minor: Botany; Thesis Title: Etiology and control of *Pythium* stem rot of geranium.

B.S. (1969): University of Florida, Gainesville, FL; Major: Zoology; Minor: Botany.

ROGER JOSEPH SAUVE, Ph.D.

Route 1, Nolensville Rd.
Brentwood, Tn. 37027
(615) 360-0191 or 776-5470

PROFESSIONAL SPECIALITY

Plant Pathologist - diseases of landscape plants and ornamental crops in nurseries and greenhouses; Diseases of fruit trees.

PROFESSIONAL PREPARATION

Graduate School: University of Florida
Gainesville, Florida 32601
Major: Plant Pathology
Minor: Mycology
Doctor of Philosophy...1978

PROFESSIONAL AFFILIATIONS

The American Phytopathological Society
Southern Association of Agricultural Scientists
Southern Division of the American Phytopathological Society
The Mycological Society of America
The Tennessee Flower Growers Association
Southeast Professional Peach Workers Association
Deciduous Stone and Pome Fruit Workers Association
Woody Ornamental Disease Workers
Alpha Zeta University of Florida Chapter
Gamma Sigma Delta University of Florida Chapter
Sigma Xi University of Florida Chapter

WORK EXPERIENCE

<u>PROFESSOR</u>.....July 1, 1987 to present
Professor of Plant Pathology, and Plant Physiology in the Plant Sciences Dept., School of Agriculture and Professor of Botany and Microbial Physiology in the Dept. of Biology, School of Arts and Sciences.

<u>Associate Investigator</u>.....July 1, 1988 to present
Associate investigator with the Virus Free and Nursery Research System of CARP.

<u>STATE PLANT PATHOLOGIST</u> June 1975 to June 30, 1987

Tennessee Department of Agriculture, Division of Plant Industries/Nashville. Responsible for the operation of a full-time plant pest and advisory laboratory and for the Tennessee Fruit Tree Improvement Program. Serve in an advisory capacity to the Governor's staff, and the staff of the Department of Agriculture.

GRADUATE RESEARCH ASSISTANT... October 1970 - June 1975
Responsible for laboratory, greenhouse and field work related to research projects.

Chairman of the Colloquim Committee, Department of Plant Pathology, University of Florida...Feb. 1973 - May 1973

Foreign Assignment...March 1971 - September 1971
Lecturer of Plant Pathology and Mycology at the Jamaica School of Agriculture, Twickenham Park, Spanish Town, Jamaica, West Indies. In addition to teaching responsibilities, I made a collection of herbarium plant disease specimens. Also, I served as phytopathological advisors for the Banana Board, Plant Protection Agency and the Forestry Department.

COLLEGE TEACHING EXPERIENCE

Jamaica School of Agriculture, Spanish Town
* Mycology & Plant Pathology

University of Florida
* Introduction to Botany

Nissan America, Smyrna Tn.
* Landscape Maintenance

Cheekwood Botanical Gardens
* Plant Pathology

Tennessee State University, Nashville, Tennessee 37203
* General Botany
* Microbial Physiology
* Plant Pathology
* Plant Physiology

Brentwood High School, Brentwood, Tennessee 37027
* Vocational Horticulture

COURSES QUALIFIED TO TEACH

Plant Pathology (Introductory to advanced courses
Plant Bacteriology (Graduate)
Plant Mycology (Graduate)
Plant Disease Control (Undergraduate)
Plant Virology (Graduate)
Diseases of Shade Trees (Graduate)
Diseases of Ornamental shrubs and
Bedding plants (Graduate)
Greenhouse Insect and Disease Control (Undergraduate)
Plant Propagation (Undergraduate)
Floriculture and General Horticulture (Undergraduate)

CONSULTING EXPERIENCE

1. Jamaica Department of Agriculture, Banana board, Forestry
2. Opryland U.S.A., Opryland Hotel Atrium
3. Nissan U.S.A., Smyrna, Tn.
4. Tanti's Plants, Nolensville, Tn.
5. Expert Witness, several lawfirms

CURRICULUM VITAE

I. BACKGROUND

NAME AND TITLE: SURENDRA P. SINGH, Professor, Agricultural Economics and Rural Development.

OFFICE ADDRESS: Department of Agricultural Sciences
Tennessee State University, Nashville,
Tennessee 37209-1501
Telephone: (615) 320-3473

HOME ADDRESS: [redacted]

PERSONAL DATA: Date of Birth: [redacted]
Sex: Male; Married with two dependents
Health: Excellent
Citizenship: United States of America

SKILLS AND ABILITIES: Possess leadership and basic computer skills. Thorough understanding of small farms, part-time farms and rural areas in USA and India. Ability to perform project analysis of agricultural and rural development projects. Experience in designing, planning and conducting socioeconomic surveys in rural areas. Superior report writing ability.

FIELDS OF SPECIALIZATION AND INTEREST: Small and Part-time Farms; Rural Development; Community Resource Economics; Industrialization of Rural Areas; Analysis of Health in Rural Areas; Socio-economic Surveys; Production Economics and Farm Management.

II. EDUCATION

1972	Ph.D.	Agricultural Economics Economic Theory	The Pennsylvania State University University Park, PA
1965	M.S.	Agricultural Economics Statistics	Agra University Agra, India
1962	B.S.	Agriculture	Agra University Agra, India

Doctoral Dissertation Title: An Economic Evaluation of the Feasibility of Rearing Broilers Separately by Sex in a Vertically Integrated Broiler Firm.

Master's Thesis Title: Study of Costs Structure and Returns on Different Size of Holdings in Block Chiraigaon, District, Varanasi.

III. PROFESSIONAL EMPLOYMENT EXPERIENCE

A. TEACHING:
July 1972-Present

PROFESSOR: Agricultural Economics and Rural Development (promoted in July 1986). Department of Agricultural Sciences, Tennessee State University. Responsible for teaching graduate and undergraduate courses in production economics, resource economics and rural development, research methods and statistics. Have directed successfully sixty-five Masters' theses. Currently chairperson for eight Masters' students. Member of the graduate faculty. Assignment, sixty percent teaching and forty percent research.

ASSOCIATE PROFESSOR: Department of Rural Development, Tennessee State University. Responsible for teaching graduate and undergraduate courses, directed Master's theses. Member of the graduate faculty. Developed graduate courses in Resource Economics and Rural Development, and Economics of Food & Fiber.

ASSISTANT PROFESSOR: Meharry Medical College, Nashville, Department of Health Care Administration and Planning. As a part-time faculty taught a course in Economics of Health Care (1980-81).

ASSISTANT PROFESSOR-RESEARCH: Tennessee State University, Department of Rural Development. Responsible for teaching graduate courses in Statistics, Research Methodology, Program Planning and Evaluation and Agricultural Policy. Directed Master's theses. Member, graduate faculty. Participated in developing a curriculum for a B.S. degree in Rural Development. Assignment teaching twenty percent and research eighty percent.

B. RESEARCH:
1973-Present

PRINCIPAL INVESTIGATOR/CO-INVESTIGATOR: Responsible for coordinating research activities in small farms and rural

development. Responsible for developing research proposals, managing and/or conducting research. Responsible for sampling, collection and analyses of data and interpretation of research findings and scientific publications and presentations. Managed and conducted research for following research projects:

- Marketing Situation and Alternatives for Small Farmers in Tennessee, 1984-present. Principal Investigator, CSRS Project.

- Decision Making Behavior of Small Farm Families, 1984-present. Co-investigator, CSRS Project.

- Dislocated Farmers' Program: Development of Methodology, 1987-1988. Co-investigator, Department of Labor, JTP.

- Factors Affecting the Survival of Small Farms in the South (Regional Project), 1981-1986. Co-investigator, CSRS Project.

- Small Farm Development Program in West Tennessee, 1979-1984. Principal Investigator CSRS Project.

- Economic Analysis of Total Resource Utilization and the Role of Credit on Limited Resource Farms, 1977-1981. Co-investigator, CSRS Project.

- Farm Resource Productivity on Small and Part-time Farms in Selected Areas of Tennessee, 1976-1980.

- An Economic Analysis of Health Status, Needs and facilities in Rural Counties of West Tennessee, 1975-1978. Principal Investigator, CSRS Project.

- Competitive Position of small Farmers in Tennessee, 1975-1979. Co-investigator, CSRS Project.

- Changes in Industrial Structure in West Tennessee and Its Impact on Development in Rural Areas, 1973-1975. Principal Investigator, CSRS Project.

- Consulted with Tennessee Department of Labor on "Dislocated Farmers' Program". Developed methodology and criteria for identifying trainees.

1987-Present	Consultant to the Pro-Vice Chancellor and Director of Extension, N.D. University of Agriculture and Technology, Faizabad, India on development of a Rural Development Center to conduct research and implement rural development programs.
1980-1981	Economic Consultant on the project "Feeding Management Systems for Maximizing Pounds of Beef Per Acre on Limited Resource Beef Cattle Farms". Assisted in developing analytical procedures for economic analysis of technical data.
April 1978	Presented a report entitled "An Analysis of Medical Manpower in Rural Tennessee" to Senator Edward M. Kennedy, Chairman, Senate Subcommittee on Health and Scientific Research.

IV. NATIONAL REGIONAL AND STATE COMMITTEES

- Member, The Southern Regional Education Board Task Force developing foundation course in socioeconomics.
- Member, Research Committee, Community Development Society of America.
- Member, The American Agricultural Economics Association Membership Committee.
- Member, Task Force on Community Health of WHO Collaborating Center, Meharry Medical College, Nashville.
- Member, Statewide Advisory Committee of the Tennessee Department of Labor, Manpower Division.

V. DISTINCTIONS

- Selected for inclusion in the International Directory of Distinguished Leadership (Second Edition) for "Outstanding Service to the Solution of Rural Problems and Teaching", 1988.

- Nominated by Tennessee State University for receipt of Morrison-Evans Outstanding Scientist Award, awarded by the ARD to the Outstanding Scientist from one of the 1890 Land-Grant Institutions, 1982 and 1984.

- Stood second in order of merit among one hundred M.S. degree candidates, 1964-65.

- Receipt of first prize in Agricultural Economics (Theory and Practice) among M.S. degree candidates, 1963-64.

VI. MEMBERSHIP IN PROFESSIONAL SOCIETIES

- American Agricultural Economics Association
- International Association of Agricultural Economists
- Northeast Agricultural Economics Association
- Southern Agricultural Economics Association
- Southern Rural Sociological Society
- Community Development Society of America
- Atlantic Economic Society

VII. SCIENTIFIC PUBLICATIONS AND PRESENTATIONS

Author or co-author of more than thirty scientific publications (refereed) and more than thirty-two research bulletins, and magazine articles in production economics, farm management, rural development and economic development. Also published a book on small farms. Presented over fifty papers in professional meetings, conferences and organized sessions and symposiums.

VIII. INTERNATIONAL EXPERIENCE

1989

THAILAND - Visited Thailand to establish linkages with Srinakharinwirot University, Bangkok and familiarization activities. Submitted a proposal entitled "Integrating

June 1972-1973	RESEARCH ASSOCIATE: Tennessee State University. Responsible for conducting research on the project "Human Resources in Rural Areas of West Tennessee".
January 1972- April 1972	RESEARCH ASSOCIATE: The Pennsylvania State University, University Park, Department of Agricultural Economics & Rural Sociology. Responsible for conducting research in the area of Economics of Broiler Production, Used Linear Programming.
January 1967- December 1971	GRADUATE RESEARCH ASSISTANT: The Pennsylvania State University, Department of Agricultural Economics and Rural Sociology. Worked on various problems in production economics with research concentrated in broiler production.
April 1966- September 1966	RESEARCH INVESTIGATOR: Government of India project "Economics of Farm Management in Deoria District, India". Responsible for training and supervision of ten enumerators who collected farm and household data, coding and tabulation of survey results.

