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1

CSD-3676 211(a)
PN-AAC-131

TUSKEGEE INSTITUTE 211-d ANNUAL REPORT
July 1973--June 1974

Title: Expansion of Competency in the Design and Execution of Ruminant Livestock Development Programs for the Tropics: With emphasis on Design and Organization of Systems to Intergrate Technological Information and Disseminate it along with needed physical inputs.

Grantee: Department of Agricultural Sciences
Tuskegee Institute
Alabama 36088

Director: Dr. Maurice A. Maloney, Jr.

A. Statistical Summary:

Period of Grant: July 1, 1974 to June 30, 1977

Amount of Grant: \$500,000.00

*Expenditures: For Report year 1973-74, \$65,364

*Accumulated: \$112,007; Anticipated 1974-75, \$129,641

*See Table I and II

B. Narrative Summary:

The 1973-74 fiscal year proved to be very challenging to the faculty and staff at Tuskegee Institute associated with the 211(d) grant activities. There were several consortium meetings held during the year, to plan, discuss and re-evaluate activities, as well as exposure in programs related to tropical livestock production.

On July 23-August 8, 1973 Mr. & Mrs. Ahmed Joda from Lagos, Nigeria visited Tuskegee Institute for exposure to management practices which

Table I

Distribution of 211(d) Grant Funds and Contributions From Other Sources of Funding

Review Period July 1, 1973 to June 30, 1974

(List all grant related activities)					Non 211(d) Funding Amount
	Period Under Review	Cumulative Total	Projected Next Year	Projected to end of Grant	
e. g. Research	14,840	22,472	26,070	56,005	32,600
Teaching	34,629	52,439	60,831	130,076	48,900
Libraries	800	2,000	1,200	2,600	800
Consultation	1,000	3,000	2,000	9,000	1,000
Publication	500	1,500	1,000	6,500	2,200
Other	13,596	30,596	38,540	53,571	19,000
TOTAL*	65,364	112,007	129,641	257,752	104,500

*These figures are estimated for review period July 1, 1973 to June 30, 1974

TABLE II

EXPENDITURE REPORT

(Actual and Projected)
 Under Institutional Grant #AID/csd - 3676
 Review Period July 1, 1973 to June 30, 1974

Line Items	Expenditures to Date		Projected Expenditures Year			Total
	Period Under Review	Cumulative Total	3	4	5	
Salaries	49,469	74,911	86,901	91,245	95,435	348,492
Travel	8,988	16,988	18,000	17,006	17,006	69,000
Equipment	4,260	4,260	4,740	3,000	3,000	14,000
Other	2,646	5,554	20,000	21,478	21,476	68,508

would assist them in development of a beef cattle and sheep production enterprise in Nigeria. They were exposed to various livestock management practices common to the Southeastern U.S. (Appendix I).

On October 30, 1973, Drs. G.E. Cooper and C.L. Padmore of Tuskegee Institute traveled to Washington, D.C. with other 211(d) consortium representatives and met with USAID administrators. Topics discussed by Mr. Omar Kelly, and others, included institutional guidelines, monitoring of the 211(d) grants (i.e. appointment of a special monitor and fiscal guidelines), and the selection of countries in addition to Guyana, South America for gaining additional consortium experiences. Costa Rica, Dominican Republic, and countries in Africa (to be identified) were considered possibilities. During this meeting we were also able to meet with representatives of the West Africa bureau to discuss areas of interest in program support. Mr. John Cooper discussed the development of international research centers in Africa and the influx of research into this network of centers. The possibility of using a "Systems approach" for livestock production systems to include social problems was mentioned. This would indicate that the expansion of livestock production is envisioned as a multilateral approach. Areas in both east and west Africa will be considered. Mr. Lloyd Klieberg discussed cattle migrations of Falani cattle in west Africa as well as problem areas associated with livestock production.

Dr. G.E. Cooper, attended the Texas Animal Agricultural Conference and Latin American Animal Agricultural Symposium at Texas A&M University, January 20-24, 1974.

The 211(d) Consortium met during the southeast sectional Animal Science meetings at Memphis, Tennessee, February 4, 1974. Drs. Carl Sierk and Joe

Conrad (chairman, 1973-74) discussed their recent trip to Guyana, South America at which time final arrangements were made to initiate activities by the four universities (Appendix II).

Drs. Glenn Howze (sociologist), C.L. Padmore (veterinarian) and G.E. Cooper (nutritionist) visited Guyana, March 8-15, 1974 to meet with representatives of the Ministry of National Development and Agriculture to discuss current extension programs and plan specific activities related to the accomplishment of the grant objectives (Appendix III pp. 16-18).

On April 8-9, several persons from Tanzania, East Africa visited Tuskegee Institute to learn about programs in Livestock Production, outreach programs which serve limited resource farmers, and visit cooperatives in the Tuskegee Area (Appendix IV).

On April 5, 1974, the 211(d) consortium met in Atlanta, Georgia. The purpose of the meeting was to discuss the plan of work for activities in Guyana to be initiated in May, 1974 (Producers Survey). It was concluded that Purdue University would be interested in a commercial farm survey, while Tuskegee Institute and Texas A & M University would be interested in a producer survey which would identify producer involvement in beef cattle production, at the herd level. The University of Florida indicated that they were not interested in survey information. The survey questionnaire was to be initiated by Tuskegee Institute and submitted to other member universities for comments so that time and cost of the survey could be minimized.

The survey was completed with comments received from Drs. Cartwright and White, as well as from Dr. Fernandes prior to the various 211(d) groups leaving for Guyana. These comments were received in time for their inclu-

sion in the producers survey (Appendix V).

The request by AID/CWA for representatives of the consortium to visit areas of West Africa in order to observe livestock production in the Sahel and to assist in preparing a seminar in the U.S. for selected representatives of these Sahelian countries was discussed. The Seminar should emphasize range management and/or development.

During the period May 19-June 11, 1974, Dr. G.E. Cooper of Tuskegee Institute traveled to West Africa with one representative from each of the other member universities as requested by USAID/CWA and served purposes: (1) It allowed the persons traveling to develop an understanding of livestock production in the Sahel of West Africa by visiting several selected areas and meeting with many persons engaged in livestock production, management and administration. This knowledge prepared us to be more able in assisting AID/CWA in arranging seminars in the U.S. for visitors from these Sahelian countries, as well as those persons from external donor agencies who are responsible for program funding and implementation in these countries; (2) It allowed the participants to observe range management systems in West Africa; (3) It allowed an exchange of ideas between consortium visitors and persons in the field both administrators and reseatchers; (4). It provided the consortium group an opportunity to see these areas of West Africa and to gain additional exposure to tropical livestock production different from past experiences; and (5). Allowed the development of relevant ideas revèlant to future system model development involving the many diciplines of the consortium group. (Appendix VI, VII, VIII, and IX).

C. Detailed Report

I. General Background and Purpose of Grant:

In order to increase agricultural production throughout the world, developing countries must develop and reach potentials for becoming self sufficient -- to produce agricultural products for meeting their own needs.

To be certain that the above goal is met in less developed countries (LDC's), developed countries, including the United States, provide technical assistance to these LDC/s where assistance is needed most. Technical assistance has been provided in the past, but this assistance has not solved all of the many problems associated with increasing food production. This has been due to the fact that single problems have been identified and investigated. In order to be more comprehensive in solving certain problems, the United States Agency for International Development (USAID) development the consortium approach under 211(d) grant funding, to identify and assist in solving problems related to livestock production in the tropics. It is felt that the consortium approach may be more detailed in its findings than programs in the past, since several problem areas are investigated simultaneously by a team of experts. The results from these investigations are then put together in a way such that a more comprehensive picture is given concerning solutions to major problems areas associated with livestock production (sociological problems, extension, breeding, veterinary medicine, nutrition and forage production).

Initial consortium activities allow the persons involved to gain greater competency in their specific disciplines but also allows additional exposure to all problem discipline areas through travel to LDC's, general discussions, critical evaluation sessions among participants, seminar de-

velopment and participation, and by developing and strengthening courses at the universities involved. These activities allow the development of a "systems Model" for identifying the major constraints and recommending alternatives for livestock development, to establish development priorities in LDC/s.

The 211(d) livestock consortium approach to development is new, however, USAID is willing to determine if this method is valid for providing technical assistance. This grant will allow Tuskegee Institute to improve its capability to assist in designing and executing livestock development programs for the tropics where social and physical environments are important. It is also important to evaluate methods by which relevant information can be disseminated to livestock producers when needed.

II. Objectives of the Grant:

1. Objectives Restated:

The primary purpose of the grant is to strengthen the capabilities of four U.S. Universities through a multi-disciplinary team approach ("Systems Model") by: 1. identifying opportunities for significant livestock development; 2. Identifying existing constraints; 3. evaluating these constraints; and 4. Developing programs which would solve these constraints and provide a means for overall improvement in LDC's.

Specifically, the 211(d) grant will allow Tuskegee Institute to work with other consortium universities in selecting problem settings in LDC's and identifying those forces which influence livestock production. Grant funds will also be utilized to increase Tuskegee Institute's expertise overcoming the constraints associated with livestock production, particu-

larly where they involve aspects of sociology extension and information delivery constraints. Also it allows a strengthening of the expertise in intergrated livestock systems approaches to research, and technical assistance programs.

2. Review of Objectives:

Members of the 211-d team, have been able to meet with other consortium participants to identify a problem setting and have attempted to identify constraints which exist in a problem setting common to many LDC's, especially as they relate to socio-economic and extension problems. Information from the producer survey has not been summarized yet but the ability of our faculty to respond to these needs of development have been improved greatly.

III. Accomplishments:

A. The questionnaire for the livestock producers survey was designed at Tuskegee Institute by Drs. Cooper and Howze and implemented in Guyana during the period between May 1, 1974 and July 5, 1974 by Glenn Howze and two Guyanese students attending Tuskegee Institute and enrolled in Agricultural Sciences. The students (Wilburn Weever and Duke Bourne) hope to be employed at some capacity by the GOG/Ministry of Agriculture when their studies are completed. This exposure in executing the survey and exposure in handling the data should prove quite valuable to them upon returning to Guyana. (Trip summary Appendix X)

The information gathered is essential to the accomplishment of grant related activities and assists in identifying extension and sociological problems associated with the production of livestock in several geographpical areas of Guyans. This exposure in Guyana and

analysis of information will identify weakness of the survey questionnaire, so that when implemented in other LDC's, it will be more critical in asking relevant questions.

- B. Approval and Arrangements were obtained in order for Mr. John Browman of the Ministry of National Development and Agriculture to visit Tuskegee Institute to meet with faculty and staff to observe what is being done in agriculture, extension programs, research in sociology and outreach programs for community development. Mr. Browman will present a seminar on agriculture development and its problems in Guyana. Mr. Browman will present a seminar on agriculture development and its problems in Guyana. Mr. Browman changed his scheduled visit until sometime in July or August, 1974.
- C. Textbooks relevant to Development problems were purchased to serve as reference books for courses being taught and for the development of a course in international development.

1. Intensive Beef Production by T.R. Preston. Pergamon Press, Elmsford, N.Y.
2. Food and Nutrition (1972) Unipub, Inc. New York, N.Y.
3. The State of Food and Agriculture (1973). Unipub, Inc.
4. World Animal Production (1974). Via G.G. Belli, 36: 00193 Rome, Italy.
5. World Animal Review Unipub, Inc., New York, N.Y. 10016
6. CERES Unipub, Inc., New York, N.Y. 10016

IV. Impact of Grant Related Activities in Developing Institutional Capabilities:

The faculty in areas of Animal Science, veterinary medicine and sociology has been able to develop a great deal of competency in evaluating problems associated with development of the ruminant livestock industry in LDC's

both from a production and a socio-economic standpoint. Students have also been involved in certain aspects of the grant related activities at Tuskegee Institute. The ability to visit LDC's and be critical in evaluating constraints which were imposed in the "Systems approach" has been strengthened due to exposure in travel and meeting with those persons engaged in development projects in the livestock sectors. We have gained experiences in South America as well as in areas of West Africa.

Reference materials are being assembled in order to broaden the knowledge of students in all aspects of development in LDC's.

V. Utilization of Institutional Resources in Development.

The faculty has met with visitors from several African countries to discuss problems encountered in development and discuss means at which these may be solved. We have also been in contact with Mr. Wilfred I. Farmer, Program Specialist, Foreign Development Division, U.S.D.A, concerning the training of persons in livestock management areas for several West African countries.

In January 1974, eight of twenty-eight M.S. candidates in Agricultural Sciences were from developing countries. There are also a number of students enrolled in our undergraduate curriculum from developing countries.

VI. Other Resources for Grant- Related Activities:

Tuskegee Institute is providing physical facilities as well as its computer staff and facilities for the handling of information collected in survey's in Guyana South America. Other faculty have been very helpful in reviewing and planning sessions useful for 211-d activities and at no cost to the 211-d grant.

VII. Next Year's Plan of work and Anticipated Expenditures:

It is proposed that we continue with the collection of others information relative to the general extension program in Guyana, South America to be more thorough in its analysis. We would also be interested in initiating work in other countries (to be identified) with the other consortium universities. This emphasis will probably be in some area of Africa.

Appendix I
Tuskegee Institute

TUSKEGEE INSTITUTE
ALABAMA, 36088

SCHOOL OF APPLIED SCIENCES
DEPARTMENT OF AGRICULTURAL SCIENCES
M. A. MALONEY, JR., HEAD OF THE DEPARTMENT
P. K. BISWAS, COORDINATOR, PLANT & SOIL SCIENCE
C. L. MANNINGS, COORDINATOR, ANIMAL SCIENCE

April 8, 1974

TENTATIVE SCHEDULE FOR
VISITORS FROM TANZANIA, EAST AFRICA

Hon. Simeon Magawa, Hon. Leonsi Ngala, Asst. Sec. Burnard Kamalando
and Mr. Joe Walton, Escort.