C. ADMINISTRATION AND CONSULTATION:

1979-1987	ACTING DEPARTMENT CHAIRMAN: Responsible for assisting Chairman and managing the department in the absence of Department Chairman. Coordinator of Graduate Program.
1987-1988	ASSOCIATE: World Health Organization Collaborating Center, International Center for Health Services, Meharry Medical College, Nashville, Tennessee. Associate in Rural Development and Health Economics. Developed curriculum, courses and criteria for a diploma program in International Health.
April 1988- September 1988	CONSULTANT: Consulted with Farmers Home Administration to analyze black owned farms to evaluate their financial viability and suggest measures to improve their family income. Competitive contract.

	Agriculture and Employment in Rural North and Northeast Thailand" with the USAID for funding. The proposal is being reviewed.
1989	INDIA - Visited India to establish research linkages with N.D. University of Agriculture & Technology, Faizabad, and Rajendra Agricultural University, Pusa, Bihar, India.
1985	ITALY - To present a paper at the Nineteenth International Atlantic Economic Conference, March 9-16, 1985, Rome, Italy.
1982	INDIA - To present a paper at The World Marketing Congress, January 4-6, 1982, New Delhi, India.
1977	MEXICO - Personal visit.
	Selected as Agricultural Economist in February 1986 for a two-year assignment in Sudan by the USDA/OICD to work on AID's Western Sudan Agricultural Research Project. The program however, was disrupted and changed as a result of the evacuation of American personnel from Sudan.
	Good understanding of social and economic conditions in India, Nepal, Bangladesh and Pakistan.

CURRICULUM VITAE

TROY WAKEFIELD, JR.
[redacted]

PROFESSIONAL TITLE:

Assistant Professor and Director, Cooperative Agricultural Research Program (CARP) and International Food and Agricultural Development (IFAD), School of Agriculture and Home Economics, Tennessee State University, Nashville, Tennessee 37209-1561
Telephone: (615) 320-3337 or 3091

PERSONAL DATA:

Date of Birth: [redacted]
Health: Excellent; Married: Two children

Possess strong leadership skills/Basic computer skills/Statistical analysis skills/Program management skills/Family farm background.

Served two years in the United States Army as a Scientific Researcher in Human Nutrition. Received an Honorable Discharge with Meritorius Service Award.

I. RECENT SIGNIFICANT ACCOMPLISHMENTS:

1989: **MEMBER; INTERNATIONAL SCIENCE AND EDUCATIONAL COUNCIL/INTERNATIONAL RESEARCH COMMITTEE.** The International Research Committee is one of five standing committees of the ISEC. The IRC was established to encourage the integration and coordination of agricultural research between the University community and the U. S. Department of Agriculture.

1987: **ADVISORY BOARD MEMBER; WORLD HEALTH ORGANIZATION (WHO) COLLABORATING CENTER FOR HEALTH MANPOWER DEVELOPMENT** at the International Health Science Center of Meharry Medical College, Nashville, Tennessee. Served as a Task Force Member to achieve W.H.O. Collaborating Center designation for Meharry.

1986: **FELLOW; NATIONAL CENTER FOR FOOD AND AGRICULTURAL POLICY/RESOURCES FOR THE FUTURE**, Washington, D.C. Completed a leadership development program in Food and Agricultural Policy. Competitively selected as one of the first fellows nationally to participate in a program designed to enhance the leadership of highly qualified professionals from business, government, academe and agricultural organizations.

II. EDUCATION

1979	**Ph.D.**	Human Nutrition/Human Physiology University of Tennessee Knoxville, Tennessee
1972	**M.S.**	Animal Science/Biochemistry Tennessee State University Nashville, Tennessee
1970	**B.S.**	Biochemistry/Chemistry Tennessee State University Nashville, Tennessee
Doctoral Dissertation Title:		The Relationship of Biochemical and Dietary Parameter to Growth in Preadolescent Black and White Girls.
Master's Thesis Title:		The Effect of Germination Followed by Toasting Upon the Nutritive Value of Soybeans for Growing Chicks.

III. PROFESSIONAL EMPLOYMENT EXPERIENCE

A. Administration:

1987 - Present	**DIRECTOR: CARP;** Responsible for administering all United States Department of Agriculture funded agriculture research at Tennessee State University. Annual Budget = 1.7 million dollars.
1982 - Present	**DIRECTOR: IFAD;** Tennessee State University. Responsible for administering and directing the Joint Memorandum of Understanding among Tennessee State University, New Mexico State University and the Agency for International Development. IFAD also administers Tennessee State University's overseas development activities in Asia, Africa and Latin America. Annual Budget = $100,000.

B. Research:

1979 - 1987	**PRINCIPAL INVESTIGATOR/CO-INVESTIGATOR:** Responsible for coordinating research activities in nutrition through funded research projects. Responsible for collecting anthropometric, biochemical, clinical, dietary, dental, medical, psychological, sociological, and economic research data. Responsible for

computer analysis and interpretation of research fundings and scientific publications and presentations. Major research areas: Nutritional Health of Pre-Adolescent and Adolescent Females/Quality of Well-Being of the Elderly.

1974 - 1978 **GRADUATE RESEARCH ASSISTANT:** Department of Food Science, Nutrition and Food Systems Administration, University of Tennessee, Knoxville, Tennessee. Research on laboratory assessment of nutritional status of preadolescent girls. Duties included the supervision of a laboratory with a technician, two graduate and five undergraduate students. Responsible for biochemical analysis.

1972 - 1974 **BIOLOGICAL RESEARCH ASSISTANT:** U.S. Army Natick Laboratories, Natick, Massachusetts. Natick Laboratories conducts research and development in physical, biological and behavioral sciences and in engineering to meet military requirements in assigned areas. As part of a nutrition research group, I participated in studies with laboratory animals (rats) on the nutritional, biochemical and physiological effects of dietary ingredients on serum and tissues lipids alterations.

1970 - 1972 **GRADUATE RESEARCH ASSISTANT:** Department of Animal Science, Tennessee State University, Nashville, Tennessee. Conducted research on the effect of germination followed by toasting upon the nutritive value of soybeans for growing chicks.

C. Teaching:

Have developed and/or taught the following undergraduate and graduate courses:

-CHILD NUTRITION

-DIET THERAPY

-ADVANCED NUTRITION

-NUTRITION FOR TEACHERS

-WORLD FOOD AND NUTRITION

IV. INTERNATIONAL EXPERIENCE

A. TRAVEL:

1989: **ASIA**

THAILAND, INDIA - Program Development and Agricultural Research Linkage establishment through the JMOU Program.

1988: **AFRICA**

BOTSWANA, MALAWI, ZIMBABWE - Program Development and Research Linkage establishment through JMOU Program.

SWAZILAND - Annual Review of Tennessee State University and Penn. State University implemented "Cropping Systems Research & Extension Training Project" funded through U.S.A.I.D.

1987, 1986, 1985, 1984 **EGYPT** - Worked with the Egyptian National Research Center and the National Nutrition Institute of Egypt on the "More and Better Food" Project. The work involved the integration of nutrition into rural development projects designed to increase agricultural production, generate income and improve family health and economic circumstances.

1987: **LATIN AMERICA AND THE CARIBBEAN**

BOLIVIA, HONDURAS, HAITI - Familiarization activities under the Joint Memorandum of Understanding between New Mexico State University, Tennessee State University and the U.S. Agency for International Development.

1985: **GUATEMALA** - Visited the Institute of Nutrition for Central America and Panama (INCAP).

B. INTERNATIONAL/NATIONAL COMMITTEE MEMBERSHIP

1988, 1987, 1986: **(ISEC) COMMITTEE ON INTERNATIONAL ORGANIZATIONS:** As a member, I have participated in developing ways and means of increasing U.S. university collaboration with international agricultural research centers and other international organizations.

1988, 1987, 1986: **ASSOCIATION OF U.S. UNIVERSITY DIRECTORS OF INTERNATIONAL AGRICULTURAL PROGRAMS (AUSUDIAP):** As a Program Committee Member, I was involved in planning the Annual Conference of the Association of U.S. University Directors of International

Agricultural Programs, Ft. Collins, Colorado, July, 1986, and Fayetteville, Arkansas, June, 1988.

1987: **INTERNATIONAL SCIENCE & EDUCATION COUNCIL (ISEC) National Training Conference:** As a Committee Member, I participated in planning the 1987 U.S. Department of Agriculture/Office for International Cooperation in Development/University, National Training Conference held in Washington, D.C., March, 1987.

1981 - 1984: **U.S. Department of Agriculture Human Nutrition Research Subcommittee of the Experiment Station Committee on Organization and Policy (USDA: HNRS/ESCOP):** The HNRS/ESCOP was established by ESCOP following the passage of the Food and Agriculture Act of 1977. Membership of the committee is limited to six, including one representative from each experiment station region and one from the 1890 institutions and one from SEA-CR.

C. FOREIGN LANGUAGE

FRENCH: Have limited speaking, reading and writing ability.

SPANISH AND ARABIC: Have rudimentary speaking familiarity.

V. OTHER PROFESSIONAL ACTIVITIES

Technical Committee Secretary for two years (1980 & 81) for a regional nutrition research project "S-150" entitled, "Nutritional Health of Adolescent Females." This project represents multidisciplinary cooperative research efforts among eleven land-grant institutions in eight southern states.

Appointed by the Dean to Chair a group which successfully wrote a proposal and subsequently received funding of $500,000 for a Minority Institution (Tennessee State University) to strengthen its capabilities to participate in International Food and Agricultural Development. Funded through Title XII of the Foreign Assistance Act. U.S. Agency for International Development, 1979.

VI. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Association of Research Directors

Tennessee Nurserymen's Association, Inc.

SIGMA XI, The Scientific Research Society

American Association for the Advancement of Science

New York Academy of Sciences

Association of U.S. University Directors of International Agricultural Programs (AUSUDIAP) Contractual Relation Committee Member, 1983-84, Program Committee Member, 1986, 87/88

National Association of State Universities and Land-Grant Colleges (NASULGC)/Division of International Affairs

Southern Association of Directors for International Agriculture (SADIA)

Society for Nutrition Education

Tennessee Nutrition Council

Nashville Nutrition Council, President, 1981-82

VII. PROFESSIONAL HONORS AND AWARDS

1982 - Present: Alternate Trustee for Tennessee State University to the South-East Consortium for International Development. Presidential Appointment.

1982 - Present: Title XII Officer for Tennessee State University. Presidential Appointment.

1981 - Outstanding Young Men of America - Listed.

1978 - Outstanding Graduate Research Award
Tennessee Home Economics Association.

1973 - Meritorius Service Award
U.S. Army Natick Laboratories
Natick, Massachusetts

1966 - I Dare You Award
George R. Ellis, Jr. High School
Munford, Tennessee

VIII. SELECTED PROFESSIONBAL PRESENTATIONS

1989: **THE ROTARY CLUB, McMINNVILLE, TENNESSEE** - Establishment of Nursery Research Station at McMinnville by Tennessee State University.

SRINAKHARINWIROT UNIVERSITY, BANGKOK, THAILAND - Presented a seminar on Agricultural Research and International Development.

1988: **ASSOCIATION OF AGRICULTURAL ADMINISTRATORS, WASHINGTON, D.C.** - Presentation "Integration of Home Economics and Agricultural Programs: Strategies and Priorities; Research."

1987: **THE INTERNATIONAL SCIENCE AND EDUCATION COUNCIL; NATIONAL TRAINING CONFERENCE, WASHIGNTON, D.C.** - International Training and Placement Concerns.

1986: **WORLD FOOD DAY, NASHVILLE, TN** - How U.S. Policy Affects World Food and Agricultural Policies.

1985: **International Agriculture and World Development, Nashville, TN** - Presentation made on the occasion of the visit of the Deputy Director General of the World Health Organization to Tennessee State University.

1984: **UNIVERSITY OF ARIZONA, TUCSON, COLLEGE OF AGRICULTURE** - Presented a seminar on Nutritional Health of Adolescent Females.