MONDAY - 8 April 1974

- 8:15 a.m. Livestock Management - Dr. G. E. Cooper, Asst. Professor
Animal Science
- 9:00 a.m. Pasture Management - Mr. Claude McGowan, Extension Specialist
Cooperative Extension Service
- 10:00 a.m. Human Resources Development Center (HRDC) Slide Show -
Dr. J. Carson, Director
Adult Basic Education
- 11:00 a.m. Agricultural Cooperatives - Mr. Dudley Brown, Economist
- 12:00 noon Lunch
- 1:00 p.m. Tuskegee Institute Farm - Mr. James Nichols
Associate Research Coordinator
- 2:00 p.m. Tour of Tuskegee Institute Campus and Community
- 3:00 p.m. Mayor's Office - Hon. Johnny Ford, Mayor
Tuskegee, Alabama

TUESDAY - 9 April 1974

- 8:00 a.m. Tour of Macon County
- 1) Beef Cattle Producer
- 2) Swine Producer
- 3) Self-Help Housing
- 12:00 noon Lunch
- 1:00 p.m. SEASHA - Swine Producers Cooperative - Dr. Warren Burke,
Manager
- 3:00 p.m. Herd Health - Dr. J. Blackwell, Assistant Professor
Veterinary Medicine

Appendix II

February 4, 1974

Re: 211-d Meeting
Sheraton - Peabody Hotel
Memphis, Tennessee

By: Dr. G. E. Cooper, 211-d Coordinator

Topic(s): 1) Recent Trip to Guyana by Drs. Sierk and Conrad
2) Logistic Support in Guyana
3) Proposed West African Seminar

Persons Present:

Joe Conrad (U. of Fla.)
Tom Cartwright (Texas A & M)
Tom Craig (Texas A & M)
T. Kelly White (Purdue)
George Cooper (Tuskegee)
Carl Sierk (USAID/W)
Bill Schaefer (USAID/W)

1. The Government of Guyana and AID/Guyana will have a few people who may be able to provide limited assistance during Consortium activities in Guyana. It must be remembered that the GOG and AID/G are under no obligations to provide any services, etc. to the Consortium.
2. There is currently a Robert Natham and associates group in Guyana who are conducting an economic survey. Their major emphasis will be on food (crops) production and not livestock.
3. A dairy study team from Minnesota and an Intermediate Savannah study team is also scheduled in during the next three months.
4. Consortium groups visiting Guyana should arrange their own logistical support, because the GOG will be unable to provide these services. The Consortium members must be prepared to pay for all expenses while in Guyana.
5. A Guyanese Counterpart has been appointed to assist the various groups in making contacts for visits in Guyana:
 - A. Coordinator: *Dr. Peter Fernandes
Principle Agricultural Officer
Veterinary and Livestock Science
* Pasture and Forage Production, Animal Nutrition
Animal Breeding and Veterinary Science
 - B. Extension and Sociology: Mr. John Browman
Principle Agricultural Officer
Extension and Education

Feb. 4, 1974

C. Agricultural Economics: Mr. Irwin Telfer
Principle Agricultural Officer
Resource Development and Training

6. The following persons should be advised of a planned trip to Guyana:

- a) Dr. Joe Conrad
- b) Dr. Carl Sierk
- c) Miss. Virginia Parelli
- d) Dr. Peter Fernandes
- e) Respective Guyanese Counterpart
- f) George Eason, AID/G
- h) Other Member Schools

This channel of communications would allow Guyana to object to the planned visit by the Consortium.

7. All written Technical communications concerning Guyana must be clear with the appropriate Guyanese counterpart (This would include publications or communications to other non-government persons in Guyana).
Word of Caution: Dr. Sierk warns that we should not try and publish any Journal articles at this time. The purpose of 211-d grants is for university development (re: training) and therefore, makes its purpose different from grant type programs. If a publication is desired be sure it is cleared by the Guyanese Counterpart, and AID/W.

8. Periods when Consortium activities should not be scheduled in Guyana.*

- 1. Last week of January
- 2. First week of February
- 3. Mid-September to Mid-October

* These are times of the year in which Government meetings are being held (Budgeting, Staff Conferences, etc.).

9. Q. T. K. White, Purdue:

Q. The wording of the grant covers ruminant livestock, but does this mean that we should not emphasize all ruminant livestock?

A. Dr. Sierk: We should handle this as diplomatically as possible - different levels of intensity based on the situation outlook.

10. Discussions also covered the proposed West Africa Seminars. AID/W is interested in having the Consortium sending representatives to several West African Countries to get a first hand look at livestock production and return to the U. S. and conduct a series of seminars for West African producers based on observations during the visit to West Africa. (West Africa Trip in February or March with the Seminar tentatively scheduled for July).

211-d Meeting
February 4, 1974
Page 3

The purpose of the seminar would be for various officials from West African Countries to visit the U. S. and observe various aspects of livestock production.

This was opposed by the Consortium.

1. The trip to West Africa and the proposed seminar is scheduled too early, since participants have other commitments (i.e. courses and other business). It is felt that the seminar would not be as effective due to the short time period available.
2. The Guyana work should be initiated first, since this was our first commitment.

Dr. Conrad will draft a letter to AID/W to discuss these views.

Appendix III

Report On

Tuskegee Institute 211-d Activities

March 8-15, 1974

Georgetown, Guyana

Prepared by G. E. Cooper, G. Howze, C. L. Padmore (March 18, 1974)

MARCH 9, 1974

Meeting to discuss the plans for Tuskegee Institute 211-d objectives in Guyana with persons from the Guyana Ministry of Agriculture.

PERSONS PRESENT: Mr. John Browman, Mr. Ben Carter, Dr. Peter Fernandes, Dr. Romudit, Mr. Telfer, Dr. George Cooper, Dr. Glenn Howze, Dr. Cuthbert Padmore.

Discussions emphasized the major objectives of the 211-d grants - "To evaluate problems associated with ruminant livestock production in the tropics." It was suggested by persons of the Ministry that some attention be focused on aspects associated with the general livestock and poultry extension programs, since it would be difficult to separate only those aspects of ruminant livestock production in that they are often included with the delivery system(s) when the extension program is considered.

The extension service of Guyana is currently undergoing changes in its structure (re-organization). This will be discussed in detail during the meeting scheduled for March 11, 1974, as outlined in Section I of the proposed Tuskegee Institute outline dated March 6, 1974. (Appendix I). This information will assist in defining the plans for livestock development in Guyana as it will be implemented via the delivery system to various clientel groups. In order for the delivery system to be effective and to bring about significant changes in livestock production, appropriate research programs must be evaluated, extension personnel trained and resources must be made

available for priority livestock programs. The delivery system should adequately appraise each of the inputs.

Those persons present from the Ministry of Agriculture were in general agreement with the proposed outline for a review of the livestock extension survey. (Appendix). These points were stated in our letter of intent to Guyana and includes modifications which were suggested by Dr. Reid in May 1973. Dr. Cooper, suggested that a more critical look at the extension program be conducted during the period of work beginning late may 1974.

MARCH 11, 1974

Meeting to discuss things to be accomplished during the March 11-15, 1974 period.

PERSONS PRESENT: Mr. Browman, Mr. Carter, Dr. Fernandes, Dr. Romudit, Dr. Cooper, Dr. Howze, Dr. Padmore.

According to Dr. Fernandes, the delivery system which is used to disseminate information to the various clientel in Guyana is described in the new re-organizational scheme which involves both subject matter specialists and general extension specialist, trained at Tuskegee Institute and the Guyana School of Agriculture. The general extension specialist usually serve in only two subject matter areas.

It was realized during these discussions that for more effective design and implementation of extension programs for livestock, agricultural (animal husbandry) and veterinary officers must be involved. Aspects to be included must involve health, nutrition, breeding and basic management aspects (i.e. calf rearing, attention at calving, record keeping, credit, etc.), and producer participation (awareness and reception of new ideas). It was apparent from our discussions that program unity was lacking when inputs were made into extension program design and implementation by the agricultural and

veterinary sectors. The extension specialists' must know thoroughly the situation of the farmer in order to understand the change which the properly applied technique will bring about, if it is to be a recommended procedure (i.e. expected real returns). Real returns would reflect return on investment.

Dr. Cooper asked Dr. Fernandes to describe objectives of the livestock extension program in Guyana. Dr. Fernandes response include the following aspects: 1. Prophylaxis (rabies, foot and mouth disease and possibly leptospirosis) and treatment of animals; 2. Promotional work (management, health, and surveys - especially in swine and poultry); 3. Artificial Insemination, using frozen semen from improved breeds (Jersey, Holstein, Brahman, Santa Gertrudis and Charolais). There is an agreement with the livestock producer whereby the government has an option to purchase the outstanding male calves to be used as replacement bulls, whereas the heifers may remain with the farmer. By selecting outstanding bull calves the allocations required to purchase imported genetic potential would be minimized.

The discussions also centered on the scope of the proposed livestock producers survey. Specifically with questions of the types of livestock producers to be included, the geographical areas to be studied, the particular subject matter to be investigated and possible coordination of the survey with the efforts of the other consortium groups.

Mr. Carter raised the question relating to the size of herd necessary to qualify a person as a livestock producer (i.e. Is a person with one bovine considered a livestock producer?). To a certain extent a livestock producer may be any person engaged in any level of livestock production, be it subsistence or commercial. This point was not completely resolved, however, a producer with a minimum unit of five animals will be considered farmer in developing the survey

The representatives from the Ministry of Agriculture were unanimous in their position that the forthcoming survey of livestock producers should be a national study. The Tuskegee group was receptive to this suggestion and will consider this point in developing aspects of the survey. The Tuskegee group further indicated that cost of travel and the cost of interviewing would both be limiting factors and until these costs could be estimated both the number of geographical areas and the number of persons to be interviewed would remain unknown. Nevertheless, the consensus of the groups was that the study should focus on the national picture and should not be confined to particular geographical areas.

Considerable discussion centered on the problem of sampling and how to select a representative sample of livestock producers. One possible solution discussed was to develop sampling lists from Ministry and other sources not including the recent Census (1968). Mr. Browman was opposed to this because he felt it would bias the samples. He indicated there are a large number of producers which have no contact with the Ministry and it was his judgement that these producers are different from those that have had contact with extension personnel. Mr. Browman also argued that a sampling procedure should be developed which would insure an unbiased sample. In the end representatives from the Ministry and the Tuskegee group were in full agreement on this point.

Alternate sampling procedures were discussed. Mr. Browman and Mr. Carter suggested the possibility of using lists of producers that could be developed from the 1968 Census. A meeting was scheduled for the afternoon for Dr. Howze and Mr. Naseer to discuss this further.

The following is an outline of the subjects to be studied in the forthcoming survey:

I. Socio-economic characteristics of producers

A. Demographic characteristics (ages, sex, family size, etc.)

Regular foot trimming will be carried out as needed.

MASTITIS CONTROL

- (a) All animals must be checked by strip cup prior to milking.
- (b) Any animal showing signs of mastitis on strip cup checks, will have a sterile sample taken *from (4 quarters) immediately and submitted to the Veterinary Laboratory for culture and sensitivity tests.
- (c) Mastitis teat infusions as recommended by the Veterinarian will be used immediately to treat such animals whilst waiting on Laboratory results - *farmers should be instructed on the proper procedure for administering medications into the udder (cleaning of the teats with alcohol, etc.)
- (d) All animals showing evidence of mastitis should always, be milked at the end of the line.
- (e) All quarters with mastitis should be milked out completely, by hand, before treating with infusion tubes.
- *(f) Prior to calving the mammary gland should be checked.

2. MILKING PROCEDURE

- (a) Prepare udder for milking by massaging udder with a CLEAN cloth saturated with a sanitizing solution. *Milking should be within 1 min. after stimulation.
- (b) Disinfect test cups between cows.
- (c) Dip teats in sanitizing solution after milking to remove milk from teat ends.

3. DRY COW TREATMENT

- (a) During last week of lactation, prior to drying off, all quarters must be sampled and cultured and sensitivities performed.
- (b) Dry cow treatment will be based on results from above samples.
- (c) Bulk tank samples must be submitted to the Veterinary Laboratory for screening tests monthly.

- B. Economic characteristics (income, source of income, etc.)
 - C. Educational achievement
 - D. Housing characteristics
- II. Land and Herd Characteristics
- A. Acreage
 - B. Land use
 - C. Herd size
 - D. Herd Management aspects (health, fertility, etc.)
 - E. Other relevant parameters
- III. Producers involvement with extension and other Ministry programmes
- A. Knowledge of extension programs
 - B. Contact with extension personnel
 - C. Participation in particular extension projects
 - D. Attitude towards extension
 - E. Knowledge of and attitude toward the Livestock (Beef) Development Project (Applies only to beef producers).

At the suggestion of ministry personnel, the Tuskegee group agreed to contact the Purdue and Texas A & M teams about the possibility of a joint survey of producers. This would eliminate unnecessary duplication, and save time, effort and money.

MARCH 11, 1974 (p.m.)

Meeting to discuss the 1968 Census and aspects of the survey

PERSONS PRESENT: Mr. Browman, Mr. Naseer, and Dr. Howze

The meeting concerned the possibility of using census lists for sampling purposes. However, Mr. Naseer was opposed to the idea, saying that such an effort might interfere with the publication schedule for the census. Plans would have the Census completed by the first week of May, 1974. Mr. Naseer

suggested that Dr. Richard Wheeler of the Robert Nathan Crop Study group be contacted; they are in the process of conducting a survey in Guyana.

MARCH 11, 1974 (p.m.)

Meeting with Dr. Robert Wheeler to discuss the current crop study survey being conducted in Guyana.

PERSONS PRESENT: Dr. Richard Wheeler and Dr. Glenn Howze

During this discussion, Dr. Wheeler described his current study of crops and recommended that the Tuskegee group use similar sampling techniques to those used by his team. Mr. Wheeler was of the belief that the production of the various classes of livestock are typically confined to particular geographical areas and that it would be best to sample only geographical areas where significant production is occurring. Mr. Wheeler agreed to meet again for further discussions with the Tuskegee group and suggested also that other personnel from the crops survey team be involved in the discussions.

MARCH 11, 1974 (p.m.)

Meeting with the veterinary staff to discuss the role of extension in a herd health management program.

PERSONS PRESENT: Dr. Fernandes, Dr. Fox, Dr. Romudit, Dr. Sanford, Dr. Padmore and Dr. Cooper.

A number of aspects concerning herd health programs were discussed as they relate to information delivery systems (printed information). These included the following: 1. The herd health program for Mon Repos and Mobilissa, proposed by the Guyana Veterinary division (Dr. Fernandes, et.al.) Appendix II; 2. Suggestions for beef, swine and equine management programs, (By Drs. Cooper and Padmore). Comments concerning each of these follows in brief comments.

Consideration for a beef management program:

- a. All cows and heifers must be identified by some means to insure that adequate records may be kept.
 - b. At the time of calving record all difficult births (dystocia) and other complications associated with calving.
 - c. Approximately 30 days after calving, evaluate the condition of the bull and check the quality of the semen for the upcoming breeding season.
 - d. Initiate breeding on the second cycle after calving provided there were no recorded complications. If complications were involved, the advice of the veterinarian should be given about the time to breed.
 - e. When calves are 6-7 months of age, consider weaning depending on weights and the availability of pastures. Also * deworm cows and calves. Evaluate the nutritional plane during the last 1/3 of gestation in order to promote moderate gains in heifers and maintain condition of cows in order that they may be in good condition with the onset of lactation.
 - f. Spraying or dipping should be done at three month intervals.
 - g. Supplemental feeding of calcium, phosphorus, magnesium and salt should be considered in areas where these deficiencies exist.
 - h. Approximately 30 days prior to calving, heifers and cows should be placed in separate pastures in order that special attention may be given to first calf heifers.
- * * Deworming should be done at least twice per year.

Considerations for a Swine Management Program:

1. Purchase early maturing gilts (5 1/2 months puberty).
2. Do not purchase gilts that show heat after nine months.
3. Feed good ration. Breed at eight months (three heat cycles). More ova shed/heat period.
4. Flushing (4-5 lbs. of concentrate feed 10-14 days before and 5-7 days after breeding).
5. Gain 1/2 lb./day with gilts.
6. Farrowing crates 3-4 days before farrowing. (Adjustment) Disinfect crates.
7. Have someone present during farrowing in order to reduce pig mortality.
8. Disinfect umbilical cord and clip teeth.

Considerations for a swine management program contd.

9. Use iron on first day (injectable iron).
10. Do not feed sow first day after farrowing; only H₂O.
11. Four or five lbs. feed (full feed) three days after farrowing plus pasture.
12. Wean at six weeks.
13. Breed sows on second heat cycle.
14. Castrate at two to three weeks.

Considerations for a Horse management program:

1. Prophylaxis (tetanus and possibly equine viral encephalitis (EEE, EVE and WEV)).
2. Establishment of a deworming program (At least three times per year.
3. Care of the newborn (umbilical disinfectant, enema to prevent retention of the meconium, tetanus prophylaxis at birth for the mare and foal, deworming at eight week intervals until one year of age, following at which time they should be placed on the same deworming program as the adults (three or four times per year). Permanent vaccination for tetanus at three months of age, followed by annual boosters.
4. Good nutrition. Good quality forages should be provided. Foals should not be fed feed containing antibiotics. This type of growth promotion is not necessary and these antibiotic feeds may result in digestive disturbances in the young animals.
5. Brood mares should be rebred at the second heat following normal foaling. Breeding on foal heat should be discouraged and should only be carried out following examination of the genital tract and culture of the cervix six days post-partum.

MARCH 12, 1974 (TUESDAY)

Meeting with R. R. Nathan Associates (RRNA) to discuss their experience with survey work in Guyana and seek information from knowledge persons about livestock in Guyana.

PERSONS PRESENT: From RRNA: Dr. Oswald Blach, Dr. Richard Wheeler, Dr. Floyd Davis and Dr. Summers. From Ministry of Agriculture: Mr. Naseer. From Tuskegee: Dr. Cooper and Dr. Howze.

The day was spent in informal consultation with various staff members of RRNA, a firm conducting a Food Crop Sector Survey for the Ministry of

Agriculture under a contract with USAID. The talks were extremely informal and usually only involved one or two RRNA staff members at a time. Due to prior commitment, Dr. Cooper was able to be present for only the first hour of the meetings.

Dr. Floyd Davis described the beef cattle ranches that he had recently visited in the Rupununi and provided a list of ranches including names of owners/operators. (Appendix III). He also described the cattle operations of the Amerindians suggesting that the tribe might be the best unit to be studied. Drs. Wheeler and Summers also provided comments on the Rupununi. With regards to the Rupununi the advice of the three RRNA people seem to be that, since the number of livestock producers is small and, since the Rupununi is such an important cattle producing area, the Tuskegee group should attempt a total enumeration of the cattle producers rather than just studying a sample. Dr. Cooper and Dr. Howze felt that this would be most appropriate.

Dr. Howze continued his conversation from the previous evening with Dr. Wheeler concerning RRNA's recent experience with the Food Crop Sector Survey. Sampling was discussed at length and Dr. Wheeler again renewed his suggestion that the Tuskegee group locate the major livestock areas and sample only those areas. Dr. Wheeler also shared a draft version of his report on producers of food crops. The scope and organization of his study is very similar to the proposed Tuskegee study. Particular problems with reliability of data were discussed.

The final discussion held was with Dr. Blaich with some input from Mr. Naseer and Dr. Wheeler (They were absent most of the time). The discussion focused on the livestock situation in the Coastal areas and the Logistical problems associated with doing a survey in Guyana.

Regarding the first subject, Dr. Blaich, with input from both Mr.

Naseer and Dr. Wheeler, indicated that most of the herds in the Berbice-Corentyne area are small and that some of the large ones are assessable only by boat. Therefore, surveying in these areas must be done by boat. This aspect of the survey will probably be slower.

With regards to the second subject, Mr. Blaich offered the following advice and comments. These should be discussed during our next meeting of the 211-d University groups.

1. The 211-d Consortium should consider maintaining the current offices of the RRNA group which will be vacated in May, 1974.
2. The 211-d Consortium should consider employing some of the Guyanese personnel (i.e. driver and secretaries) currently being used by RRNA.
3. The 211-d Consortium should get a commitment from the Ministry of Agriculture to provide 4 wheel drive transportation into otherwise inaccessible areas.
4. The 211-d Consortium should arrange with the Ministry of Agriculture to handle the employment of interviewers (To be paid by 211-d funds).

MARCH 12, 1974

Visit to Bel Air Dairy and Mon Repos Livestock Station.

Dr. G. E. Cooper and Dr. C. L. Padmore.

The visit to Bel Air Dairy was an eyebrow raising experience due to the lack of management interest in this enterprise. More emphasis should be placed on various management aspects as well as sanitation. These are well described in the herd health-management scheme for Mon Repos and Moblissa which is described in this report. It would be a challenge to advise the extension service of Guyana in devising ways to make the needed inputs (provided the management is receptive) to make this an efficient operation.

The following inputs should be considered:

1. Some system of drainage in the holding lot is essential. This would assist in alleviating the problems of foot rot and dermatitis which is currently reducing milk production. These animals appeared very uncomfortable and were experiencing great pain when walking. A foot bath should also be constructed so that the cattle must pass through when they leave the milking parlor and return to the holding area and pasture.
2. Standards for milk quality should be formulated. These standards would dictate policies which would be required during milking (i.e. using warm water for washing udders, using a strip cup to detect mastitis along with the California Mastitis test (CMT) and using a teat dip after milking.
3. Dry cows and freshened cows should be separated from milking cows. During our visit, there was one cow that had just calved and with a retained placenta which was allowed in the milking parlor while other cows were being milked.
4. Udders should be washed and cleaned with some sanitizing solution, rather than just using the nozel spray from the hose.

The visit to Mon Repos Livestock Station was informative. Mr. Terrence Arthur, explained the importance of the Swine, Goat and Dairy programs and took us on a tour of facilities to see the goats, stud bulls, calf rearing, swine confinement units and to see the 750 holstein heifers which were imported from Florida.

From our observations there were a few things that should be corrected:

1. Swine should be allowed an additional non-concrete area of movement due to the problem of lameness experienced with Sows, Gilts and Boars maintained exclusively on concrete floors.

MARCH 13, 1974

Trip to Matthews Ridge Via Air Charter (Drs. Cooper, Howze, Padmore)

At the Matthews Ridge Airport the group was met by Mr. Ronald Amsterdam who took us on a tour of the livestock station and discussed various aspects of the basic development program.

1. On panagola grass pastures and natural breeding conditions the

Santa Gertrudis cattle produce a 60-80% calf crop utilizing a 90-day calving period. The cattle and calves were in good condition during this visit.

2. Work is also being done to establish Tanner grass in the wetter areas of the Matthews Ridge area.
3. The 32 Cows in the A.I. breeding program are bred using imported Brahman and Charolais Semen.
4. The Burnham Agricultural Institute was also visited. We had a chance to meet with Mr. Owen Clark to discuss his teaching of basic animal husbandry.

The livestock experiment station at Matthews Ridge is being used to evaluate much of the information which was obtained from Ebini. This should prove as a valuable test for this information. During our planned extension review it should be possible to evaluate such projects as they may have an impact on management information which will be available to livestock producers.

MARCH 14, 1974

Meeting to discuss plans for producer survey in Guyana. Proposed for late May 1974.

PERSONS PRESENT: Mr. Carter, Dr. Fernandes, Mr. Browman, Dr. Padmore, Dr. Howze, Dr. Cooper.

According to Dr. Howze, the survey should be conducted by using a random sampling of the population engaged in livestock production based on the 1968 Census (Coastal areas). Surveying should include the Rupununi area. During this time of year (May), it may be impossible to complete this producer survey, since this is a period of the rainy season. However, the rain should stop in June and most of the water is evaporated by August. This could be completed at some other date. According to Dr. Romudit, there

are 100 or more Amerindians in the Rupununi area with sizeable herds. These were his observations after spending 2 years as veterinary officer in the Rupununi area.

During the survey work, especially in the Rupununi area, it is anticipated that transportation will be inadequate and that most of the 4 wheel drive vehicles in the area belong to the government. Mr. Carter and Dr. Fernandes indicated that it would be possible to travel with livestock officers during their work and visit farms as they travel the area. The government may also have a vehicle which could be rented and used while in the Rupununi area.

Mr. Carter requested that a thorough study in the Rupununi be made because it was felt that the 1968 Census may have not been a thorough one. The group from Tuskegee was receptive to this suggestion, and if time and funds permits, we will attempt a total enumeration study in the Rupununi. This would be planned, even though the survey may not be completed in this manner.

Discussions were initiated by the Tuskegee group on the possibility of Mr. Browman or Dr. Fernandes visiting Tuskegee Institute in order to meet the staff of the cooperative extension program and be able to observe the methodology of information delivery to livestock producers in Alabama. The last week in April or the first week in May were available dates for this proposed meeting. This would also allow some input in evaluation of the survey form. However, prior to the visit survey forms should be sent in order for pre-testing to be done. This would allow proper survey modifications to be included before the actual survey work is begun.

MARCH 14, 1974

Trip to New Amsterdam Area.

Miss Bachal, Mr. Leon Williams & Mr. Ramdit met us at the Ferry and during the time in New Amsterdam we were able to visit several producers:

- 1) The Sedik poultry farm where 60,000 broilers and layers are produced with 500 being killed and processed daily. The system seemed to be managed efficiently, however, the abbatoir could be more sanitary and good drains installed.
- 2) A dairy farmer was visited who owned three holstein cows. Mr. Ramdit seemed to be very well received and was able to provide some assistance during the time that we visited concerning the A.I. breeding program:
- 3) The Burchess farm was also visited. This was a swine operation with several sows, we were able to discuss their proposed expansion/
building plans.

APPENDIX I

Tuskegee Institute

TUSKEGEE INSTITUTE
ALABAMA, 36088

SCHOOL OF APPLIED SCIENCES
DEPARTMENT OF AGRICULTURAL SCIENCES
M. A. MALONEY, JR., HEAD OF THE DEPARTMENT
P. K. BISWAS, COORDINATOR, PLANT & SOIL SCIENCE
C. L. MANNINGS, COORDINATOR, ANIMAL SCIENCE

March 6, 1974

March 8-16, 1974 Trip to Guyana

OBJECTIVES:

- I. Discuss Livestock Extension Program with Mr. John Browman, and others
 - A. Organizational Scheme
 - B. Objectives
 - C. Program Areas, etc.
- II. Further Orientation
 - A. Geographical and Cultural
 - B. Establish farther contact with local scholars and producers
 - C. Collection of Demographic data (Census reports, etc.)
- III. Visit various areas of Guyana (Georgetown area, Ebini, Matthews Ridge)
- IV. Make Plans for May, 1974

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March 6, 1974

EXTENSION REVIEW

Re: Guyana South America
Objectives to be initiated during the March, 1974 Trip to Guyana.