1983: **TEXAS A&M UNIVERSITY, TITLE XII SEMINAR** - A Reaction to a Statement on Standards of Performance: Basic Principles for College and University Involvement in International Development Activities.

1982: **U.S. ARMY RESEARCH AND DEVELOPMENT COMMAND, NATICK, MASSACHUSETTS** - Nutrition and Health and Adolescent Females in the South.

1981: **TENNESSEE DIETETIC ASSOCIATION, ANNUAL CONVENTION** - Official Program Keynote Seminar Presentation on Nutritional Health of Adolescent and Preadolescent Females.

1980: **AMERICAN INSTITUTE OF NUTRITION, ANNUAL MEETING, ANAHEIM, CALIFORNIA** - Presentation on Longitudinal Study of Nutritional Biochemical Parameters of Preadolescent Girls in the South.

IX. SOME CIVIC AND COMMUNITY ACTIVITIES

HEALTH FAIR TSU/WTVF - Nutrition and Weight Counseling.

DONESLON HOSPITAL, DONELSON, TN - Nutrition display at the hospital, "Health Exposition".

ST. THOMAS HOSPITAL, NASHVILLE, TN - Nutrition exhibit at the hospital, "Wellness Fair".

BLACK HISTORY MONTH - Tennessee State University - made a presentation on Black health concerns and needs for Nutrition Research inb the 1980's.

WORLD FOOD DAY - Contact person at Tennessee State University - held international seminar and had a nutrition display and an information letter in the Student Union Building regarding the significance of this event - October 16, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988.

X. PROFESSIONAL CONSULTANTSHIP

STATE DEPARTMENT OF EDUCATION - Bureau of Educational Research and Service - I served as an advisory council member to the Nutrition Education Objectives Project. An Instructional Plan wa developed to incorporate learning activities in nutrition educat in existing health, home economics, science and social studies fo grades 7-9 throughout the State of Tennessee, 1981 and 1982 and : grades 10-12 - 1984.

U.S. NATIONAL ACADEMY OF SCIENCES - Bureau on Science and Technology for International Development. 1986.

XI. SCIENTIFIC PUBLICATIONS

Author or co-author of more than 30 scientific publications in nutrition in the areas of pre/adloescent, nutrition, lipids and lipoproteins, nutritional status assessment, nutritional anthropology and dietary intake, Copies of publications are available under separate cover.

XII. REFERENCES

Dr. Roy E. Beauchene, Professor
Department of Nutrition and Food Sciences
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(615) 974-3491

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Allied Health Professions
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Nashville, Tennessee 37203
(615) 320-3486

Dr. James W. Cowan, Director
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Dr. Gail W. Disney
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Dr. Kenneth Farrell, Vice President
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Berkeley, California 94720
(415) 987-0060

Dr. J. Dean Jansma
Associate Dean for International Programs
Pennsylvania State University
University Park, Pennsylvania 16802
(615) 863-0249

The Rev. H. Bruce Maxwell
Pastor
Lake Providence Missionary Baptist Church
4507 Nolensville Road
Nashville, Tennessee 37209
(615) 833-5539

ADDITIONAL REFERENCES ARE AVAILABLE UPON REQUEST.

Appendix II. Selected HBCU Technical Course Offerings

Selected HBCU Technical Course Offerings

Programme Francophone de Formation et de Consultation en Management (management training programs for senior level civil servants from Francophone African countries and Haiti conducted entirely in French). June to August. For further information contact Institute for International Affairs and Development, Clark Atlanta University, 223 James P. Brawley Drive, S.W., Atlanta, GA 30314-4391.

Seminaire de Formation des Conseillers-Formateurs en Management et en Entreprenariat pour Cadres-Femme d'Afrique et des Caraibes (women's management institute focusing on entrepreneurial and managerial skills development also conducted entirely in French). March to May. For further information contact Institute for International Affairs and Development, Clark Atlanta University, 223 James P. Brawley Drive, S.W., Atlanta, GA 30314-4391.

A Workshop on Application of Microcomputers in Analysis for Decision-making in Food and Agricultural Policy. May 8 - June 2, 1989. Objective of workshop is to develop proficiency in food and agricultural policy analysis using microcomputer-based analytical tools to evaluate impacts of alternative policy options in developing countries. Introduce participants to the use of new and simple computer graphics packages as a way of getting the results of analysis known to top level policy makers. For further information contact Agricultural Policy Workshop, International Agricultural Programs, 145 Carver Hall, North Carolina A&T State University, Greensboro, NC 27411.

Livestock Production and Veterinary Health Care (collaborative training program offered by Fort Valley State College and Ohio State University). January to December. Participants will acquire knowledge and skills necessary to develop efficient livestock production using improved management practices, proved breeding and selection procedures and efficient marketing methods; design and implement effective veterinary health care and disease control programs. For further information contact Coordinator of International Programs, Agricultural Technical Institute, 1328 Dover Road, Wooster, OH 44691.

Dairy Goat Management Practices. Offered semi-annually in coordination with kidding dates in herds. The participants in this "on-the-job" training course will develop knowledge and skills in the following areas: managing goat production programs, breeding goats for efficient production, formulation of nutritionally sound diets for goats, development of prevention/control programs for diseases and parasites, processing goat milk and developing new products. For further information contact International Dairy Goat Research Center, Prairie View A&M University, Cooperative Agricultural Research Center, P.O. Drawer U, Prairie View, TX 77446-2886.

Agricultural Development Management Training Course. June 11 - July 1, 1989. Learn management basics by seeing management in action; study ways to increase farm income, introduce new enterprises, control soil erosion and develop markets. For further information contact Program Coordinator, Milbank Agricultural Hall, Tuskegee University, Tuskegee, AL 36088.

Agribusiness Management (Tuskegee University). August 28 - September 29, 1989. Topics include agribusiness management tools; human resource management techniques; use of computers in management; and behavioral aspects of motivation and communication. For further information contact Agricultural Cooperative Development International, Education and Training Department, 50 F Street, N.W., Suite 900, Washington, DC 20001.

Seminar Series, Tropical Animal/Human Health. January - June. The International Center for Tropical Animal Health sponsors a seminar series focusing on all facets of tropical animal/human health. For further information contact International Center for Tropical Animal Health, School of Veterinary Medicine, Tuskegee University, Tuskegee, AL 36088.

Appendix III. HBCU Small Research Projects, FY 1984 to FY 1988

FISCAL YEAR 1988 HBCU RESEARCH AWARD DESCRIPTIONS

	FUNDING
ALABAMA A & M UNIVERSITY	
Peanut CRSP Project	$157,458
Niger Cereals Research	$53,687
Niger Applied Agricultural Research	$729,301
"Development of a Synthetic Tropical Rabbit Breed in Ghana"	$78,189
Nutritious Weaning Foods Research	$31,968
Cameroon Roots and Tubers Research Project	$82,532
ATLANTA UNIVERSITY	
"The Development Impact of Public Sector Management Training in NE Nigeria"	$93,468
"Manega: An Investigation of Women's Practices and Preferences in Village Household Sanitation Activities"	$13,043
DREW UNIVERSITY	
"The Seroepidemiological Determination of Exposure Patterns to Schistosome Cercariae Through the Detection of Antibodies to Cercarial Penetration"	$98,001
FLORIDA A & M UNIVERSITY	
"Systematics of Aquatic Weevils to Enhance Biological Control of Aquatic Weeds (Coleoptera: Curculionidae)"	$45,802
Cameroon Roots and Tubers Research Project	$86,770

FY 1988 HBCU RESEARCH AWARD DESCRIPTIONS (continued)

TUSKEGEE UNIVERSITY	
"Optimizing the Utilization of Crop Residues by Ruminant Livestock for Small Holders in West African Sahel"	$47,770
"Evaluation of Selected Storage Conditions on the Prevention of Post Processing Losses and Quality of Smoked Herring (Sardinella Aurita)"	$100,000
Schistosomiasis/Phytolacca Project	$25,540
UNIVERSITY OF ARKANSAS - PINE BLUFF	
"Evaluation of Hydrogen Peroxide-Treated Straw as a Feed for Aquaculture Production in Lesser Developed Countries"	$45,375
"Evaluation of A New Androgen and Procedure for Mass Production of All-Male Tilapia"	$7,615
UNIVERSITY OF MARYLAND - EASTERN SHORE	
Cameroon Root and Tuber Food Crops Research	$640,222
VIRGINIA STATE UNIVERSITY	
Gambia Agricultural Research	$33,176
Nepal Agricultural Research	$51,787
	$3,928,768

FY 1988 HBCU RESEARCH AWARD DESCRIPTIONS (continued)

HOWARD UNIVERSITY

"Cyanide-Malnutrition Synergism Effect on Thyroid Function"	$58,655
"Agronomical and Chemical Studies of High Yielding Lines of Amaranth and Related Species"	$50,644

LANGSTON UNIVERSITY

"Metabolic Aspects of the Leucaena Toxic Mimosine in Goats"	$100,000

LINCOLN UNIVERSITY

Farming Systems Research Project	$153,226
"Assessment of Vitamin A Status of Children in Belize"	$99,952
"Nutritive Value of Leafy Green Vegetables Grown at Different Locations in Belize"	$19,990
"Development of an Embryo Transfer of Dairy Cattle in Jamaica"	$34,655
"Improving Reproductive Performance and Quality of Blackbelly Sheep in Barbados"	$4,372
"Survival and Efficiency of Nitrogen Fixating Bacteria in Jamaica"	$4,610

MOREHOUSE COLLEGE

"Development of Fish Feeds for the Dominican Republic"	$46,381

MOREHOUSE SCHOOL OF MEDICINE

"Direct Gonadal Effects of Gonadotropin-Releasing Hormone Analogues in Primates"	$93,451

FY 1988 HBCU RESEARCH AWARD DESCRIPTIONS (continued)

MORRIS BROWN COLLEGE	
"Socioeconomic Analyses of Child Health Practices in Rural Ghana: A Case Study of Child Survival Strategies in Rural Households in West Africa"	$96,647
MEHARRY MEDICAL SCHOOL	
"Characterization of Trypanosome Non-Histone Chromosomal Proteins"	$99,998
"Characterization of Trypanosoma cruzi Kinetoplast Networks"	$37,358
"Trypanosoma cruzi Binding to Mammalian Cells"	$51,762
"Role of Host Iron-Binding Protein on Trypanosoma cruzi Multiplication and Development"	$27,906
NORTH CAROLINA A & T STATE UNIVERSITY	
"Fate of Fertilizer Nitrogen in Maize Groundnut Crop Rotation Systems in Zambia"	$98,981
SELMA UNIVERSITY	
"Insect Resistance and Alternatives to Insecticides Presently used in Rwandan Storages"	$99,809
SOUTHERN UNIVERSITY	
"Analyses of Health Aspects, Food Receptibility and Economic Benefits of the Solar Box Cooker in Sierra Leone"	$95,882
TENNESSEE STATE UNIVERSITY	
"A Study of the Diffusion of an Innovation in the Health Care System in Botswana"	$100,000
Swaziland Cropping Systems Research	$132,785

FY 87 FUNDING HBCU RESEARCH PROPOSALS
(936-5053)

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	DOC/PIO/T	FUNDING Health	FUNDING Agriculture
"Toxic Metal Accumulation in Plantain--A Major Food Source to the Caribbean and West African Nations"	Benedict College Grant Amendment (Carribean)	J. Kinard	5069	7361250 5361448		$11,391
"Studies on the Incidence and Field Management of Infertility in Cattle and Buffaloes in Rural Haryana"	Fort Valley State Grant Amendment (India)	K.L. Arora	6027	7361047 6361410		$34,489
"Model for the In-Vitro Generation of Human Epidemal Autographs for Potential use in the Treatment of Sickle Cell Leg Ulcers"	Howard Univ. Grant Amendment (Nigeria)	C. Reindorf	5102	7361045 5361544	$1,200	
"Nutritive Value of Leafy Green Vegetables Grown at Different Locations in Belize"	Lincoln Univ. Grant Amendment (Belize)	J. Nordstrom	5055	7361046 5361374		$23,560
"A Feasibility Investigation for Aquaculture in the Dominican Republic"	Morehouse College Grant Amendment (D.R.)	J. Bender	5046	7361048 5361233		$27,788
Small Farm Management Practices and Their Impact on Agri. Productivity in Kenya: The Case of Njoro Agri. Division"	Virginia State University Grant Amendment (Kenya)	M. Joshua	4089	7361222 3641517		$5,591