I. SCHEMATIC OF EXTENSION PERSONNEL

- A. Title and Responsibility
- B. Training, Experience and Background
- C. Areas Served by Extension Staff (Geographical Areas)
- D. People Served by the Program
 1. Number
 2. Geographical Concentrations
 3. Area Involvement
 4. Program Involvement

II. OBJECTIVES OF THE GENERAL EXTENSION PROGRAM (With emphasis on Ruminant Livestock)

- A. Government Objectives
 1. Small Farms Vs. Cooperatives and Land Tenure (Economic and Social Goals).
 2. Local Markets Vs. Export Markets (Current Marketing Practices)
 3. Program Plans
 - a. Objectives
 - b. Justifications
 - c. Implementation dates
 - d. Completion dates
- B. Producer Goals
 1. Type of Enterprise
 2. Size of Enterprise
 3. Feasibility for expansion and diversification

III. SCOPE OF EXTENSION PROGRAM(S)

- A. Youth Programs (Training Programs)

Extension Review

Page 2

- B. Young Adults (Incentives for Agriculture involvement & Training Programs)
- C. Current Operators
- D. Basic Extension Program Plans
 - 1. Market development
 - 2. Record keeping
 - 3. Product processing
 - 4. Disease and parasite control
 - 5. Production of Feedstuffs (Forages, etc.)
 - 6. Support and Direction for farm and livestock development loans
 - 7. Training Programs
 - a. Secondary
 - b. Baccalaureate (Guyana School of Agriculture, Kuru Kuru Cooperative College)
 - c. Special (With emphasis on extension)
 - 8. Livestock and Extension research and implementation
 - a. Results of Research
 - b. Effect on total production projected vs. real returns
- E. Communication Network (Government to Contact group) - Information dissemination
 - 1. Government to contact groups (Input)
 - 2. Contact group to government (Reaction)
 - a. Producer input to extension and research
 - b. Dissemination of Current Information (Methods)
 - 9. Problem Identification by Producers
 - a. Available Program assistant
 - b. Dissemination of Current Information - Methods
 - 1. Government to Contact group (Input)
 - a) Field days and other demonstrations
 - b) Publications
 - c) Radio
 - d) etc.
 - 2. Contact group (Livestock Producers) to Government
 - a) Assistance for problem solving
 - b) Inputs in extension and research
 - 3. Producer Reaction to new information:

IV. DESIGN SURVEY OF AGRICULTURAL PRODUCERS

- A. Selection of Major Areas of Study, some of which may be:
 - 1. General Socio-economic characteristics of agricultural producers
 - 2. Land use characteristics
 - 3. Current marketing practices of producers
 - 4. Current management practices of producers
 - 5. Knowledge of and participation in government extension programs
- B. Sampling of Producers for Survey
- C. Pre-test - interviewing of several producers in order to test design, goals, instrumentation, etc. of the survey.

Appendix II

March 11, 1974

GUYANA HERD HEALTH PROGRAMME

FOR

MON REPOS AND MOBLISSA (By: Dr. Fernandes
and Dr. Sandford)

* Modifications by G. E. Cooper and C. L. Padmore

The purpose of a Herd Health Scheme is to have a programmed dairy cattle health management which emphasizes preventive medicine thus allowing the Veterinarian to be on top of the problem. This concept implies that the Veterinary procedures are performed at the best time and a healthy and profitable herd is maintained.

REPRODUCTION:

Any cow with a retained placenta or a post-partum discharge will be examined and treated by the Veterinarian * and bred at the appropriate time as recommended by the Veterinarian.

A thirty (30) post-partum examination to be made on each cow.

A sixty (60) pre-breeding examination to be made on each cow.

All cows to be bred after sixty (60) days post-partum.

Animals with history of re-breeding (i.e. two (2) inseminations and returned to heat) will have special examination by the Veterinarian.

Cows showing irregular heat periods and anoestrus will also be checked by the Veterinarian.

Pregnancy examinations are to be performed on all cows two (2) months after last insemination.

Weather permitting, all cows will be permitted to calf in the field and calving fields will be rotated at 3 months intervals to prevent excessive build up of pathogens that may cause post-parturient and/or neo-natal infections.

In the rainy seasons, animals will be brought into maternity pens (calving stalls). These maternity pens will be disinfected after each calving and will not be used for any other than maternity cases.

CALVES:

The umbilicus of each calf must be dipped* in 2% iodine solution immediately after birth.

Calves must be allowed to suckle within $\frac{1}{2}$ hr. after birth.

Prior to removing a calf from its mother, it should be with its mother at all times so as to facilitate frequent, but not excessive suckling.

Each calf will be weaned from its mother at 72 hours after birth.

After weaning, each calf is to be housed separately in a dry, draft-free pen for the first 3 weeks to prevent sucking * and fed a ration of milk and milk replacer at the rate of 10% of the body wt.

Feeding materials must be cleaned and sterilized between feeds. Feed troughs and grass racks must be cleaned after feeding.

Continue feeding calf with $\frac{1}{2}$ dam's milk and $\frac{1}{2}$ milk replacer up to 5 days after birth. * During these feeding, the milk should be fed at the normal body temperature of the Calves (approximately 101°F).

CALF FEEDING RECORD

Feed Milk Replacer

Days	Milk	Replacer	
1	2	$\frac{1}{2}$	Dam
2	2	$\frac{1}{2}$	Dam
3	2	$\frac{1}{2}$	Dam
4	3	$\frac{1}{2}$	Dam's Milk
5	3	$\frac{1}{2}$	Dam's Milk

Days	Milk	Replacer	
6	3	1	
7	3	1	
8	3	1	
9	3	1	
10	3	1	
11	4	1	
12	4	1	
13	4	1	
14	4	1	
15	4	1	
16	4	1	
17	4	1	
18	4	1	
19	4	1	
20	4	1	
21	5	1	
22	5	1	
23	5	1	
24	5	1	
25	5	1	
26	5	1	
27	5	1	
28	5	1	
29	5	1	
30	5	1	Calf ration
31	5	1	Begin to feed Roughage and Grain.
32	4	1	1

Days	Milk	Replacer	Calf Ration
33	4	1	1
34	3	1	2
35	3	1	2
36	2	1	3
37	2	1	3
38	1	1	4
39	1	1	4
40		1	5

Only milk replacer is used from 5 days to weaning which is at approximately 6 weeks of age.

Grain (calf ration) and free choice roughage is introduced at * four days of age.

Dehorning and removal of supernumerary teats at two months old.

*(It may be possible to use polled Jersey semen to reduce the number of animals being dehorned and minimize the stress associated with dehorning).

Clamping of bull calves at 2 months old.

From 3 months old, routine monthly faecal checks of 10% of entire calf herd must be submitted for laboratory examinations. Dewormings will be ordered by the veterinarian whom the results will be sent.

HEIFERS

Date of First Breeding

Consideration must be given to size and maturity of heifers in addition to age in deciding date of first breeding. *Heifers of Holstein breeding should weigh at least 750 lbs., and Jerseys at least 550 lbs.

COWS

Testing of the entire mature herd for Brucellosis, Leptospirosis and Tuberculosis will be done yearly in February of each year.

APPENDIX III

LIVESTOCK OPERATING UNITS IN THE RUPUNUNI

North Rupununi

Livestock Development Corp. (Have offices in Georgetown
Also - Mr. Robin Hood

Manari Ranch & Guest House

Mrs. Margaret Orella
Louis Orella
George Melville

Edward McTurk - Main Hdqrs. - KARANANBO
Out Station - CAJUEIRO

Corinsky - Good Hope

Rufino - Between - MARAKANATA & YUPUKARI

DICK Ng-a-Fook - North of KANUKU AMERINDIAN RESV.
(Also Merchant & Trader)

Valarie & Harry A. Hart

Status Unknown

Melvilles

Amerindians Villages

TOKA - ?

Near ANNAI - Significant herds with group ownership

South Rupununi

Rupununi Development Co. LTD. - Offices in Georgetown
Ranch at Dadanawa plus several outstations
Holding Station at Maneri (North Rupununi)

St. Ignatius Station (Gov't)

Central (Leonard D'Aquiar

M. D'Aquiar

Santa Cruz Ranch - Nash Atkinson - (Near Sand Creek)

Amerindian Villages with Cattle

Macusi

Muriwa

Shez

Aishalton

Lumidpau

Also a Cattle Cooperative of Amerindian has been set up in the
South - Southwest Tip of the South Rupununi.

Good up to & including Good Hope.

Appendix IV

Tuskegee Institute

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C. L. MANNINGS, COORDINATOR, ANIMAL SCIENCE

April 8, 1974

TENTATIVE SCHEDULE FOR
VISITORS FROM TANZANIA, EAST AFRICA

Hon. Simeon Magawa, Hon. Leonsi Ngala, Asst. Sec. Burnard Kamalando
and Mr. Joe Walton, Escort.

MONDAY - 8 April 1974

- 8:15 a.m. Livestock Management - Dr. G. E. Cooper, Asst. Professor
Animal Science
- 9:00 a.m. Pasture Management - Mr. Claude McGowan, Extension Specialist
Cooperative Extension Service
- 10:00 a.m. Human Resources Development Center (HRDC) Slide Show -
Dr. J. Carson, Director
Adult Basic Education
- 11:00 a.m. Agricultural Cooperatives - Mr. Dudley Brown, Economist
- 12:00 noon Lunch
- 1:00 p.m. Tuskegee Institute Farm - Mr. James Nichols
Associate Research Coordinator
- 2:00 p.m. Tour of Tuskegee Institute Campus and Community
- 3:00 p.m. Mayor's Office - Hon. Johnny Ford, Mayor
Tuskegee, Alabama

TUESDAY - 9 April 1974

- 8:00 a.m. Tour of Macon County
- 1) Beef Cattle Producer
2) Swine Producer
3) Self-Help Housing
- 12:00 noon Lunch
- 1:00 p.m. SEASHA - Swine Producers Cooperative - Dr. Warren Burke,
Manager
- 3:00 p.m. Herd Health - Dr. J. Blackwell, Assistant Professor
Veterinary Medicine

Appendix V

211-d Livestock Project

CARVER RESEARCH FOUNDATION OF TUSKEGEE INSTITUTE
Tuskegee Institute, Alabama 36088 U.S.A.

In Cooperation With

THE GUYANA MINISTRY OF AGRICULTURE AND NATIONAL DEVELOPMENT
AND THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

SURVEY OF LIVESTOCK PRODUCERS

Hello! I'm _____. We are cooperating with the Ministry of Agriculture and National Development in conducting a survey to find out how the extension program might be of greater service to livestock producers in Guyana. You were selected in the sample to be included in this survey.

I would like to ask you some questions about your land, your herd, Government extension programs and related matters. The interview should take about one-half to three-quarters of an hour of your time.

The information which you supply will be treated confidentially. Your comments will be combined with those of other persons and used only for statistical purposes.

Respondent's Name _____

FOR OFFICE USE ONLY

Respondent's Location _____

Study No. _____ 790

Interview: Date _____, 1974 ID _____

Time Started _____ District _____

Time Completed _____ Sample Area _____

Interviewer's Name _____

Supervisor's Name _____

SURVEY OF LIVESTOCK PRODUCERS

A. Which of the following types of livestock do you have?

1. Dairy or Beef Cattle? Yes____, No____
(a) If yes, How Many? _____
(If five head or more ask dairy or beef questions).
2. Poultry? Yes____, No____
(a) If yes, How Many? _____
(If flock is 1,000 or more, ask poultry questions)
3. Swine? Yes____, No____
(a) If yes, How Many? _____
(If five or more sows, ask swine questions).
4. Sheep and goats? Yes____, No____
(a) If yes, How Many? _____
(If ten or more, ask sheep and goat questions).

IF RESPONDENT DOES NOT QUALIFY AS A LIVESTOCK PRODUCER IN ANY OF THE CATEGORIES, INDICATE THIS TO THE RESPONDENT AND THANK HIM FOR HIS COOPERATION.

B. Questions Concerning Land Use

1. (a) How many acres of land do you own? _____
 (b) How long have you owned this land? _____ years.
 (c) How much do you think your land is worth per acre? _____
2. How many acres of land do you rent or lease? _____
 (a) Tenure of lease (years) _____
 (b) Annual amount of rent \$/acre _____
3. Regarding your agricultural activities, how do you classify yourself?
 Livestock producer____; Food crop farmer____; Both____;
 Other _____
4. How many acres of land do you have in:
 Pasture_____ Forest_____ Crop_____ Other_____
5. Commercially, which type of livestock is most important to you?
 Beef cattle____; Dairy cattle____; Swine____; Poultry____; Sheep & Goats_____

C. Herd Characteristics: Management and Marketing Practices

1. Beef and Dairy Cattle (if no beef or dairy cattle go to D)

I would like to ask several questions about cattle number and performance.

Type	No. on Hand	Age	Average Weight	No. Died In Past Year	Number Sold (1973)	Value	Number Stolen In Past Year
Breeding Bulls							
Brood Cows							
Unbred Heifers							
Over 2 yrs. Old							
Calves							
Less than 1 yr.							
Calves							
1-2 yrs. old							
Steers							
(2-3 yrs. old)							
Steers							
(3-4 yrs. old)							
Steers							
(4-5 yrs. old)							
Steers							
(5-6 yrs. old)							
Steers							
(6 & over)							

What breeds of beef and dairy cattle do you have? _____

2. Breeding Program

- (a) What method do you use? A.I. _____; Natural _____; Both _____.
- (b) Cost of A. I. _____
- (c) How many cows did you have in 1973, at least 3 years of age? _____
- (d) How many cows failed to produce a calf in 1973? _____
- (e) How many calves were born in 1973? Live births _____; Dead _____
- (f) At what age do your heifers usually calve the first time? _____ months
- (g) How many calves dies in 1973? _____
- (h) How many cows aborted in 1973? _____
- (i) At what age do you usually wean your calves? _____ months
- (j) What is the length of breeding season? _____ months
- (k) During the wet season what do you usually do with excess forage?

3. Dairy Herd

- (a) Do you use milking machines? Yes _____; No _____
- (b) Do you usually wash the udder before milking? Yes _____; No _____
- (c) How many cows are you currently milking? _____
- (d) Is your herd primarily. Dairy _____; Beef _____; Or Both _____.

4. Information on Cattle Feeding

- (a) How many acres of pasture do your cattle use? _____
Native? _____ Improved? _____
- (b) Pasture use

Acres	Proportion Fed to Cattle (%)	Stocking Rates	Fertilizer--lbs./acre and analysis or lbs. n, P, or K per acre
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Pasture _____

Other* _____

*Specify--i.e. hay, green chop, etc.)

- (c) How much supplemental feeding do you use?

Supplement	No. of Months Fed Per Year	Types of Animals Receiving Feed	Lbs./day Per Head	Where Purchased	Cost/lb.
------------	----------------------------	---------------------------------	-------------------	-----------------	----------

Salt _____

Minerals _____

Mixed Feeds _____

Protein Supplement _____

Green Chop _____

Hay _____

Supplement	No. of Months Fed Per Year	Types of Animals Receiving Feed	Lbs./day Per Head	Cost/lb.	Where Purchased
Corn					
Bone Meal					
Rice Bran					
Wheat Middlings					
Urea					
Molasses					
Copra Meal					
Others (Specify)					

5. Herd Health

(a) Which of the following animal health practices are used?

Practice	How Often	Treatment Cost		Number Treated
		Per Head OR	Total	
Drenching	_____	_____	_____	_____
Dipping	_____	_____	_____	_____
Spraying	_____	_____	_____	_____
Vaccinate: Anthrax	_____	_____	_____	_____
Blackleg	_____	_____	_____	_____
Leptospirosis	_____	_____	_____	_____
Brucellosis	_____	_____	_____	_____
Foot & Mouth	_____	_____	_____	_____
Rabies	_____	_____	_____	_____
Other	_____	_____	_____	_____
Antibiotics Used _____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Foot Baths(control foot rot)	_____	_____	_____	_____
Worming (specify method)	_____	_____	_____	_____

- (b) What method of castration do you use? _____
 (If males are not castrated, enter None)
- (c) What health problems do your cattle have? _____

6. Marketing Dairy Products (If no dairy cattle, go to 7)

- (a) How many gallons of milk produced daily? _____
- (b) To whom do you usually sell your milk? What price do you receive?

Buyer	Price Received	Percent Sold To	Proportion of Total Sales
___ Processing Plant	_____	_____	_____
___ Collecting Station	_____	_____	_____
___ Neighbors & Relatives	_____	_____	_____
___ Local Market	_____	_____	_____
___ Other	_____	_____	_____

- (c) How many gallons are sold daily? _____
- (d) Are you satisfied with the price? Yes ___; No ___
7. Marketing Beef Cattle (If no beef cattle, go to 8)
- (a) Do you usually sell your beef
 On the Hoof ___; Carcass ___; Or Both ___
- (b) On what basis do you sell live cattle? Per Head ___; Per Pound ___;
 Live Weight ___; Or Per Pound Carcass Weight ___.
- (c) Number of live cattle sold to: Abattoir ___; Meat Marketing Ltd. ___;
 Guyana Marketing Corp. ___; Cattle Dealer ___; Wholesale Butcher ___;
 Meat Market ___; Supermarket ___; Or Other (Specify) _____.
- (d) Where do you sell your carcass beef? _____
- (e) To whom do you sell carcass beef? _____
- (f) What price are you paid for culled cows? _____; Steers? _____;
 Calves? _____; and Breeding Bulls? _____.
- (g) Is the price satisfactory? Yes ___; No ___
8. For which of the following do you keep records? Breed ___; Birth Date ___;
 Date First Breed ___; Calf Births ___; Calf Deaths ___; Abortions ___;
 Cull Date ___; Reasons for Culling ___; Gallons of Milk Produced ___.
9. The following set of questions relate to the availability of and requirements for labor on your farm.
- (a) Do you hire farm labor? Yes ___; No ___
- (b) Have you had any difficulty getting hired farm labor? Yes ___; No ___
- (c) Total farm labor required per year (full-time men)? _____
- (d) Number of farm laborers used for livestock production? _____

(e) Number of livestock laborers for the following jobs:

Pasture Maintenance _____; Cattle Handling _____;
Milking Labor _____.

(f) How much labor would be required to establish one acre of improved pasture? _____ hours

IF LABOR IS HIRED, ANSWER g, h, and i.

(g) Wage rates paid cattle handlers? _____

(h) Wage rate for farm labor? _____

(i) Wage rate for milking crew laborers? _____

10. The following questions are pertinent only if improved pasture is used in producing cattle.

(a) What kind of grass is used for improved pasture? _____

(b) What kind of legume is used for improved pasture? _____

(c) Cost and amount of fertilizer (dollars per acre)? \$ _____

(d) Cost (\$/acre) of pasture establishment? \$ _____

D. Swine (If no swine, go to E)

1. I have a few questions about your swine operation. First of all, I would like to know the number, ages and approximate weights of the boars, sows, and pigs.

	Number	Ages	Weight
Boars	_____	_____	_____
Sows	_____	_____	_____
Pigs	_____	_____	_____

What type of operation do you have? Feeder Pig _____; Farrowing _____;
Finishing _____; Mixed _____.

2. Questions about breeding.

(a) What breeds do you have? _____

(b) At what age do you usually breed gilts? _____

(c) Do you usually do a semen evaluation before you use a boar for breeding purposes? Yes _____; No _____

(d) What method of farrowing do you use? Crates _____; Pens _____; Pasture _____

(e) Are you usually with the sow during delivery? Yes _____; No _____

3. Questions about feeding.

(a) Do you pasture your swine? Yes _____; No _____

(b) Do you use commercial feeds? Yes _____; No _____

(c) What supplements do you feed your swine? _____

4. Health questions.

- (a) Do you spray your swine for parasites? Yes ____; No ____
(b) Do you vaccinate? Yes ____; For What? _____; No ____
(c) Do you give your pigs iron injections? Yes ____; No ____
(d) What health problems do you have with your swine? _____

5. Questions about marketing.

- (a) About how many swine did you sell in 1973? _____
(b) Were they sold on the hoof or as carcass pork?
Hoof ____; Carcass ____; Both ____
(c) What price did you receive? _____
(d) Were you satisfied with the price? Yes ____; No ____
(e) To whom did you sell the swine? Abattoir ____; Neighbors and/or
Relatives ____; Market ____; Other ____

E. Poultry (If no poultry, go to F)

1. Questions about the characteristics of your poultry.

- (a) How many layers do you have? _____
(b) How many broilers do you have? _____
(c) What breeds do you have? _____
(d) Where do you get your chicks? Hatchery ____; Produced On Farm ____;
Other ____
(e) How would you characterize your operations? Broiler ____; Layer ____;
Broiler/Layer ____

2. Questions about feeding.

- (a) Do you use commercial feed? Yes ____; No ____
(b) (If yes) Is it a complete feed or a supplement?
Complete ____; Supplement ____
(c) What supplements do you use in your feed? _____
(d) Do you use artificial light? Yes ____; No ____
If yes, is light automatically controlled? Yes ____; No ____
(e) Do you have a cage or floor operation? Cage ____; Floor ____; Both ____

3. A few health related questions.

- (a) Do you vaccinate your birds? Yes ____; No ____
(b) Do you feed your birds antibiotics? Yes ____; No ____
(c) What health problems have you noticed in your flock?

4. (IF LAYER OPERATION) Now a few questions about the marketing of your eggs.
- About how many eggs do you collect daily? _____
 - About how many eggs do you sell daily? _____
 - To whom do you sell most of your eggs? Neighbors and/or Relatives
Wholesaler ____; Market ____; Other ____.
 - What price do you get for your eggs? What is the average price per dozen? _____
 - Are you satisfied with the price? Yes ____; No ____
 - Do you candle eggs? Yes ____; No ____
5. (IF BROILERS) I have some questions about how you sell your broilers..
- About how many birds do you sell daily? _____
 - Do you sell them live or dressed? Live ____; Dressed ____; Both ____.
 - To whom do you sell them? Neighbors and/or Relatives ____;
Market ____; Other ____.
 - What price do you get for your chickens? Live _____;
Dressed _____.
 - Are you satisfied with the price you receive? Yes ____; No ____

F. Sheep and Goats (If less than 10 sheep and goats, go to G)

- How many sheep and goats do you have? Sheep _____; Goats _____.
- I would like to get some information about how you feed your sheep and goats.
 - Do you pasture your sheep and goats? Yes ____; No ____
 - Do you feed them commercial feed? Yes ____; No ____
 - What supplement do you feed them? _____
- I would like to ask you some questions about herd health.
 - What procedures do you use to control parasites among your sheep and goats? _____
 - Do you vaccinate your sheep and goats? Yes ____; No ____
 - What other health practices do you follow with your sheep and goats?

 - What health problems do you have with your sheep and goats?

- I would like to ask you some questions about how you market your sheep and goats.
 - How many sheep and goats did you sell in 1973? Sheep _____; Goats _____
 - Did you sell the animals on the hoof or as carcass? Hoof ____;
Carcass ____; Both ____.
 - To whom did you sell the animals? Neighbors and/or Relatives ____;
Market ____; Abattoir ____; Other ____.
 - What price do you usually get for your animals? Goats _____;
Sheep _____

(e) Are you satisfied with the price? Yes ____; No ____

G. Now I have a few questions about government programs for livestock producers.

1. Did you know that the government has a program designed to provide technical assistance, information and advice to livestock producers?

Yes ____; No ____

2. (IF YES) Where did you learn about the extension program?

3. (a) Have you ever requested technical assistance or information from the extension service? Yes ____; No ____

(b) (IF YES) Did you receive the assistance requested? Yes ____; No ____

(c) (IF YES) Were you satisfied with the assistance received? Yes ____; No ____

(d) (IF NEVER REQUESTED ASSISTANCE) Why haven't you requested technical assistance from the government? _____

4. (a) Has an extension agent ever visited your farm? Yes ____; No ____

(b) (IF YES) How many times in the last five years? _____ (ca.)

5. What sorts of information, services or assistance would you find useful for your livestock operation? _____

6. (Cattle Producers) Do the government vets vaccinate your cattle?

Yes ____; No ____

7. How many of the following livestock extension activities have you participated in? How would you rate them?

Activity	Number of Times Participated In	Would Rate Them (very beneficial, beneficial, not very beneficial)
----------	---------------------------------	--

Livestock Demonstration

Livestock Seminars

Livestock Field Day

Livestock Field Tours

8. (If dairy) Did you know that the government has an A. I. breeding program?

Yes ____; No ____

Have you ever used this service? Yes ____; No ____; Why not? _____

9. (a) (Beef Producers) Have you heard of the Livestock (beef) Development Project, a program which provides loans for the development of beef cattle operations? Yes ____; No ____

(b) (IF YES) Have you ever considered seeking one of these loans? Yes ____; No ____

(c) (IF HEARD OF LDP) Why or why not? _____

10. The government has a new law concerning slaughter of cattle.

(a) Why do you think the law was passed? _____

11. Did you know the government operated an agricultural bank?

(a) Yes ____; No ____

(b) If yes, have you ever tried to get a loan from the agricultural bank?

Yes ____; No ____

(c) If no, why not? _____

12. As you probably know, Guyana is known as the Cooperative Republic, and the government has expressed interest in establishing agricultural cooperatives.

(a) Do you think that agricultural cooperatives are good? Yes ____; No ____

(b) If no, why not? _____

(c) If yes, do you think you would be interested in participating in an agricultural cooperative in the future? Yes ____; No ____

13. One final set of questions. They have to do with background characteristics of livestock producers, things such as family characteristics, age, etc.

(a) Sex of producer (DO NOT ASK) Male ____; Female ____

(b) Are you married? Yes ____; No ____

(c) (If Married) How many children do you have? _____

(d) How old are you? _____ years

(e) How far did you go in school?

(f) What is your major occupation? _____

G. Income

1. In which of the following categories did your 1973 income fall?

Below \$2,000 ____; \$2,000-\$5,000 ____; Above \$5,000 ____

2. What proportion of your 1973 income was due to livestock? _____%

3. What proportion of your 1973 income was due to all agricultural products? _____%

H. Ethnic identity (ASK ONLY IF NECESSARY) East Indian ____; African ____;

Chinese ____; Portuguese ____; Other Europeans ____; Amerindians ____;

Mixed ____; Other ____.