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	DOC/PIO/T	FUNDING Health	FUNDING Agriculture
"Dynamics of Soil Organic Matter Formulation under Tillage & Non-Tillage Mgmts. in Tropical Environments"	Florida A&M Univ. (Peru)	Y. Hsieh	7006	7361049 736104901		$85,300 $13,600
"Chemical Analysis of Amaranth Seeds and Related Celosia Species: Under-utilized Food Sources of West Africa"	Howard University (Nigeria)	J. Morris	7005	7361044 0145F00		$100,000
"The Use of Maternal Arm Circumference for Predicting Perinatal Mortality and Future Child Growth"	Drew Medical School (Bangladesh)	T. OseiBoama		7361234 736123401 182H00	$94,208 2,908	
"Functional Properties of Immune Cells after Ontogenic Exposure to Benzo(a)pyrene"	Morehouse School of Medicine (U.S.)	P. Urso		190H00 7361235	$100,000	
"Direct Gonadal Effects of Gonadotropin Releasing Hormone Analogues in Primates"	Morehouse School of Medicine (U.S.)	D.R. Mann		169H00 7361230 73612301	$96,075 $3,405	
"Development of the Natural Product Phytolacca dodecandra for the Control of Schistosomiasis in Developing Countries	Tuskegee University (U.S.)	E. Mamo		192H00 7361236	$96,045	

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	DOC/PIO/T	FUNDING Health	FUNDING Agriculture
"Evaluation of Nydrogen Peroxide-Treated Straw as a Feed for Aquaculture Production in Lesser-Developed Countries"	Univ. Arkansas at Pine Bluff (U.S.)	G. Burtle		187F00 7361415 187F001	(Partial) (For FY 88)	$99,949 53,658 * ($46,291)
"Systematics of Aquatic Weevils to Enhance Biological Control of Aquatic Weeds (Coleopters: Curculiomidae)"	Florida State University (Latin America)	C. O'Brien		239F00 7361419 230F001	(Partial) (For FY 88)	$97,802 $52,000 * ($45,802)
"Development of Fish Feeds for the Dominican Republic"	Morehouse College (D.R.)	J. Bender		202F00 7361418 736141801	(Partial) (Partial) (For FY 88)	$99,601 $52,000 $1,220 * ($46,381)
"Low Cost and Practical Solar Fruit Drying Systems for Developing Countries"	North Carolina A&T State (U.S.)	D. Goswami		7361420 189F00		$97,617
"A proposal to Study the Determinants of Loan Defaults in Rural Credit Program in Guana	Prairie View A&M Univ. (Ghana)	B. Dunson		7361416 232F00		$100,000
"Economic Viability of the Sloping Agricultural Land Technology on Small Upland Farms in Eastern Visayas, Philippines"	South Carolina State College (Philippines)	S. Londhe		7361417 222F00		$99,725

*Contingent on availability of funds

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	DOC/PIO/T	FUNDING Health	FUNDING Agriculture
"Manega: An Investigation of Women's Practices and Preferences in Village Household Sanitation Activities"	Atlanta University (Zaire)	C. Hopkins		7361433 221H00	$76,363	
"Estimating the Willingness to Pay for Water and Sanitation Services: A Referendum Approach"	Atlanta University (Lesotho)	F. Boadu		7361430 227H00	$100,000	
"Beliefs and Attitudes Toward Infant Mortality and Modern Health Care Centers in South-East Cameroon"	Jackson State University (Cameroon)	C. Prater		7361432 175H00	$99,989	
"Schistosomiasis: Biology and Host-parasite Relations of Schistosome Miracidia and Snail Hosts"	Morehouse College (U.S.)	B. Jones		7361434 240H00	$100,000	
"Development of Anti-schistosomal Agents: Isolation and Purification of Purine Salvage Enzyments of S. mansoni"	Texas Southern Univ. (U.S.)	A.L. Jadhav		7361431 233H00	$100,000	
"Use of Monoclonal Antibodies for Development of an Enzyme-Linked Immunodiagnostic Test for Falciparum Malaria in West African Children"	Tuskegee University (U.S.)	L. Washington		7361437 203H00	$100,000	

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	DOC/PIO/T	FUNDING Health	FUNDING Agriculture
"Characterization of Trypanosoma cruzi Kinetoplast Networks"	Meharry Medical College (U.S.)	M. Valenzuela		241H00	$100,000	
				7361435	$55,002	(Partial)
				736143501	$7,640	(Partial)
				241H001	* ($37,358)	(For FY 88)
"Role of a Host Iron-Binding Protein on Trypanosoma cruzi Multiplication and Development"	Meharry Medical College (U.S.)	F. Villalta		7361436	$100,000	
				242H00	$55,002	(Partial)
				242H001	17,092	(Partial)
				242H002	* ($27,906)	(For FY 88)
	TOTAL FY 87				$1,104,929	$757,939

*Contingent on availability of funds

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FY 86 FUNDED HBCU RESEARCH
(936-5053)

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Problems and Solutions in Developing a Medical Knowledge Database Diagnostic System for Childhood Diseases in Rural Egypt" (First Step)	Atlanta University (Egypt)	S. Sidky	6032	#6361390	$99,950
"Determinants of the Adoption of Nutrition Education Programs by the Malnourished in Low Income Countries"	Atlanta University Grant Amendment (Ghana)	A. Frempong	5054	#6361119	$7,150
"Studies on the incidence and field management of infertility in cattle and buffaloes in rural Haryana (India)"	Fort Valley State College (India)	K.L. Arora	6027	#6361410	$64,871
Cyanide-Malnutrition Synergism-Effect on Thyroid Function"	Howard University (Nigeria)	F.E. Grissom	6061	#6361391	$99,926
"Replication of Trypanosome Kinetoplast DNA"	Meharry Medical College (U.S.)	M. Valenzuela	6045	#6361051	$88,206
"*Trypanosoma cruzi* Membrane Components Involved in the First Steps of Parasite-Host Cell Association"	Meharry Medical College (U.S.)	F. Villalta	6063	#6361392	$98,291
"Trypanosome RNA Transcription"	Meharry Medical College (U.S.)	F. Hatcher	6070	#6361396	$100,000

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Preparation of Monoclonal Antibodies to Detect and Isolate Entamoeba histolytica Membrane Antigens Essential for Attack Upon Human Target Cells"	Morehouse School of Medicine (U.S.)	G. Bailey	6033	#6361393	$89,489
"Role of Host Nutrition in the Pathogenesis of Intestinal Amebiasis"	Morehouse School of Medicine (U.S.)	G. Leitch	6031	#6361394	$96,604
"From Demonstration to General Program: The Companiganj Health Care Delivery Experiment in ural Bangladesh"	Morgan State Univ. (Bangladesh)	R. Amin	6025	#6361400	$99,475
"The Solar Box Cooker and Food Quality: A Quantitative Analysis"	Philander Smith College (U.S.)	G.Hammons	6060	#6361409	$82,661
"Toxic Trace Metals in Acid Soils of the Humid Tropics: Adulteration of the indigenous Food Chain"	Prairie View A&M University Caribbean)	E. Brams	6062	#6361399 #636139901	$90,000 $10,000
"Kinetic Characteristicsa of the Enzymes of the Purino Salvage Pathways of S. Mansoni"	Texas Southern University (U.S.)	A. Jadhav	6030	#6361395 #636139501	$61,600 $15,611
"Potential Nutritional Benefits of High Quality Dried Mangoes in the Diets of Malnourished Weaning Age Children in Senegal"	Tuskegee University (Senegal)	J. Rankins	6029	#6361397	$99,697

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Nitrogen Efficiency and Associative N_2-Fixation of Sweet Potato Cultivars Development in Africa	Tuskegee University (Nigeria)	W. Hill	6062	#6361367	$91,479
	TOTAL 1986				$1,295,010

S&T/RUR:EGS:2478Z

FY 85 FUNDED HBCU RESEARCH
(936-5053)

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Evaluation of a New Androgen and Procedure for Mass Production of All-Male Tilapia in Lesser Developed Countries"	Univ. of Arkansas Pine Bluff (U.S.)	F. Meriwether	5098	#5361446	$81,221
"Determinants of the Adoption of Nutrition Education Programs by the Malnourished in Low Income Countries"	Atlanta Univ. (Ghana)	A. Frempong	5054	#5361373	$91,834
"Toxic Metal Accumulation in Plantain--A Major Food Source to the Caribbean and West African Nations"	Benedict College (Caribbean)	J. Kinard	5069	#5361448	$88,942
"The Formulation of a Tablet Alternative for Home Oral Rehydration Therapy in Tropical Climates"	Charles R. Drew Medical School (Zaire)	R. King	5074	#5361541	$99,967
"Public Health Implications of Average Peak Serum Concentration of Rifampin in Indonesian Subjects",	Charles R. Drew Medical School (Indonesia)	R. King	5076	#5361537	$82,386
"The Use of Traditional and Western Medicine for the Same Illness in Selected Populations in Zaire"	Charles R. Drew Medical School (Zaire)	R. King	5075	#5361549	$98,421

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Influence of Storage under Tropical Conditions on the In-Vitro Availability of Certain Drugs from Tablets"	Florida A&M Univ. Grant Amendment (Egypt)	A. Asker	4094	#5361248	$3,000
"A study on Utilization of Locally Available Feed Ingredients (Crop Residues and Gain By-Products) to Improve Productivity of Goats"	Florida A&M Univ Grant Amendment (Haiti)	C. McGowan	4048	#5361512	$65,000
"Phytochemical Screening of Solanum Species Indigenous to Jamaica (West Indies)"	Florida A&M Univ. Grant Amendment (Jamaica)	S. Lamba	4096	#5361543	$18,876
"Screening Grain Legume Germplasm for Symbiotic Nitrogen Fixation and Efficient Rhizobium Strains"	Fort Valley State (Dominican Republic)	A. Bhagsari	5108)	#5361540	$99,806
"Immunosuppression to Bacterial Vaccines in Schistosomiasis"	Howard University (U.S.)	K. Kassim	5041	#5361207	$58,535
"A Latex Slide Agglutination Test for the Detection of Malaria Antigens in the Blood of Mice Infected with Plasmodium yoellii 17XNL"	Howard University (U.S.)	M. Grigsby	5109	#5361518	$93,589
"National Survey of Prevalence and Risk Factors of Open-Angle Glaucoma in St. Lucia, West Indies"	Howard University (St. Lucia)	R. Mason	5100)	#5361522	$99,562

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Model for the In-Vitro Generation of Human Epidermal Autographs for Potential use in the Treatment of Sickle Cell Leg Ulcers"	Howard University (Nigeria)	C. Reindorf	5102	#5361544	$98,388
"The Survival and Efficiency of Nitrogen Fixing Bacteria when Introduced in Jamican and Mid-Missouri Soils"	Lincoln University Grant Amendment (Jamaica)	D. Marsh	4082	#5361636 #536163601	$16,473 $18,438
"Nutrient Analysis of Upper Voltaic Vegetation"	Lincoln University Grant Amendment (Upper Volta)	A. Kirchhofer	4083	#5361400 #3641575	$9,420
"Selection Study to Improve Reproductive Performances and Carcass Quality of Barbados Black-Belly Sheep"	Lincoln University (Barbados)	H. Swartz	5056)	#5361365	$76,684
"Nutritive Value of Leafy Green Vegetables Grown at Different Locations in Belize"	Lincoln University (Belize)	J. Nordstrom	5055	#5361374	$76,440
"Embryo Transfer Program for Dairy Cattle in Jamaica"	Lincoln University (Jamaica)	S. Meredith D. Snyder	5101	#5361447	$99,739
"A Feasibility Investigation for Aquaculture in the Dominican Republic"	Morehouse College (Dominican Republic)	J. Bender	5046	#5361233 #536123301	$60,547 $11,003
"Efficacy of a Gonadotropin-Releasing Hormone Agonist as a Male Contraceptive"	Morehouse School of Medicine (U.S.)	D.R. Mann	5081	#5361431	$72,057