Appendix VI

RECORD OF TRAVEL ARRANGEMENTS

CITY	TIME	DATE	ROUTE	RESERVATIONS (Dates)	
				REQUESTS	CONFIRMATION
LEAVE (Dulles) Washington, D. C.	5:10 PM	Daily	TW#800		
ARRIVE Paris	7:30 AM				
NOTE					
LEAVE Paris	12:00 Noon	May 20 ^{Mon.}	MY#102		
ARRIVE Bamako	5:35 PM				
NOTE					
LEAVE Bamako	7:00 AM	May 21 ^{Tue.}	MY#31		
ARRIVE Kayes	10:00 AM				
NOTE					
LEAVE Kayes	9:05 AM	May 25 ^{Sat.}	MY#44		
ARRIVE Bamako	11:55 AM				
NOTE					
LEAVE Bamako	10:20 AM	May 28 ^{Tue.}	RK#300		
ARRIVE Ouagadougou	12:30 PM				
NOTE					
LEAVE Ouagadougou	6:05 AM	June 1 ^{Sat.}	UT#831		
ARRIVE Abidjan	9:30 AM				
NOTE					
LEAVE Abidjan	11:45 AM	June 1 ^{Sat.}	UT#709		
ARRIVE Douala	5:00 PM				
NOTE					
LEAVE Douala	7:30 PM	June 1 ^{Sat.}	UY#756		
ARRIVE Yaounde	8:00 PM				
NOTE					
LEAVE Yaounde	11:15 AM	June 4 ^{Tue.}	UY#782		
ARRIVE N'djamena	2:20 PM				
NOTE					

RECORD OF TRIP ARRANGEMENTS

CITY	TIME	DATE	ROUTE	RESERVATION (Date)	
				REQUESTS	CONFIRMATION
LEAVE Ndjamena	12:00 Noon	June 8	UT/772		
ARRIVE Paris	5:30 PM				
NOTE					
LEAVE Paris	12:00 Noon	June 9	TW/803		
ARRIVE (Dulles) Washington, D. C.	5:38 PM				
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Appendix VII

List of Names and Addresses of People Visited on 211d Ruminat Livestock Consortium Trip to West Africa - May 18 to June 9, 1974

Participants:

Dr. T. C. Cartwright, Texas A & M University
Dr. Joe H. Conrad, University of Florida
Dr. George Cooper, Tuskegee Institute
Dr. T. Kelly White, Purdue University

Paris 5/19 - 5/20

Mr. Howard Helman, USAID/Paris, % American Embassy
Tel: Office 265-7460 Ext. 7225; Home 224-0688
Office Dv. André H. Robinet, Chief (Tel. SUF 79-70 Ext. 147
Livestock and Fisheries Dept. SUF 46-71 Ext. 147
French Ministry of Foreign Affairs
20 Rue Monsieur, 75007 Paris,
Home 8 Rue Foury, 92310 Sevres, France
Tel 027-5356

Bamako, Mali 5/21 - 5/28

Mr. Rex Henry, Project Manager, Regional Livestock,
USAID/Dakar

Dr. Alassane Diaoure, Chief Veterinary and Animal Industry Officer
Dr. Bobacar Sy, Head Meat Marketing Board
Dr. N'Galo Traore, Head Economics Institute

Niono, Mali 5/22

Livestock Experiment Station
Dr. Taoure, Sector Veterinarian
Dr. Magi, Veterinarian in Charge of Experiment Station

Nara, Mali 5/24

Livestock Station
Dr. Tall, Sector Veterinarian

Sotuba Experiment Station near Bamako 5/27

Dr. Samba, Veterinarian in Charge of Experiment Station

Ouagadougou, Upper Volta 5/28 - 5/31

Mr. Donald L. Atwell, AID Representative for Drought Programs
USAID/Ouagadougou
Mr. Mark Johnson - Consul/American Embassy
Dr. Nakure, Minister of Agriculture (Met at Dori)
Dr. Coulibaly, Director of Veterinary and Livestock Services
(Met us at Markoy and Dori - 5/31)
Dr. Ecre, Deputy Director
Dr. Tall, Executive Secretary Economic Commission
Met him at Hotel Independencia

Dr. Nicolas, French Veterinarian

**Two French Veterinarians on MIT Contract surveying small ruminants
at Gorom-Gorom**

**Abidjan, Ivory Coast 6/1
Dr. William H. Morris, Purdue/AID**

**Yaounde, Cameroon, 6/1 - 6/3
Mr. Lawrence A. Beery, Project Manager
General Agricultural Projects
USAID/Yaounde, Cameroon**

**Dr. Nicolas Eyidi
Ministere de l'Elevage
Directeur des Productions Animales
et de l' Animation Pastorale
B. P. 1050
Yaounde, Cameroon**

**Dr. Donald Ferguson, Agr. Economics
Southern University
Baton Rouge, Louisiana
AID Contract, Yaounde, Cameroon**

**WAKWA Experiment Station 6/4
Adamaoua Plateau
Dr. P. H. Lhoste, Director-Zootecnician
Dr. Enguelegule, Director of Extension
Dr. J. Pierson Veterinarian
Dr. G. Rippstein, Pasture and Forage (Agrostologist Swiss)**

**Institut d'Elevage et de
Medecine Veterinaire des pays Tropicaux
I.E.M.V.T.
Centre de Wakwa
Ngaoundéré, Cameroun**

**N'Djamena, Chad 5 June - 9 June
Ambassador Edward W. Mulcahy
Mr. Donald Hester, Vice Consul also AID
Monsieur Rene Guilbaud, Chief French AID Mission
Mission D'Aide et de Cooperation
N'Gardoum Djidingan, Minister of Agriculture (Didn't meet)
Dr. Manamat Touade, Director of Livestock
Dr. Albert Mamadou, Director of Slaughterhouse and Cattle Export
Dr. Maeyer, Drcught Coordinator at Ati**

Lake Chad Basin Commission (5 June)

Commission du Bassin du Lac Tchad
Mr. Benson O. Tonwe, Executive Secretary (Nigerian)
Dr. Renard, Chief of the Livestock Sector
Dr. Crouail, Director Assale - Serbewel Project
Dr. Vallat, Chief Assale Sector Project (Chad)
Mr. Scotty Deffendol, Chief Serbewel Project (Cameroon)

Dr. Jean Vandebussche, (Feed Mill)
Directeur du Centre de Modernisation des
Productions Animales, Farcha

Farcha Laboratories 5 June

Dr. G. Tacher, Deputy Director (Directeur Adjoint)
Newly appointed deputy director of
International Livestock Center for Africa (ILCA)
at Addis Ababa, Ethiopia
Nokoury, DVM, Deputy Director
Monsieur A. Gaston, Agrostologist
Dr. J. Gruvel, Entomologist studying tsetse fly

Laboratoire de Recherches
Veterinaires et Zootechniques
de Farcha (or)
Laboratoire de Farcha
B.P. 433
N,Djamena, Tchad

Institut D'Eleavage et de
Medecine Veterinaire
I.E.M.V.T.
10, Rue Pierre Curie
74700 Maisons-Alfort, France

Please note:

We have been advised by AID/Washington that the best way to communicate with AID Missions in Africa is to mail it to Dr. Carl Sierk with a note indicating who it is to be forwarded to. It will then be sent from Washington to the Embassy of that particular country.

TEXAS A&M UNIVERSITY
COLLEGE OF AGRICULTURE
COLLEGE STATION, TEXAS 77843

RECEIVED JUN 12 1974

Department of
ANIMAL SCIENCE
Instruction — Research — Extension

June 10, 1974



MEMORANDUM

TO: Dr. Carl Sierk, Dr. Lloyd Clyburn and other interested persons

FROM: J. Conrad, G.E. Cooper, T.K. White and T.C. Cartwright

SUBJECT: Range Seminar for Representatives of the Sahelian Countries to be Sponsored by USAID

One representative from each of the institutions of the USAID 211(d) Livestock Consortium travelled to Mali, Upper Volta, Cameroon, and Chad to observe livestock production in the Sahel and to confer with governmental officials, producers and others in related activities. These 211(d) institutional representatives were accompanied by Mr. Rex Henry, Project Manager, Regional Livestock, USAID/Dakar, in Mali, and by Dr. Andre H. Robinet, Chief, Livestock and Fisheries Department, FAC, Paris, France, in the remaining countries. These advisors were indispensable to the accomplishment of the mission.

The following list is a summary of suggestions and observations made by those with whom the team conferred (see Appendix) concerning the seminar sponsored by USAID for representatives from Sahelian countries. Most of these points were stated by Africans, however, some are more interpretations of impressions gained during the course of many conferences. A few points were made by expatriots. Dr. Robinet has reviewed a draft of this memorandum and made very helpful suggestions. The items listed often overlap and are not ordered according to priority except as indicated. Some of the topics do not relate directly to the theme of range management and obviously all of them can not be presented. Some are technical or not of general interest and may be covered by individual conferences.

Several livestock officers requested that the seminar be held in September to be completed in early October, because of a livestock inventory scheduled in the Sahelian countries.

I. GENERAL

- A. Theory and abstract concepts should be minimal. Emphasis should be on established, demonstratable practices.
- B. The seminar should be designed and presented as a broadening experience (rather than to present practices for extrapolation) which will enhance the ability of participants to conceive ideas and formulate relevant plans.
- C. The consensus of scientific opinion on "Keeping the desert alive". Is it possible? Is it worth it? What measures must be taken? Must people be sedentarized?
- D. Middle and long term views for solving drought related problems in the U.S.
- E. Position of research on the concepts of drought intervention. Can research assist in alleviating these problems?
- F. The use of systems analyses to cope with optimizing output of the Sahel. The point became clear, one way or another, that the application of a systems approach was considered necessary; in general terms this point was appreciated by all the persons interviewed.

II. EXTENSION

- A. Group reaction sessions should be included to discuss problems and solutions incurred during drought conditions as it may relate to program implementation and effect.
- B. Extension service in action - a stepwise account of the method by which a recommended practice is implemented with observation of example. Include how the Extension Service responds to the needs of people (sensitivity to people) and how to induce (illiterate, ingrained nomadic) people to become modern (sedentary) producers.

III. OBSERVATIONS (Combined with talks)

- A. At least one-half of the time should be devoted to "on the ground observations".
- B. Range management, including water management and multiple species stocking. First priority.
- C. Brush (undesirable woody species) control and eradication.

- D. Livestock operations in semi-arid areas. One or two examples covered in depth are preferred. An Indian reservation and/or Bureau of Land Management operations were suggested. (Dr. Robinet cautioned about a possible reaction to Indian Reservations which would divert attention from the Seminar topic.)
- E. Feedlot finishing operation including economic analysis.
- F. Example of each step of livestock production followed through marketing at each step to the retail level and producer consumption.
- G. Modern, medium size slaughter house.

IV. VETERINARY

- A. Programs for control and eradication of disease (T.B., Brucellosis, Anaplasmosis, Piroplasmosis, etc.), and parasites (Internal parasite control, screw worm eradication program, and mosquito control).

V. ECONOMICS (Other than above)

- A. Economic infrastructure - cooperatives, credit, banking, markets.
- B. Marketing to increase value of product.
- C. Stratification of the beef production system.
- D. Land use and tenure
- E. Capital and its use in cattle production - investment, rate of return, etc.
- F. Economics of byproduct utilization.
- G. Economic implications of livestock tax and trade policies.

VI. NUTRITION

- A. Supplemental feeding of minerals and proteins.
- B. Feeding byproduct feeds (feed value).
- C. Nutrition and its influence on reproduction and longevity.
- D. Native and introduced or improved grasses.
- E. The use of forage analysis information in livestock feeding.

VII. BREEDING AND PRODUCTION SYSTEMS

- A. Alternative uses of limited supplies of byproduct feeds; e.g., determining priorities for feeding calves vs. three year old males vs. four year olds vs. milk cows, etc.
- B. Breeding systems.
- C. Zebu in the U.S.; origin and development into breed(s).

VIII. MISCELLANEOUS

- A. Remote sensing to aid in directing livestock movement.
- B. The effect of cropping on land depletion.

Appendix VIII

Visit of 211d Tropical Ruminant Livestock Consortium to N'djamena-Tchad June 4 to June 8, 1974

The team was composed of the following:

- Dr. A. Robinet, Expert Consultant, Chief Livestock Officer, FAC, Paris.
- Dr. T. C. Cartwright, Texas A & M University.
- Dr. Joe H. Conrad, University of Florida.
- Dr. George Cooper, Tuskegee Institute.
- Dr. T. Kelly White, Purdue University.

The 211d Ruminant Livestock Consortium consists of representatives of seven disciplines in four U. S. Universities. These disciplines are (1) animal nutrition, (2) forage production, (3) veterinary medicine, (4) animal production, (5) extension, (6) sociology and (7) economics. The purpose of the Consortium is to integrate these seven disciplines within a systems analysis framework and develop expertise in analysis of livestock development problems in tropical regions through this integrated, multidisciplinary approach.

The purpose of this visit by representatives of the Consortium to Central West Africa is two fold. It provides an opportunity for consortium members to gain first hand knowledge of livestock production and marketing systems as they exist in this region. This knowledge will contribute significantly to the achievement of the consortium's overall objective. Knowledge gained through observation and interaction with individuals involved in all phases of livestock development will be used in preparing and presenting a seminar on livestock production systems in arid regions of the U. S. This seminar, to be held in September and October in Texas, is being sponsored and organized by AID Washington for representatives of Central West African Countries. The consortium will aid in planning and conducting the seminar. The consortium has not been informed of the procedure for selecting participants to attend the seminar.

The team arrived at N'Djaména on June 4, 1974 after having spent two weeks in Mali, Cameroun and Upper Volta. Mr. Donald Hester, U. S. Embassy, met the team and we are grateful for his support during our visit.

On Wednesday June 5, 1974, we went directly to Mr. Hester's office where plans were initiated for our visit to various Chadian agencies. Visits were also suggested to the Ranch of Ouadi Riémé, near Ati, and to various livestock production areas of interest in the Lake Chad Basin.

Visits made and people contacted during our visit are as follows:

Wednesday, June 5. A.M.

- Mr. Donald Hester, U. S. Embassy.
- Mr. René Guilbaud, Chief of French Aid Mission.

Dr. M. Touadé, Director of Animal Production, Chad Ministry of Livestock.

Dr. G. Tacher, Deputy Director, Laboratory of Farcha.

Dr. Maeyer, Drought Coordinator at Ati.

Dr. Nokoury, Deputy Director, Laboratory of Farcha.

Mr. A. Gaston, Agrostology.

Dr. W. Gruvel, Entomologist, Tsetse Program.

Wednesday, June 5, P. M.

Met with Lake Chad Basin Commission:

Dr. Renard, Sector Chief Livestock.

Dr. Crouail, Director, Project Assalé/Serbewel.

Mr. Scotty Deffendol, Sector Serbewel Chief.

Dr. Vallat, Sector Assalé Chief

Thursday, June 6

Dr. Jean Vandebussche, Director Feed Manufacturing for Animal Production Center.

Cattle market at Massaguet where cattle are sold each Thursday to supply the N'Djamena domestic and export market.

Mr. Benson O. Tonwe, Executive Director, Lake Chad Basin Commission.

We were cordially received in his office where he indicated that much progress had been made but the constraints to progress were:

- 1). personnel;
- 2) funds;
- 3) infrastructure;
- 4) sociological.

Friday, June 7, 1974

We visited Dr. Touadé's office briefly, then went to visit the slaughter house.

Mr. Mamadou is in charge of the Frigorifique de Farcha. We had an excellent discussion and he took us on a tour of the facilities. Facilities were opened in 1958 and slaughter reached 15,000 tons in 1972. Chilling facilities were indicated as the limiting constraint rather than supply of cattle or demand for beef.

Observations

1. The team's exposure to Chad's livestock sector was limited to discussions with various technical and administrative people in N'Djaména and a visit to the cattle market at Massaguet. Trips to Bol and Ati were planned but transportation could not be arranged.
2. The Farcha Laboratory has a strong basic research program, but there appears to be only very inadequate mechanisms for transforming basic research results into practical recommendations and extending them to livestock producers. The existing research program depends heavily on French scientists and financial support.
3. The Lake Chad Basin Commission is placing considerable emphasis on intensive finishing of cattle. There is some question as to the existence of adequate market infrastructure to support stratification of livestock

production. A careful analysis of the economics of using irrigated land for forage production in competition with alternative crops should be made.

4. The feed mill provided by USAID is operating at capacity using a combination of local and imported ingredients. The feed being produced is expensive and probably would not be an economical input for livestock unless heavily subsidized.

5. The political situation in Chad appears to pose a barrier to modernization of the livestock industry.

Appendix IX

TRAVEL REPORT ON THE 211(d) LIVESTOCK CONSORTIUM TRIP TO AREAS OF WEST AFRICA - May 19 thru June 9, 1974

Participants: Dr. T.C. Cartwright, Texas A & M University
Dr. Joe H. Conrad, University of Florida
Dr. George E. Cooper, Tuskegee Institute
Dr. T. Kelly White, Purdue University

* The participants were accompanied by Mr. Rex Henry, Regional Livestock Officer, USAID, Dakar, Senegal while in Mali (5/21-5/28, 1974); and by Dr. Andre Robinet, Chief, Livestock and Fisheries, French Ministry of Foreign Affairs, Paris during the travels in Upper Volta, Cameroon and Chad (5/28, 1974-6/9, 1974).

May 20, 1974 (Paris, France)

A meeting was held with Dr. Robinet prior to departing to west Africa. The purpose of the meeting was to develop an appreciation for livestock production in the Sahel.

According to Dr. Robinet, Water is not the major problem with Sahelian livestock production, but sociological problems are major. At present, it seems that adequate amounts of water can be obtained from deep wells, however in most instances this process is very costly.

When the total production of cattle is considered, it must be noted that cattle owners are not paid adequately for their animals when they are sold at markets. This seems to be a great problem when future developmental changes are considered. A number of questions are brought to mind when development is planned. Who is to pay for future improvements related to livestock production? Should the Nomads (livestock producers) pay for these improvements personally? If these producers cannot justify payments for obtaining new innovations, then who will? At this particular time, it is felt that the various governments included in the Sahel should accept this responsibility. In general, the production of livestock in the Sahel has been neglected in favor of cash crop production.

This program should Not Be Designed As a Program For Administrators

It was suggested that Dr. Rowall, former Head of Veterinary Department in Chad for 25 years and in Niger for 10 years be invited to address the production of livestock in the Sahel.

21 May 1974

Discussions with Mr. Rex Henry, USAID Regional Livestock Officer, Dakar, Senegal.

According to Mr. Henry, USAID is sponsoring a \$3.4 million project near Segou. This area will be expected to include 75,000 acres. A beef feedlot will be located here to feed approximately 2,500 cattle with 2 to 3 groups of cattle passing through the facilities per year. In another area about 45 miles east of Segou, Mali is located a range management system where protein and mineral feeding will be used along with various range management systems.

Mr. Henry indicated that there was a different philosophy between USAID and the Malian Government when management of range areas is discussed. Persons with the Malian government believe that only watering points plus minerals are needed with a free grazing system (no controls on grazing enforced). The U.S. input in range management for the Sahel would require grazing management (rotational grazing) with drilled wells. This would be supported provided the government could enforce grazing controls.

There has been a 25% reduction in total cattle numbers as a result of the drought in the Sahel (includes deaths, sales reduced calving %, etc.). At this time the cattle numbers (Animal Units=bovine, camel or horse over one year of age= eight sheep or goats over one year of age), are believed to be in equilibrium with the carrying capacity of available forages. Since this

equilibrium does exist, it may be a good time to initiate programs in grazing and management control. Mr. Henry also indicated that both technical and social problems exist in Sahelian livestock production. In his opinion the social problems are the greatest challenge to development.

There is a USAID Medium Term Recovery Program for Range and Livestock, which plans to have a rotational grazing system (10% offtake currently). This plan will emphasize a built in incentive program for livestock producers.

Years 1 and 2	Protein, salt and minerals are given free to cattle producers.
Year 3	Cattle producers pay 1/3 of the cost for protein, salt, and minerals.
Year 4	Cattle producers pay 2/3 of the cost for protein, salt, and minerals.
Year 5	Cattle producers pay all of the cost for protein, salt, and minerals. It is expected that the producers should be able to pay these costs due to an increase in cattle numbers and a 20% offtake rather than the initial 10% offtake from the herd.

The emphasis during this five year period would be on education, management, and policy decisions.

There are approximately 45 Malian Veterinarians who were trained by the French with 315 trained livestock assistants. These livestock assistants are not trained to the point where they are capable of designing livestock projects for funding and implementing these projects.

There is currently a great export demand for Malian Cattle. Between 80 and 90% are exported to Ivory Coast (231,000 head) and 10 to 20% (61,000 head) are exported to Ghana (1970 figures). Each year between the months of March and August, Mali suffers a deficit in meat. At this time Malian markets are operating at about 1/3 of their maximum capacity.

The Sahel has a distinct rainy season and offers a challenge to those engaged in livestock production and development programs. The rainy season lasts for only three to four months. Other times of the year are without any precipitation. During the dry season, herds must be supplied with supplemental feeds or in terms of herd capacity reduced by 3/4. Young animals (1-2 years) are sold to traders who graze these animals until maturity (5-7 years), at which time they are sold for slaughter. In most instances these animals are not slaughtered until they reach mature weights.

There are several disease problems in the Sahel, and include the following:

Rinderpest: Until 1968 this was the most severe livestock problem in the Sahel. In 1968 there was a vast campaign to vaccinate all cattle. As a result the incidence of this disease has been reduced to insignificant levels.

Contagious Bovine Pleuropneumonia: This is currently the most serious disease problem affecting cattle in the Sahel. There is presently no reliable vaccine and cattle must be vaccinated twice each year for minimal control.

Blackleg: Adequate vaccination program is being used.

Anthrax: " " " " " "

Botulism: (Primarily in Senegal) Transmitted to cattle when they consume carcasses of other cattle (Associated with certain mineral deficiencies).

Anaplasmosis:

Pasturellosis:

Trypanosomiasis: In Mali, this is a problem from Bamako and south. The native cattle have some resistance to this disease as long as they are not crossbred. Braham (zebu) type cattle are very susceptible and are kept primarily in the northern areas of Mali. There are many tse tse fly along the railroad between Bamako and Kayes, Mali.

There is a five year development plan for livestock development in Mali which proposes the opening of tse tse fly areas to grazing. However, Mr. Henry suggested that some type land use capability study be conducted.

Comments on Land Tenure:

In theory, the government owns the land, but custom has the land passed on from one generation to another. As long as the land is farmed, the government lets this system continue. Range land is grazed freely even though there is a government grazing code.

Livestock producers are charged a head tax based on the number of cattle in the herd. Most producers "mis-inform" tax collectors about the total number of cattle in their herds. This attitude may be due to the lack of service to livestock producers by the Malian government in livestock assistance and production programs.

The largest number of cattle are probably sold between October and December in Mali. This is the beginning of the Dry Season. Approximate cost of Beef at Malian Markets (Henry) 100-250 Mf/kg. Liveweight cost while Mf/kg. at the local markets cost 450 Mf/kg.

Cost of meat ranked highest to lowest. Cattle, Sheep and Goat (cost/kg.)

21 May 1974 (Bamako, Mali)

Conversation with Dr. Alassane Diaoure, Chief Veterinary and Animal Industry Officer

In Mali, the Sahel region occupies the northern regions of the country while sedentary regions occupy Southern regions. The Sahel is north of the 14th parallel in Mali and occupies an area over 4000 square kilometers.

The northwest zone contains Zebu type cattle beginning at the Senegal frontier. There are also many camel, sheep and goats in this area. Producers and animals follow primarily a North to South migration from areas in Mauritania. During migration s livestock consume available natural grasses with a few browse plants and legumes.

As an effect of the drought, death loses have been greatest in the eastern half of Mali. Because of this the grazing pressures are not as great in these areas as in the Western half of Mali.

According to Dr. Diaoure there are several factors which must be considered in the development of range management programs for the Sahel of Africa, and include the following: 1. The construction of dams along rivers in order to irrigate pastures; and 2. The inclusion of Socio-anthropologic studies to understand people living within the Sahel.

The following comments were given by Dr. Diaoure in reference to the Seminar to be held at Texas A & M University:

1. Participants whould be able to see how range in a Semi-arid Zone is managed.
2. Information should be presented on grass breeding, especially emphasizing those which may be adapted to areas of the Sahel. All details of range production and its use in cattle production should be covered in as much detail as possible.
3. The Seminar should involve discussions, field trips and discussions on livestock. (1/4 of the time in dussions and 3/4 of the time in the field for observations. Also 2/3 of the presen-

tations and trips should emphasize cattle production and the remainder on production of sheep.

4. The seminars should start in early September and be completed by October 8, because a vaccination will be initiated in the Sahel.

22 May 1974

The consortium group traveled by landrover to areas of Mali to observe an experimental feedlot where 3-12 year old cows were being finished for market. These animals were nearing the end of a 5 month feeding period and were gaining about 1.75 lbs/head/day. The ingredients comprising the diet were rice bran, cottonseed and harvested grasses.

According to the veterinary assistant with the consortium group there are programs available to livestock producers and provide veterinary services and advice. There appears to be no follow through programs once advice has been given producers and no referrals when other types of assistance may be needed.

The primary problem of cattle producers seems to be one of rebuilding herd levels. It has been estimated that the cattle population has decreased some 30-40% over the last four years. A census will be taken in October, 1974 to verify this estimation by the government of Mali as well as in other countries in the Sahel region. The Veterinary services attempt to implement programs which improve quality and reduce total numbers, but this seems to be in direct opposition to objectives of the cattle producers. As a result of the drought, forages have been overgrazed and greatly reduced, therefore a few farmers have used cottonseed to supplement cattle. Last year there were requests for 300 tons of cottonseed but there were only 45 tons produced.

Cost of feedstuffs (estimated)

Hay	1.2 Mf/kg.
Cottonseed	9 Mf/kg.
Rice Bran	7 Mf/kg.

Cattle are bought for 35,000 Mf/head and can be sold in finished condition for 110,000 Mf/head. Finishing cattle can consume 5 kg of hay and 4 kg of a mixture of Rice bran and cottonseed/head/day.

23 May 1974

Group arrived at Niono the night of 22 May 1974 and visited the Animal breeding station at Niono the morning of May 23. The primary emphasis of the station is on cattle, production, but there has been an interest also in sheep, goats and camels.

With one of the French assistance programs, charolais cattle were imported in 1953, but these cattle did not do well under conditions at the station. This program was abandoned in 1959. (Charolais crossbred cattle did poorly also).

The basic research program at the Niono Livestock Station involves the improvement of the local cattle breeds by observing the kind of changes brought about with moderate nutrition and veterinary services. Records are kept on calving %, weaning %, and weight and condition at one year of age. The requirements for working bulls is also being determined along with feed lot gains for local cattle types.

The Niono Station is located in the Niger irrigation project, therefore rice bran, rice flour, molasses, cottonseed, and cane tops are available for including in cattle rations. Cattle are sold to slaughter houses in Bamako

Cattle are usually bought in October and November of each year, since

their price is generally down. They are sold the following year between May and July for slaughter.

With improved management on the station a 70% calving percentage is obtained while most local producers average about 30% (ranges between 25 and 40%). Cattle under normal conditions fail to reach mature weights until 7 years of age. Calves born at the Niono station weigh an average of 23 kg at birth while those born under bush conditions weigh between 10 and 18 kg.

24 May 1974

A meeting was arranged with Dr. Tall, Sector veterinarian at the Nara experiment station. Nara is in the Sahel and averages 300 mm of rain per year (239-260 mm in 1973).