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Changes in T-lymphocytes of progeny and mothers after exposure to benzo(a)pyrene during pregnancy (midgestation)"	Morehouse School of Medicine (U.S.)	P. Urso	5103	#5361457	$71,714
"Identification of Mammalian Target Cell Molecules Involved in Attachment and Stimulation of Attack by Entamoeba histolytica"	Morehouse School of Medicine (U.S.)	G.B. Bailey	5079		$81,045
"Role of the Intestinal Mucus Blanket in Secretary Diarrhea, Intestinal Amebiasis, and the Absorption of Oreal Replacement Fluids	Morehouse School of Medicine (U.S.)	G.J. Leitch	5080	#5361476	$85,382
"Small Business Entrepreneur-ship Among Urban Minority Populations in Central America: An Assessment of Needs, Problems, and Future Prospects of Small Business Entreprises in Limon, Costa Rica"	Morgan State Univ. (Costa Rica)	A.G. Mariam	5082	#5361339	$54,800
"A Quantitative Analysis of the Akuafo Cheque System"	Prairie View A&M University (Ghana)	B.H. Dunson	5047	#5361278	$99,968
"Confinement Rearing of Guinea Fowl in Developing Countries"	Tennessee State Univ. (U.S.)	K. Van Vo	5048	#5361279	$82,525
"Adapting the Domestic Rabbit to Production by Limited Income Families in Developing Countries"	Tennessee State Univ. (U.S.)	R. Coppings	5107	#5361521	$72,180

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"Development of Antischistosomal Compounds - Purine Derivatives: Structure Activity Relationships in the Inhibition of Hyposanthine-Guanine Phoshoribosyltransferase"	Texas Southern Univ. (U.S.)	A.L. Jadhav	5105	#5361475	$46,390
"Impact of a Multiservices Nutrition Intervention Program on Family Income and Malnutrition in 0-5 Year Old Children"	Tuskegee University (Jamaica)	J. Rankins	5078	#5361454	$100,000
"Evaluation of Indigenous Food Preservation Techniques and Their Effect on Nutrient Quality of Preserved Foods in Ghana"	Tuskegee University (Ghana)	J. Y. Lu R.D. Pace	5077	#5361535	$97,886
"Evaluation of Nitrogen-Fixation Efficiency in Bambara Groundnut (*Voandzeia subterranea*, Thouars) Germplasm"	Univ. of Md./ES Grant Amendment (Senegal)	J. G. Wutoh	4037	5615202	$38,127
"Small Farm Management Practices and Their Impact on Agricultural Productivity in Kenya: The case of Njoro Agricultural Division"	Virginia State Univ. Grant Amendment (Kenya)	M. Joshua	4089	#5361637	$59,000
	TOTALS 1985				$2,497,954

S&T/RUR:egs:2473Z

FY 84 FUNDING HBCU RESEARCH PROPOSALS
(936-5053)

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
Plasmodial Induction of Epstein-Barr Virus"	Howard University (U.S.)	S. Gravely	4003	3461013	$34,485
"Family Nucleation and Fertility Change in Tropical Africa"	Atlanta University Ghana)	E. B. Attah	4087	3641570	$35,281
"Factors Affecting Symbiotic Nitrogen and Yield of Cowpeas in Central Alabama and Jamica"	Tuskegee University (Jamaica)	G.Urias (Previous/Allen & E. Rhoden)	4039	#3641213)	$35,000
"Evaluation of Nitrogen-Fixation Efficiency in Bambara Groundnut (Voandzeia subterranea, Thouars) Germplasm"	Univ. of Md./ES (Senegal)	J.G. Wutoh	4037	3641283	$50,000
"Influence of Storage under Tropical Conditions on the In-Vitro Availability of Certain Drugs from Tablets"	Florida A&M Univ. (Egypt)	A. Asker	4094	#3641573	$33,386T
"A study on Utilization of Locally Available Feed Ingredients (Crop Residues and Grain By-Products) to Improve Productivity of Goats"	Florida A&M Univ, (Haiti)	C. McGowan	4048	#3641466	$35,000
"Phytochemical Screening of Solanum Species Indigenous to Jamaica (West Indies)"	Florida A&M Univ. (Jamaica)	S. Lamba	4096	#3641572	$34,959

TITLE	UNIVERSITY/COUNTRY	P.I.	GRANT	PIO/T	FUNDED
"The Survival and Efficiency of Nitrogen Fixing Bacteria when Introduced in Jamican and Mid-Missouri Soils"	Lincoln University (Jamaica)	D. Marsh	4082	#3641574	$31,368
"Nutrient Analysis of Upper Voltaic Vegetation"	Lincoln University (Upper Volta)	A. Kirchhofer	4083	#3641575	$25,580
"Small Farm Management Practices and Their Impact on Agricultural Productivity in Kenya: The case of Njoro Agricultural Division"	Virginia State U.S.)	M. Joshua	4089	#3641576	$33,386
"Ethnopharmacologic Research: Discovering New Prototype Drugs that Will be Useful in the Clinic"	Xavier Univ. (U.S.)	R.F.Ochillo	4103	#3641517	$35,000
	TOTAL FY 1984				$ 383,445

S&T/RUR:EGS:2474Z

Appendix IV. Directors of International Agricultural Programs

299A

Directors of International Agricultural Programs

NAME	INSTITUTION	TELEPHONE
Dr. Onuma Okezie	Alabama A&M University	(205) 859-7377
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Dr. Eva W. Adams	Delaware State College	(302) 736-4964
Dr. Charles Kidd	Florida A&M University	(904) 599-3429
Dr. James Kirkwood	Fort Valley State College	(912) 825-6262
Dr. Christopher Lu	Langston University	(405) 466-2231
Dr. Ikbal R. Chowdhury	Lincoln University (MO)	(314) 681-5360
Dr. Richard D. Robbins	North Carolina A&T State University	(919) 334-7901
Dr. Freddie L. Richards	Prairie View A&M University	(409) 857-4424
Dr. Karl Wright	South Carolina State College	(803) 536-7114
Dr. Gus T. Ridgel	Southern University	(504) 771-2809
Dr. Troy Wakefield, Jr.	Tennessee State University	(615) 320-3002
Dr. Eugene W. Adams	Tuskegee Institute	(205) 727-8953
Dr. Hazell Reed	University of Arkansas, Pine Bluff	(501) 541-6748
Dr. Dennis Ignasias	University of Maryland, Eastern Shore	(301) 651-2200
Dr. Winfrey Clarke	Virgina State University	(804) 520-6431

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Directors of International Health Programs

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Appendix VI. Miscellaneous News Articles

Black by Popular Demand

African-American colleges enjoy a welcome renaissance

As a Yale undergraduate, George Bush headed the local drive for the United Negro College Fund, a consortium that then represented 32 private black schools. Last week, as Bush delivered the keynote speech at the fund's 45th-anniversary dinner in Manhattan, and it was clear his ardor had not waned. "Then as now," said the President, "the U.N.C.F.") insists that excellence become a way of life."

Bush's remarks come at a time of renaissance for the nation's 117 historically black colleges. During the 1970s, many of the best black students deserted such institutions for Ivy League schools. Today, spurred in part by racist outbreaks on predominantly white campuses, African-American students are rediscovering the nurturing atmosphere and pride in a shared heritage that made black campuses attractive to their parents' generation.

Two-thirds of the 42 schools currently represented by the U.N.C.F. have seen an increase in enrollment this academic year. At many colleges, applications far outnumber openings. Last spring Virginia's Hampton University received 8,300 applications for 900 places, making the school as popular as Dartmouth. Says U.N.C.F. President Christopher Edley Sr.: "Black students are coming back home."

A major factor behind this shift is cost. On average, private black colleges charge only about half the tuition levied by similar white schools. As student aid has been slashed, that has made a difference to college-bound blacks, most of whom require some form of assistance.

But economics is only part of the story. For many African Americans, black colleges promise a level of academic and social support that mostly white campuses cannot match. "Psychologically, a black student is going to feel better about himself at a black college," says Barry Beckham, editor of *The Black Student's Guide to Colleges*. At schools such as Dillard, Fisk, Morehouse and Howard, black students say they feel a surge of self-esteem directly traceable to the experience of being the majority race on campus.

Black colleges are also more likely to provide vital encouragement to marginal students. Sulayman Clark, 35, was on the verge of dropping out of mostly white Temple University when he transferred to 152-year-old Cheyney University in Cheyney, Pa. Bolstered by attentive professors, he not only graduated but went on to earn a Ph.D. from Harvard. "If Cheyney did not exist, my career would have been over," he says.

Like their white counterparts, black-colleges have become savvy promoters, competing aggressively for students and philanthropic dollars. Gone are the days when black-college presidents enjoyed a near monopoly on black-college hopefuls. Today they are more inclined to run their schools like a business, placing corporate brass on their boards and going head to head with Brown, Duke and other top schools for the most promising black youths.

The new vitality of black colleges is reflected in their coffers as often as it is in their classrooms. Ten years ago, only seven black colleges had endowments of more than $5 million; by 1986, 19 had reached that level. Such schools are getting mixed messages from Washington. [redacted] At the same time he warned Congress that federal student aid might have to be cut further to whittle the deficit.

Consequently, black schools have had to address one of their oldest financial weaknesses: small and infrequent alumni donations. In November, when Bill and Camille Cosby made a $20 million gift to Spelman College, the event received widespread publicity; yet modest donations have been the norm. That shows signs of changing, however. During the past fiscal year, alumni support at Alabama's Tuskegee Institute topped $1 million for the first time, aided by three gifts of $125,000 or more.

Despite such advances, the future remains clouded for many black colleges. In 1987, 17 of the U.N.C.F.'s members were in the red. Last summer Dallas' Bishop College went under after a long struggle with bankruptcy. Worse still, the overall percentage of African Americans going to college has been declining for almost a decade, shrinking the pool of potential applicants to black schools.

Such worries seem far away to Angela Addison, a black senior at the selective Alabama School of Fine Arts in Birmingham, a high school where African Americans are in the minority. Addison could go on to almost any of the nation's top-ranked colleges, but she is convinced that Hampton will provide the right environment. "I want to go someplace different," she explains. "I want to go to a prestigious black college." So, it seems, do many others. —*By Susan Tifft.*

Reported by Priscilla Painton/New York and Don Winbush/Atlanta

HARRIS—GAMMA/LIAISON

Attentive professors: a computer-science class at Dillard

WEINER—GAMMA/LIAISON

Pride in a shared heritage: dorm life at Spelman

Black-college presidents once had a near monopoly on black candidates; now they compete aggressively for students and dollars.

Houston Chronicle, Sunday, Febraury 19, 1989

Costly find in goat coat triggers chatter

By NELSON ANTOSH
Houston Chronicle

The discovery that soft fuzz under the hair of most Texas goats was expensive cashmere has touched off chatter about big dollars that has reverberated all the way to the Houston Livestock Show and Rodeo.

Even the exhibitors of dairy goats, whose chief function is the production of milk, are talking about cashmere. A year ago, hardly anyone even knew what it was or where it came from.

Saturday at the livestock show, Elizabeth Pannill of the Cinco de Mayo Farm near San Marcos raked a special comb made in China across the top of one of her milk goats. The result was only a small clump of the downy hair, and she said some people may be disappointed.

Frank Craddock, the Texas A&M sheep and goat specialist stationed at Uvalde, gets inquiries about cashmere every day. "In the past six months, it's just gone wild," said Craddock, who was supervising Saturday's dairy goat competition here. That judging concludes today.

The world market price for quality cashmere is about $75 a pound, more than 10 times as high as mohair, which comes from angora goats and is the most valuable fiber produced in Texas at present.

Two mills in the northeast, strapped by short supplies and strong demand, have guaranteed $39 a pound for even low quality cashmere that is mixed with goat hair, said Thian Hor Teh, research leader at the International Dairy Goat Research Center at Prairie View.

Cashmere is potentially a $200 million a year business for Texas, said Teh, who is assistant superintendent of the goat show here. "We have so much to offer — all of that range land."

This state is already the home of the largest goat population in the nation, including about 300,000 Spanish goats (raised for meat) and 10,000 to 15,000 dairy goats. The Texas Angora goat herd numbers about 2 million.

The world's largest producer of cashmere is China, but a few years ago, the Chinese decided they would rather sell finished sweaters than the raw material, said Teh. The other major sources are Russia, Iran and Afghanistan.

The Australians have gotten into the game by selectively breeding some captured wild goats, said Teh.

Although there is no production in the United States, the Forte Cashmere Co. of Woonsocket, Rhode Island, a mill, in January kicked in $10,000 to help form the Cashmere Producers of America Inc. The association is based in Billings, Mont.

A survey of the Texas goat population by Teh showed "we have the gene pool, potentially as good as Australia."

IN THE NEWS

Cosby's $20 Million Gift: A Source Of Funds—And Hope

It's the fantasy of every president at a black college or university. A well-heeled philanthropist, intent on supporting financially strapped black institutions, presents a whopping eight-figure check to a flabbergasted school administration.

For a scholarly looking anthropologist named Johnnetta B. Cole, that dream became a reality.

Late last year, the newly elected Spelman College president was basking in the spotlight when the predominantly black women's college received a $20 million donation from Bill and Camille Cosby—by far the largest single cash contribution to a black college.

Needless to say, Cole, Spelman's first woman president, was floored by the size of the gift. "When the phone call came," the affable 52-year-old Jacksonville, Fla., native told BLACK ENTERPRISE, "I had to pick myself up off the floor. In fact, I remember saying: 'Dr. Bill, did you says $2 million?' And he said 'Girl, can't you hear? I said *$20 million!*' "

Cole has already mapped out her plans for bolstering the Atlanta school's academic program. About 60% of the donation is earmarked for the construction of the Camille Olivia Hanks Cosby Academic Center. The remainder will be set aside for a number of projects, including the endowment of chairs.

There's no doubt that the Cosbys' gift will help Spelman, but the question remains: What does the hefty donation portend for other cash-starved black colleges?

It's no secret that many historically black schools are hurting. Sixteen of the 42 United Negro College Fund (UNCF) schools have endowments of less than $3 million. By contrast, cash-rich institutions like Harvard University, the University of Texas at Austin and Yale University enjoyed endowments of $3.4 billion, $3.3 billion and $1.7 billion, respectively in fiscal year 1986. However, many black colleges continually struggle to stay afloat. For instance, Bishop College in Dallas had to shut its doors (the second school in UNCF history to do so) last year after failing to make good on a $20 million debt. (See "A Tale of Two Colleges: One Closes, Another Merges," In The News, Nov. '88).

"Unfortunately," Cole laments, "there will probably be more [Bishops]."

But a number of black colleges are battling to avoid Bishop's fate by employing new cash-raising strategies. For example, 40 black universities—including Alabama A&M, Fisk and Howard—are part of a national credit card program started last summer that is designed to bolster the coffers of black schools. Sponsored by the Indiana National Bank in Indianapolis, and Affinity Card Marketing Inc. in South Orange, N.J., the program offers VISA cards for alumni and supporters of black schools. For each approved application, Indiana National pays the designated school $5 to $10. Each time the card is used, the school will also receive a percentage of each purchase amount.

Spelman's benefactor

Black schools are also making more of a concerted effort to attract the top black students in the country. One black school that has increased its enrollment is Grambling State University in Grambling, La. According to Earl Vinson, Grambling's executive vice president, the 87-year-old school has doubled its number of students to 6,003 since 1977 by upgrading an academic curriculum that now includes a master's degree program in international business and trade, and a bachelor's program in business/public administration.

"This improvement in standards is a must to compete with major white institutions," says Vinson, noting that about 800 students were turned away last fall because of insufficient housing accommodations. "Those major institutions have the resources to attract some of the top black students in the country. But we want some of those students as well."

Several schools are also trying to boost enrollment by marketing themselves more aggressively to white students. Fisk has held two career seminars for white high school students interested in science and engineering and is exploring the development of a race-relations institute.

Lincoln University in Jefferson City, Mo., has also successfully recruited more white students. "More black colleges are trying to attract a large number of students regardless of race," notes Reavis L. Mitchell, executive assistant to the president at Fisk. One white student and six Asians are among the 764 students enrolled at the 122-year-old institution.

But these efforts have ruffled some collegiate feathers. Many students believe that by increasing white enrollment, these institutions will lose their sense of purpose.

No way say school officials. Why? Because despite these feverish attempts to woo more white students, the mission to educate the brightest black minds in the country will remain the same. In addition, the key to keeping black colleges open is increased financial support from blacks. And school administrators are optimistic that the Cosby donation will spur more donations.

Fisk is pushing for mass alumni suport. The school has the goal of raising $25 million in 10 years. "Black [Americans] *must* begin to support their alma maters," Mitchell maintains. "Many times blacks feel that if they can't give a large amount, they can't give at all. Hey, everyone can't be a Bill Cosby."

—Kevin D. Thompson

Largest Individual Cash Gifts To Selected United Negro College Fund Schools

Contributor	Amount	Year
Bill Cosby (to Spelman)	$20 million	1988
C.B. Powell, former *Amsterdam News* publisher (to Howard)	$5 million	1978
Artis White, dentist (to Morehouse)	$1.5 million	1987
Bill Cosby (to Fisk)	$1.3 million	1986
Dr. H. Kanuzu Banda, president, Malawi, Africa (to Wilberforce)	$1 million	1978, 1979

Source: Survey of UNCF schools

Houston Chronicle

Vol. 88 No. 87 Sunday, Jan. 8, 1989 One Dollar ★★★★

Houston Chronicle
Section H
Sunday, Jan. 8, 1989

OUTLOOK
Editorials & Opinion

Viewpoints, 3H
Crossword, 6H
Mike Royko, 7H

Houston would be much the poorer without Texas Southern

WILLIAM H. HARRIS

EVEN though I have only been at Texas Southern University since last July, I am frequently asked these two questions:

■ Why is TSU needed since there are other universities only a short distance away?

■ What is the function of black colleges in today's integrated society?

First, let me unequivocally state that I did not come to Houston to preside over the demise of Texas Southern University. Rather, I came because of my belief and commitment to the mission of TSU as this city and this state increasingly recognize the importance of providing enhanced educational opportunities for all citizens.

Harris, formerly president of Paine College in Augusta, Ga., is president of Texas Southern University here.

Second, Houston is the nation's fourth largest city, and I would say that presently it does not have enough institutions of higher learning for a city its size. Philadelphia, Washington, D.C., Atlanta and Boston — each with fewer people than Houston — have more colleges and universities in their respective metropolitan areas.

I am not necessarily advocating more institutions of higher learning for Houston, but at the same time I see the need for TSU well into the foreseeable future — a future that projects for Texas a rapidly growing minority population. I see for TSU a future in perpetuity.

> Far from being an institution that fosters segregation, TSU is the single-most important stabilizing institution in Houston.

TSU's past as a predominately black university is, of course, closely interwoven into its present and its future. And, moreover, this past, present and future are also intertwined with those of other traditional black colleges and universities.

Beginning with the first graduating class in 1948, TSU's graduates have made and are making myriad and significant contributions to their respective communities and especially to Houston.

The Houston Independent School District is one key area of community employment and involvement with which TSU graduates have been associated since 1948. Today, an estimated 41 percent of HISD teachers and other professional employees are graduates of and/or have attended the university.

Far from being an institution that fosters segregation, TSU is the single-most important stabilizing institution in Houston. TSU provided the leadership that enabled black Texans to take advantage of and push further the efforts to make our nation responsive to providing equal justice and equal op-

See TSU on Page 5H.

TSU

Continued from Page 1H.

tunity for all of our citizens.

TSU graduates have been in the forefront as employment opportunities for blacks and other minority group members have expanded in Houston and the state during the last four decades. Today, TSU graduates hold responsible private-sector jobs in many of the local, regional and national firms that are located in Houston's dramatic downtown high-rises, as well as in Greenway Plaza, the Galleria and other office complexes throughout this vast metropolis.

TSU's alumni are employed in banking and other financial service areas, aerospace, transportation, computer technology, health care, energy and the communication industries. These are but a few of the private-sector fields in which the university's graduates are making meaningful contributions to the Houston economy.

The local public sector is also an area in which TSU graduates are playing key roles — roles that have an impact on virtually all aspects of our citizenry. Indeed, two U.S. congressmen studied at TSU, and an alumnus now sits in Houston as a judge on the U.S. District Court for the Southern District of Texas. Moreover, several graduates of the university serve in the state Legislature and on several local governmental bodies and boards. Some of these distinguished Texans make meaningful contributions to our society today because Texas Southern University provided them an opportunity to grow and then nurtured their development as they found their own potential.

Even given these significant successes, I am confident that the greatness of Texas Southern University lies in its future, not in its past. And that future greatness is one that is inextricably tied to the dynamic future of Houston and of Texas. I am pleased that students share this excitement. More than 8,500 students are enrolled for classes this semester, a significant increase over last year.

The bottom line is simple: Texas Southern University's contribution to the growth and development of this community is visibly manifested by what its graduates have done and are presently doing in enhancing the quality of life for all of Houston's citizenry.

From another perspective, I dare say that those who are seriously concerned about this community shudder to even think what kind of community this would be if there were no TSU. Without the contributions of Texas Southern University's graduates and the graduates of other historically black colleges, there is little question but that Houston would not have achieved its level of past or present greatness. We could not have nearly the same confidence in its future.

Sunday Advocate, January 1, 1989

USDA to open offices at Southern University

By The Associated Press

Millions of dollars could flow to Southern University over the years now that the U.S. Department of Agriculture has decided to set up an office there, the university's president said.

"I think in the end, if we put all of this together, we're talking about investments over a three- to five-year period worth several million dollars, either in direct grants or in-kind contributions," SU president Dolores Spikes said Thursday.

USDA announced Thursday that it would try to encourage more minorities to enter agriculture and forestry by establishing offices at Southern and 16 other historically black schools.

Deputy Secretary Peter C. Myers said the offices will be "a focal point for all USDA activities" at the universities, actively known as 1890 institutions because of land-grant college legislation that year.

The department already had such offices at the nation's original, predominantly white, land-grant colleges founded 28 years earlier and known as 1862 schools, Spikes said. Those schools include LSU.

"This comes about as a result of lobbying on behalf of those (1890) schools to share in same kinds of programs already participated in by 1862 schools," she said. "We're just trying to get together a little bit of our fair share of the offerings of USDA."

Spikes said the new position probably will go to the USDA's liaison with Southern's small farms program, which was set up as part of a now-defunct consent decree aimed at fully integrating state universities in Louisiana.

Gov. Buddy Roemer is moving to cut off state money for such programs.

"This will be one avenue by which we can get some additional funding through the federal government to keep that program going," Spikes said.

"I think this adds an awful lot to Southern's agricultural program," she said. "Southern is a land-grant institution — one of two land-grant institutions in the state, the other, of course, being LSU. However, we have primarily operated our research program without the benefit of state money.

"It's been largely through federal grants. This helps an awful lot in the absence of state support," she said.

The office also will help students find summer work-study jobs while they are in school and full-time jobs after graduation, Spikes said, and will help work up a curriculum for a planned forestry program.

Myers said a few department agencies have offices at the 1890 schools, but this will be the first time that there will be an on-campus link between USDA and each of the universities.

The offices will help with curriculum development, recruit and counsel students on employment opportunities in USDA and develop new ideas and approaches to help small-scale, limited-resource and minority farmers, he said.

In addition to Southern, the institutions are:

Alabama A&M, Huntsville; Alcorn State University, Lorman, Miss.; University of Arkansas, Pine Bluff; Delaware State College, Dover; Florida A&M University, Tallahassee; Fort Valley State College, Fort Valley, Ga.; Kentucky State University, Frankfort; Langston University, Langston, Okla.; Lincoln University, Jefferson City, Mo.

Also, University of Maryland-Eastern Shore, Princess Anne; North Carolina A&T State University, Greensboro; Prairie View A&M University, Prairie View, Texas; South Carolina State College, Orangeburg; Tennessee State University, Nashville; Tuskegee University, Tuskegee, Ala.; and Virginia State University, Petersburg.

The Washington Post, Thursday, November 17, 1988

Spelman College on the Rise

THE NATION'S historically black colleges and universities have had hard times in recent years. Schools that used to shun blacks have begun competing with the historically black institutions for students, faculty and resources. Black schools—some, not all—have suffered through declining enrollments, spiraling debts and the threatened loss of accreditation.

But the historically black schools are still a major source of higher education for black students in this country and still produce an imposing percentage of those blacks who go on for advanced degrees. In recent years they have also come to be havens for black students who have felt isolated and alienated on predominantly white campuses.

The black schools have thus done more than just endure; some have thrived. Among them, Spelman College in Atlanta stands out in many ways. The 107-year-old school for black women has not only weathered the hard times, it has flourished. It received 2,900 applications last year for a 388-member freshman class. It is drawing top applicants and strengthening its curriculum. In U.S. News & World Report's most recent annual ranking, Spelman was eighth among all smaller liberal arts colleges in the South.

Now, this impressive record has been magnificently recognized, and the means to continue it have been provided, by actor/entertainer Bill Cosby. Mr. Cosby and his wife, Camille, are giving Spelman an extremely generous gift of $20 million. It is the largest individual donation ever made to a black college.

The money will be used to build a new academic center, as well as to finance the school's first endowments in the humanities and social sciences. It is also an invitation to others to contribute. This was "a very informed gift," said Christopher Edley Sr., executive director of the United Negro College Fund, who hopes other gifts will follow. Another academic noted after the announcement that gifts of this size "really put a school on the map."

But the school has to deserve them first. Spelman and Mr. and Mrs. Cosby deserve the highest praise.

Enrollment Has Risen at Many Black Colleges This Fall; Nationally, Campuses Are Reporting Unexpected Gains

B[illegible] colleges

By DENISE K. MAGNER

When enrollment rose this fall at such well-known historically black colleges as Howard University and Morehouse College, observers were not surprised.

After all, those colleges had managed to escape or rebound from the years of plummeting enrollments experienced by many black institutions in the early 1980's.

But when enrollment doubled at Knoxville College, where the threat of a loss of accreditation had engendered extensive bad publicity, and rose 19 per cent at Fisk University, where financial problems in the mid-1980's caused a dramatic drop in enrollment, officials began to suspect something was up beyond the number of students.

The phenomenon of rising enrollment this fall at many historically black colleges was presaged in the spring by hefty increases in applications and in admissions to many black institutions.

While many of the dramatic enrollment increases were at the better-known black colleges, over all the enrollment growth this year appears to be more widespread than in past years, said Alan H. Kirschner, vice-president for programs and public policy at the United Negro College Fund.

Early Count Shows 3.4-Pct. Increase

A preliminary count at 35 of the 42 colleges in the United Negro College Fund showed that total fall enrollment is up by 3.4 per cent compared with 1 per cent a year ago. Freshman enrollment is up by about 7 per cent for the second year in a row. Unlike past years, when only half of the colleges in the fund saw their student

Continued on Page A42

Continued from Page A1

rosters grow, this year fully two-thirds of them experienced enrollment increases, Mr. Kirschner said.

Some say enrollment has risen because many black colleges are mounting more effective recruiting campaigns and making better use of their alumni as recruiters. Another factor may be the significantly lower tuition at black colleges. Some black colleges also have attracted more white students. Still others cite racial incidents on several predominantly white campuses as a factor leading some black students to turn to black institutions.

Admissions directors and registrars interviewed at black colleges attributed enrollment increases to both national trends and to factors partic-

- At Knoxville, enrollment this fall doubled to 1,301 students, partly because of the closing of a nearby predominantly black junior college. Even before the closure, enrollment had been rising. Winning the accreditation battle helped, said Evelyn R. Hallman, Knoxville's academic dean. "We would have had over 1,000 students this year, even without the junior-college students."
- An 8-per-cent increase in admissions at Grambling State University last spring turned into a 4-per-cent rise in enrollment this fall. The university has taken steps to control the growth, said Earl Vinson, executive vice-president. "We are at capacity in our dorms now, so an increase in students could cause a housing shortage. But that would be a good kind of problem to have."
- Enrollment dropped at Spelman College this fall, but only because administrators wanted it to. The college received 3,500 applications for 400 spots in the freshman class—1,000 more than it had received for those spots the year before.
- After years of declining enrollment, Florida A&M University saw its enrollment begin to rise in 1986. This fall, the university experienced its largest enrollment increase ever—an 8-per-cent rise in total student population and a 15-per-cent increase in the number of freshmen, said Samuel Washington, university registrar.
- At Fisk University, enrollment grew 19 per cent, to 774 students, this fall. "Fisk has high academic respectability," said Harrison F. DeShields, admissions director. "Even though we had some serious financial crises, we did not lower our academic standards."

While a number of factors have contributed to the increases, Mr. Kirschner said, tuition is a key reason. Private black colleges are increasingly at a competitive advantage because their tuition is significantly lower and has risen more slowly than the price at private, largely white colleges. The average tuition at a private black college is 52 per cent of the average at other private colleges, he said.

Gains at Public Institutions

Enrollment increases at black colleges have not been limited to the private institutions that belong to the United Negro College Fund. A telephone survey of 12 public, historically black institutions found increases at 10 of them. Fall enrollment rose 12 per cent at Jackson State University and 9 per cent at South Carolina State College. Prairie View A&M University reported a 6-per-cent increase, while Norfolk State University hit an all-time high of more than 8,000 students. Enrollment at Elizabeth City State University rose 3 per cent, to 1,644 students, as did enrollment at Fayetteville State University, to 2,726 students.

Alabama A&M University saw its enrollment grow this fall by 14 per cent—the first increase of the decade, said Doris T. Wesley, registrar. The university still is concerned about student retention, however, since the number of seniors enrolled this fall dropped 7 per cent.

Many officials at black colleges believe there is a [redacted]s. "In the late 1970's and early 1980's, there seemed to be a tendency on the part of many blacks to feel it was more advantageous to go to an historically white school," said Benny R. Mayfield, dean of enrollment management at South Carolina State College. "Now [redacted] them."

[redacted] campuses may [redacted]es, said Elaine P. Adams, vice-president for student affairs at Prairie View. "They [redacted]d," she said.

Several officials cautioned against assuming the enrollment trend was universal. At some black institutions, enrollment held steady or lost

Enrollment Has Risen at Many Black Colleges (Cont.)

ground. And some continued to struggle with student retention.

Both Benedict College and Winston-Salem State University saw the size of their freshman classes increase this fall, but their total enrollment fell slightly. "We're bringing them in, but we're losing them on the other end through attrition," said Gwen A. Hill, assistant vice-chancellor for enrollment management at Winston-Salem.

'We're Still Holding Our Own'

Bethune Cookman College had hoped that an increase in admissions last spring would lead to higher enrollment. Instead, total enrollment fell to 1,860 this fall from 1,888 last year, although the freshman class did increase by one student, said Lewis Green, interim admissions director.

"Quite frankly, I was disappointed," he said. "We are going to concentrate more energy on the point in time between when the student is admitted and when he actually shows up. But we're still holding our own."

Even Howard University, where undergraduate enrollment has risen steadily in the last 10 years and increased to 8,964 this fall, is facing enrollment challenges. The number of graduate students at Howard has been declining, and fell again this fall to 2,571 from 2,725 in 1987. "We are trying to turn that around," said William H. Sherrill, dean of admissions and records at Howard.

People shouldn't be surprised by the differing enrollment pictures at historically black colleges, said Sterling H. Hudson, director of admissions at Morehouse, where enrollment grew this fall by 300 students. "Black colleges are not some monolith," he said. "Like white institutions, each has its own identity."

Campuses Report Unexpected Gains in Enrollment

By JEAN EVANGELAUF

Contrary to predictions that the number of students would hold steady, many colleges and universities are reporting surprising increases in their enrollments this fall.

While educators say they don't know for sure why the numbers are up, they point to vigorous recruiting, upgraded academic programs, improved retention rates, a slight increase in the pool of new high-school graduates, and even last October's stock-market crash as factors behind the unexpected gains.

Whatever the cause, college officials are not complaining.

"We've got good news," said William J. Napier, vice-chancellor of the Ohio Board of Regents. At the state's 64 public institu-

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tions, enrollment is up 2 per cent, to a record 403,171, and Mr. Napier credits campus efforts to keep students from dropping out and a broad-based campaign to promote public higher education. "For the last two years, we've been urging more Ohioans to stay in Ohio for college," he said, "and I think it's catching on."

Although he doesn't have firm figures yet, Francis J. Michelini, president of the Commission for Independent Colleges and Universities of Pennsylvania, said many private colleges in his state have enrollments 4 per cent or 5 per cent above their expectations.

He suspects the anxieties brought on by last year's stock-market crash contributed to those gains. "The more that people are aware that it's a struggle to survive, the more they realize they need education to get ahead," he said. "In Pennsylvania and other Rust Belt states, you can't make $21 an hour working in a steel mill anymore."

Philip R. McCabe, dean of admissions at Northeastern University, attributed a 16-per-cent increase in the size of the freshman class to a new, intensive marketing campaign, which reached potential students through brochures, videos, and computer diskettes. "We have one of the largest classes we've ever had," he said. "We're very happy, very pleased."

Although comprehensive statistics are not yet available, an informal survey shows that colleges of all types—large and small, public and private, two-year and four-year—are growing. Many are reporting record freshman classes. Some two-year colleges are finding that, in a reversal of past trends, full-time enrollment is growing faster than part-time

Some Scrambling Required

Some colleges have had to scramble to accommodate the surge.

Space is at a premium at Miami-Dade Community College, the nation's largest two-year institution, where enrollment rose 3.8 per cent, to 45,133. "We're running out of space on all of our four campuses," said Betty Semet, a spokeswoman for the college. "We're at our capacity and we're adding new buildings."

James J. Majer, admissions director at the Ohio State University, had to make what he called "extraordinary" efforts to keep enrollment at the 53,000 cap set by the state. Surprised by an 11-per-cent increase in freshman applications and a higher-than-expected proportion of applicants who accepted the admissions offer, Mr. Majer's office had to turn away 1,000 transfer students and more than 500 former students who were seeking re-entry, because of a shortage of classroom space.

In a report released at the start of the academic year, the U.S. Department of Education predicted college enrollments would be stable this fall,

Unexpected gains (Cont.)

at about 12.56 million. A final tally won't be available for at least a year.

In part, this year's enrollments may reflect an increase in the ranks of new high-school graduates. After declining steadily since the mid-1970's, the number of new graduates rose in each of the last two years, according to the Western Interstate Commission for Higher Education. Last spring an estimated 2.76 million students received high-school diplomas, compared with 2.69 million the year before. The numbers are expected to drop this spring, bottom out at 2.44 million in 1992, and climb to 2.82 million by the end of the century.

At a sampling of the nation's largest public higher-education systems, officials reported the following figures:

- Enrollment at the 106 California community colleges rose 1 per cent, to about 1,302,000. Based on reports from 15 of the 19 campuses, enrollment at the California State University is expected to rise about 4 per cent, to over 350,000.
- At the 97 public institutions in Texas, enrollment rose 6.3 per cent, to 751,195. At the 44 four-year and health-professions institutions, enrollment totaled 396,483, a 5.2-per-cent gain. At the 53 junior colleges and technical institutes, enrollment grew 7.5 per cent, to 354,712.
- A preliminary count of the 64 campuses of the State University of New York shows enrollment is up 2.9 per cent, to 380,000. At the 21 campuses of the City University of New York, enrollment increased 2.7 cent, to 188,000.
- In Illinois, enrollment at the state's 62 public institutions is 521,148, virtually unchanged from last year.
- In Florida, enrollment at the nine state universities stands at 156,155, 2.9 per cent higher than last year. Based on figures from 20 of the state's 28 community colleges, enrollment at those colleges is projected to rise nearly 6 per cent, to more than 250,000.

While officials of many statewide private college associations are still compiling this fall's figures, those that have statistics report stable enrollments or small increases. In New York, which has the largest number of private-college students, a preliminary tally shows that enrollment at the state's 139 private institutions slipped 0.7 per cent, to 378,209. In the three other states that enroll more than 200,000 private college students, anecdotal evidence shows that enrollments are expected to rise in Massachusetts and Pennsylvania, and remain level or grow slightly in California.

Other statewide figures on private-college enrollments show similar trends.

- At the 45 member colleges of the Association of Independent Colleges and Universities of Ohio enrollment is up 2.4 per cent, to 94,715. Individually, 33 institutions had increases, while 12 experienced decreases.
- At the 42 private colleges in Texas, enrollment rose 1.6 per cent, to 83,249.
- With 13 of Connecticut's 25 private colleges reporting increases and 12 noting decreases, total enrollment at those institutions edged up 0.8 per cent, to 60,175.
- At the 28 institutions belonging to the Iowa Association of Independent Colleges and Universities, enrollment rose 6.5 per cent, to 40,915.

Looking ahead, college officials are optimistic about future enrollment growth, according to a survey conducted by the American Council on Education earlier this year. Asked to predict the enrollment outlook on their campuses over the next five years, administrators at 71 per cent of the colleges surveyed anticipated increases, 13 per cent expect stable enrollments, and only 16 per cent expected declines.

China trip could bring new industry to Texas

Cashmere sought for sale

By Robert Stanton
OF THE HOUSTON POST

PRAIRIE VIEW — A trip to China next month by a Prairie View A&M University team could help Texas launch a cashmere wool industry, school officials say.

TEH: Test herd

"From an economic point of view, there's definitely an incentive for producing cashmere fibers," said Alden H. Reine, who heads the university's Cooperative Agricultural Research Center. "Right now, the demand for cashmere wool far outstrips the supply."

Reine and three other researchers will depart Oct. 2 to Beijing, where they will meet with scientists at Beijing Agricultural University to study China's cashmere-producing industry.

The delegation also will meet with researchers at Inner Mongolia College of Agriculture in Huhhot, Inner Mongolia.

REINE: To Beijing

The team includes Thian Teh, research leader of Prairie View A&M's caprine research program; Yung-Ping Hang, a Prairie View A&M research technician who will serve as translator, and J. Maurice Shelton, a professor at Texas Agricultural Experiment Station whose specialty is breeding and genetics.

While only China exports cashmere, a soft wool obtained from the undercoats of Tibetan and Kashmirian goats, Texas is "more than ready" to launch its own multimillion-dollar cashmere industry, Reine said.

Teh recently studied Texas goat-producing farms and determined an adequate gene pool was available to breed a cashmere-producing herd in the state. The three-month study also found Texas' varied climate is conducive to supporting cashmere-producing goats.

Prairie View researchers hope to trade frozen embryos and semen from Angora goats for that of cashmere-producing goats from China in an effort to produce an experimental herd, Teh said.

Angora goats are plentiful in West Texas, now the largest producer of mohair in the world, Reine said.

Chinese producers are willing to trade technical information "because they want to import Angora hair into China," Reine said.

With the average world price of cashmere wool at $58 per pound, Texas could make millions by producing its own, Reine said.

"The world annual production is about 5,000 tons of down. However, about 15,000 tons are projected as the annual demand," Reine said.

Armed with information from the China trip, Prairie View researchers will begin an exhaustive study of breeding and genetics, fiber quality, yarn technology and marketing strategies to help launch the country's first cashmere wool industry.

Helping with the study will be researchers from the Texas Agricultural Experiment Station at San Angelo, the Textile Research Center at Texas Tech University and the Natural Fibers and Food Protein Commission.

Reine said the time is ripe for joining the cashmere race.

"Australia began a cashmere effort 15 years ago, and now they have a $40 million annual industry," he said.

The Southern Digest, September 9, 1988

Dr. Owusu Bandele demonstrates his irrigation system. File photo

Agricultural plans underway to improve, beautify SU campus

The College of Agriculture and Home Economics has placed Operation Small Farm underway. When completed Operation Small Farm will make the Southern University farm lands the site of model research and demonstration plots for small-scale farms.

Operation Small Farm is a long-term plan to improve and enhance the 500-plus acres of agricultural lands at Southern University in Baton Rouge. The purpose is to develop effective methods of assisting small-scale farmers and rural communities.

The first step of Operation Small Farm has been to improve the drainage and install erosion control structures at the horticulture farm and university dairy. Other measures include excavation of canals, land smoothing, and precision grading of pastures and forage crop lands on the main campus as well as on the Laboratory Farm in Baker.

The work on the project has begun with services and contributions from private industry, the National Guard, USDA-SCS, USDA-ARS, and private citizens.

According to Dr. Bobby R. Phills, dean of the College of Agriculture and Home Economics, final word should be received sometime next year on the funds being sought from Congress and the USDA.

The Louisiana Department of Transportation has provided transportation for the earth-moving equipment that Norwel Equipment Company of Baton Rouge has provided. Manpower has come from private citizens, the National Guard, USDA-SCS personnel, faculty and staff members of the college.

Contributions of fertilizer, pesticides, fence and posts have come from Ciba Geigy, Monsanto, and Fletcher Feed and Seed Company.

Technical and logistical support are provided by Randolph Joseph, a USDA-SCS employee assigned to the College of Agriculture and Home Economics, and Paul Sharp.

The USDA-ARS plans to place one of its scientists in the college to work with Operation Small farm. This appointment, beginning Jan. 1, 1989, includes full salary and $20,000 for equipment.

The USDA-Farmers Home Administration will provide funds for a permanent faculty position under its Visiting Professor program. The person filling the position will work part-time with FHA in providing assistance to small and limited resource farmers.

"The contributions by USDA and private industry have been and will continue to be significant not only in that we need the funds and technical assistance, but more importantly, now Southern University is being recognized as a viable full-fledged land-grant university. This is what the land-grant partnership is all about—working together for the advancement of agriculture and its related programs," said Phills.

Also included in the Operation Small Farm Project is a beautification plan for the entire university with emphasis on the inner campus.

The Birmingham News, Tuesday, October 6, 1987

Space spuds

Tuskegee scientists shooting for moon with sweet potatoes

By Strat Douthat
Associated Press writer

TUSKEGEE -- The local farmers may think they're loony, but scientists at Tuskegee University are trying to develop a sweet potato that can be grown on the moon.

They're working on the same campus where scientist George Washington Carver used sweet potatoes to make ethanol and more than 200 other products. But while Carver aimed his efforts at helping Alabama farmers put food on the table, today's scientists really are shooting for the stars.

"We're hoping the not-so-distant descendants of our sweet potatoes will be grown and eaten in space stations on the moon, maybe even Mars and beyond," said Walter A. Hill, chief administrator of the Tuskegee project.

Hill's office is in the same building where Carver did his pioneering research on peanuts and sweet potatoes at the turn of the century. His accomplishments are well-documented in a campus museum that includes many of the notes he made while working at the school, then all-black Tuskegee Institute.

Today, a team of scientists whose specialties include plant breeding, horticulture, soil science, food chemistry, biochemistry, engineering, microbiology, plant pathology and plant physiology is building on Carver's work, financed by their second $200,000 grant from the National Aeronautics and Space Administration.

The goal is to develop a sweet potato that will meet the requirements of "space gardens" in the 21st century. Their successes include the first sweet potatoes ever grown in a strictly hydroponic solution, just water and nutrients.

"We've harvested hydroponically grown sweet potatoes up to 3 inches in diameter. And this was after just 90 days, compared with the 120 days it usually would take growing them in your garden," said Hill, a 40-year-old soil scientist. "We think this is phenomenal."

Ralph Prince, a member of NASA's Bread Board Project at Cape Canaveral, Fla., thinks so, too.

AP photo

Carlton Morris, left, Phil Loretan, center, and Walter Hill of the Sweet Potatoe in Space project at Tuskegee University check experimentally grown plants

"We've researched the literature and can't find where anybody has been able to do what they've accomplished at Tuskegee," he said.

Several other schools are also working with space crops for the Bread Board Project.

"The University of Wisconsin is working on white potatoes; Utah State, wheat; North Carolina State, soybeans," Prince said. "And researchers at Purdue have been able to harvest lettuce, planted from seed, in only 22 days, or two-thirds of the regular time."

Prince said NASA hopes to take information from the various university projects, combine it with its own research and design a "space garden" within the next 10 years.

"We don't actually call them gardens; we call them 'CELSS,' short for Controlled Ecological Life Support Systems," Prince said. "They could be set up on the moon, on Mars or on spaceships in transit on flights lasting several years. We're thinking of designing CELSS that can function for a period of two to six years; anything under two years and we might be just as well off to ship TV dinners out there."

At Tuskegee, Hill and several other team members showed off row upon row of dark green sweet potato plants sprouting from pots and trays in a steamy greenhouse on the edge of the campus.

"We've at least 12 experiments under way at the moment," said Phil Loretan, a nuclear engineer with the project. "I'll be reporting on our progress Oct. 19-21, at a meeting of the American Society of Gravitational and Space Biology in Utah."

Hill said the sweet potato was selected as a potential space vegetable because it's such a good oxygen producer and has a high Vitamin A content. "Also, the leaves are edible as well as the roots, so there's less waste, an important asset in space," he said.

Scientific literature says the sweet potato, actually an enlarged root, is believed to have originated in Central America. Taken to Africa and Europe by early European explorers, it has become the world's seventh-ranking food crop.

"Various varieties are grown throughout the world. We've been experimenting with Georgia Jet, a fast-growing commercial variety, but we're starting to look at dwarf varieties now," said Hill, who credits a colleague, Carlton Morris, with designing the triangular plastic growth chamber that led to the hydroponic breakthrough.

Morris pointed to a shallow trough of plastic film in which sweet potato root systems were being bathed in a circulating stream of water and nutrients.

"The next phase of our research is to see if we can grow sweet potatoes with a completely closed hydroponic system, using a microporus material from which the roots would derive their nutrition," he said.

If successful, Morris said, they will be able to discard the open-tray technique that permits evaporation.

Hill said another colleague, his wife, Jill, designed the computer tracking system that gives Tuskegee's researchers minute-by-minute readouts detailing room temperature, irradiation and relative humidity.

The Tuskegee researchers acknowledge some neighboring farmers have questioned the value of the Sweet Potato in Space Project.

"You know," said Hill, "one of our missions here at Tuskegee has been to carry on the tradition of George Washington Carver and help the small Southern farmers feed themselves and their livestock. Well, an old farmer stopped by here one day not long ago and wanted to know just why we were going to all this trouble to grow sweet potatoes on the moon."

He said he took the man down to the greenhouse and showed him around.