We were able to observe vet. assistants vaccinate cattle and talk to a herdsman. The herdsman indicated that 3/4 of his herd was lost last year as a result of drought conditions. The primary reason was due to a lack of available forages. At present no cows are being sold in order to rebuild the herd. Most cattle are sold to purchase necessities to support the family. No supplemental feeds are purchased.

25 May 1974

Cattle Market was visited outside of Bamako.

From observations and discussions we were able to note the condition and prices for cattle respectively. Some cattle have been herded 400 km to this market. Prices vary according to sex and condition. The cost vary as follows: Open cows - 40-55,000 mf; Bred Cows - 65,000 mf; Bulls - 55,000 mf. Most of the cattle sold are purchased by cattlemen and are not for slaughter.

Many of the 5-6 year old bulls are purchased for markets in Abijan and will sell for 100-120,000 mf. (about twice the purchase price) and are trucked to markets. Average weight is about 300 kg.

At the Bamako market we were told that when cattle are sold, the seller pays a cattle tax (2,500 mf/head) and purchases grain, clothing, sugar and food for his family. The money remaining is used to purchase new heifers for the herd. For the last two years, no cattle tax has been collected and is substituted by FED (European Development Fund).

27 May 1974

Visited the Sotuba Experiment Station near Bamako and met with Dr. Samba, Veterinarian in charge of the experiment station.

The primary work at Sotuba involves crossing European and local cattle to increase milk production. N'Dama cattle produce 2 liters of milk per day (av. wt.=200 kg). These animals calve at 4 years of age. The primary breeds imported are Jersey, Brahman and Red Steppe (Russian breed).

Rations used to feed the bulls on the station were discussed and are composed of rice straw, molasses, area, cottonseed and cassava. However, no digestibility data was available from these studies. The work did demonstrate that these animals would consume adequate amounts of the rations to gain weight. Some animals consumed up to 15 kg rice straw per day.

28 May 1974

Travel to upper volta from Mali

29 May 1974

A meeting was arranged with Dr. Bere, Deputy Director to discuss areas to include in the U.S. Seminars, and include the following: 1. Drought and

it's effect. The ways in which drought problems are viewed from a U.S. viewpoints; 2. Middle and long term views for solving drought related problems; 3. Position of research on the concept of drought intervention; 4. Meeting of animal Scientist to discuss programs for arid conditions. Ideas should involve practical experiences rather than theoretical ideas.

Discussions were also held with Dr. Nichols, French Veterinarian, to discuss livestock production and its problems in Upper Volta. The primary disease problems are Rinderpest and Pleuropneumonia. In Southern Upper Volta there is a problem with Trypanosomiasis.

A visit was also arranged to see the abattoir which is currently being used as well as a new modern facility which is nearing completion. The present abattoir is inadequate because of a lack of cooling and sanitation facilities. To alleviate the need of cooling, slaughter begins at 2:00 a.m. daily and is completed before the day is very hot. This procedure is adequate for various local markets. Meat which is exported is allowed to cool in the abattoir facilities for 2 days. The current charge is 500 CFA per head for bovine and 60 CFA per head for sheep and goats. When the new abattoir opens the fee will be 20 CFA per kg. of weight and will include two days in the cooler. The average carcass weight is approximately 130 kg. In general the price of meat has increased while the weight of carcasses has decreased.

The new abattoir will have the capacity of slaughtering 30,000 metric tons per year and employ 80 persons.

We were also able to meet a French Veterinarian who was in charge of training veterinarian assistants in upper Volta. There are 10 assist-

ants trained each year in veterinary theory, sanitation, diseases and parasites, anatomy and production.

30 May 1974 (Ougadougou Markoye)

During a visit to Gorum-Gorum we were able to meet two French Veterinarians who were conducting a random survey on small ruminants. This information will be used in developing a program to increase intake of small ruminants in order to reduce the pressure on the number of cattle slaughtered.

The Markoye livestock project was funded by USAID and involves 2,800 hectares in a range management program. The purpose of the program are:

1. To regenerate pastures through controlled grazing, burning and fencing
2. To promote social and extension aspects by training young herdsmen to best utilize pastures for production. However, funds are inadequate to make this a reality.

At present there is a herd of Azawak cattle imported from Niger, Maridi goats from Nigeria and African Long-legged Sheep.

Cattle on the station are managed in grazing areas and are supplemental with cottonseed (#/head) daily. There is no water on the Station, therefore cattle are watered at a local water hole once each day.

We were also able to meet Dr. Coulibali, Director of Veterinary and Livestock Services in Upper Volta.

31 May 1974

Traveled to Dori and were able to meet Dr. Coulibuli and Dr. Nakure, Minister of Agriculture prior to departing to Ouagadougou.

1 June 1974

Travel to Yaounde, Cameroon Via Abidjan where we were able to meet briefly with Bill Morris, Purdue University at the airport. We met at Yaounde by Mr. Beery, USAID project manager.

3 June 1974

Mr. Berry arranged for us to meet Dr. Nicholas Eyidi, Director of Animal Production to discuss his country's objectives in livestock production. Cameroon is primarily interested in long term programs for drought assistance and ranch management especially relating to water and pasture utilization.

We were also able to meet with Dr. Don Ferguson at the USAID mission office to hear his opinions on economic development in Cameroon and areas of West Africa and the Sahel.

4 June 1974

We were able to visit the Wakwa Experiment Station located on the Adamaoua plateau near Ngaoundere, Cameroon. Here we were able to meet with researchers and persons engaged in livestock extension programs and visit various areas of the station to observe the work being conducted. Here on the station they have developed the Wakwa breed by crossing Brahman and native cattle. The station was established 30 years ago and is a joint venture by the French and Cameroon governments. Studies are being conducted to evaluate forages and establish grazing management systems to maximize production. Cattle breeding and control of insects especially the tse-tse fly is also being conducted.

The most interesting aspect was an extension program which involves local breeders which are involved in a 3yr. training program which is conducted on the Wakwa station. Each person selected for the program brings his own cattle (50 per trainee) and they use Wakwa and native bulls at the station. During the three year period they receive training in cattle management. At the end of the three years these producers receive operational assistance from the government which allows them to settle in a planned area and use those principles learned in implementing a cattle program. All calves born during the three year program belong to the individual herdsman.

Appendix X

REPORT ON VISIT TO GUYANA BY GLENN HOWZE (TUSKEGEE INSTITUTE)

May 5 - June 5, 1974

The purpose of this report is to summarize the activities of Glenn Howze, a member of the USAID 211-D Ruminant Livestock Consortium from Tuskegee Institute, during his visit to Guyana May 5-June 5, 1974. The major purpose of his visit was to conduct a survey of livestock producers in selected areas of Guyana. No attempt will be made in this report to deal with findings from this study. The data will be returned to Tuskegee, analyzed, and a report will be forthcoming by the end of the summer. Rather, this report will be composed of:

- (1) the itinerary of the principal investigator;
- (2) the listing of the major activities related to the project;
- (3) several impressionistic comments related to livestock production and other relevant aspects of Guyanian society.

May 5 Arrival of Glenn Howze in Georgetown, Guyana

May 6-7 Meetings with Mr. John Brownman and Dr. Peter Fernandes concerning:

- (1) revision of questionnaire;
- (2) final plans for the execution of survey.

With regards to the first topic, both Mr. Brownman and Dr. Fernandes made a number of suggestions regarding revisions and additions to the questionnaire. The second subject largely concerned the order in which the survey would be conducted. It was determined that the Rupununi would be surveyed first; this was deemed advisable since the rains were expected at anytime and after the rains travel would be difficult.

During these two days Howze also met with Mr. Malory Davis,

Texas A&M, and Mr. Ralph May, Purdue University. The purposes of these meetings were (1) to gain input concerning the final version of the questionnaire and (2) to determine the extent to which each of the gentlemen were to be involved in the survey. Both May and Davis offered suggestions concerning the questionnaire, but neither was willing to commit time to the survey. Mr. Davis indicated that he would be in Guyana only a few days and that his agenda was filled. Mr. May said that while he would be in Guyana a month he thought that the entire period would be spend collecting marketing data; he did say that if time permitted and if his supervisor, Dr. K. White, approved he would be willing to be involved.

The final changes were made the evening of June 7 and Howze telephoned his office indicating changes so that the final version might be typed and copies produced.

May 8-9

Trip to Lethem by Howze to make arrangements for survey.

The purpose of this trip was to ascertain the problems which would be encountered in the Rupununi. During his visit, Howze met with Dr. L. Applewaithe, the veterinary officer, and various livestock assistants, public officials, and ranchers.

The chief problems identified were:

(1) Arrangements would need to be made for a land rover. It was pointed out that there were very few private cars for hire in Rupununi. It was suggested that Howze contact the World Bank people in Georgetown about using this vehicle.

(2) It was also pointed out that the roads were very bad and that, since rangers (livestock producers) live very far apart, only a few interviews could be conducted daily.

(3) It was suggested that Howze hire a guide since the roads were not marked.

(4) It was indicated that the guide should be able to drive and to speak both Mukusi and Wapisiana.

May 10 Trip made to Mon Repos stock farm. Before starting the survey Howze took the opportunity to visit Mon Repos to discuss the establishment of the dairy at that location. He talked with Dr. Sanford and Mr. Clarke.

May 11 Held brief meeting with Dr. Ramidit concerning livestock producers. He provided a list of most of the larger producers. Picked up Wilbur Weever at the airport. Weever is a student at Tuskegee from Guyana and is serving as one of the interviewers in the study. Weever's bag was lost on the flight; the bag contained half of the questionnaire. The other half was due to arrive with Mr. Duke Bourne, another Tuskegee student from Guyana.

May 12 Trip to Moblissa on the Linden Highway.
The purpose of this trip was to provide Howze an opportunity to visit the site of the other proposed dairy.
Sunday evening a meeting was held with Mr. Brownman to discuss the survey.

May 13-22 Trip to Rupununi for the purpose of conducting survey of livestock producers.

May 13 Howze and Weever arrived in Lethen when they were able to rent a Land Rover and hire a guide, Mr. Charles Hernandez, who had worked with villages on World Health Organization project. Hernandez knew the Tauchous and could speak the two major Amerindian languages of the area.

An anticipated problem emerged, the lack of fuel in the area. The Ministry of Agriculture was unable to supply fuel. At the suggestion of Dr. Applewaithe, several local storekeepers were contacted; they had none. Dr. Applewaith indicated that the Rupununi Development Company (RDC) would probably have gasoline and since we had planned to work the Southern Savannahs first anyway we decided to drive to Dadanawa Tuesday, buy fuel and then work the villages to the east and south of Dadanawa. The rest of Monday was spent in Mukusi village.

May 14 Tuesday we went to Dadanawa, stopping at two villages in route and interviewing livestock producers. When we arrived at Dadanawa we discovered that they also were out of fuel. Having enough fuel to return to Lethem, but not enough to visit any additional villages and then return, Howze decided to spend the night at Dadanawa and then return to Lethem and try to locate fuel.

May 15 Wednesday Weever and Hernandes caught a ride with the Chief of Police for the Rupununi to Sand Creek where they spent the day interviewing. Howze returned to Lethem. He picked up Bourne at the airport and discovered that his bag was also lost and that only one copy of the questionnaire was in our possession. After several hours of checking, a drum of gasoline was located. It provided about enough gas to enable the group to visit almost all of the villages and ranches. However, there was not enough to allow the interviewers to return to villages to interview persons missed. Howze and Bourne went to Sand Creek, picked up Weever and Hernandez, who had had a successful day interviewing and returned to Dadanawa. At Dadanawa Howze talked with

Dr. Frazer, his son Richard Frazer, and Mr. Humprees concerning the RDC and cattle operations in the Rupununi in general.

- May 16-17 Spent in the Amerindian villages of the Southern Savannahs. Lacking gasoline and accomodations (we did not want to use gas to return to Dadanawa) we interviewed livestock producers who happened to be in the villages at the time and then pushed on. We spent Thursday night in Ishalton and were back in Lethem Friday night. We visited the following villages: Shea, Maruranaw, Awariwawnan, Ishalton, Karandanawar, and Ambrose.
- May 18 The day was spent in the villages northeast of Lethem including Nappi, Marakarate, and Yuperkarri.
- May 19 Weever and Bourne spent the day in Lethem editing their interviews. Howze and Hernandez went to Moco Moco and Kumu interviewing livestock producers and visiting farms.
- May 20-21 Weever and Bourne returned to Georgetown to start the survey on the coast. They were instructed to interview every producer in a half mile section every five miles. This should provide a ten percent sample of the coast. Howze and Hernandez spent the day interviewing producers in the ranches and villages north of Lethem. We did not have enough gas to go all of the way to Annai. At Good Hope we were told that we might be able to buy gas in Brazil. We took a boat over and were able to get seven gallons, enough to allow us to go to Annui. During the two day period we were able to contact most of the producers in the North. All of the major villages and settlers were contacted.
- May 22 Returned to Georgetown.

- May 23 Visited New Amsterdam to check on Weever and Bourne's progress on the coast.
- They indicated that they were meeting with some resistance. Producers were questioning the legitimacy of the study. Howze made an appointment with Mr. Brownman to discuss the problem; Mr. Brownman's earliest free date was Monday, May 27.
- May 24 Trip to Crabwood Creek with return stop in New Amsterdam. The purpose of the trip was to identify the areas being surveyed on the coast.
- May 25-26 Howze spent two days reading material on livestock production in Guyana obtained from the national library.
- May 27-28 Interviewed in Berbice area. Mr. Brownman was unable to keep his appointment May 27th.
- May 29-30 Weever and Bourne continued their interviewing in Berbice area and continued to experience difficulties. Howze spent these two days at the University of Guyana reading relevant literature.
- May 31 Howze contacted Mr. Brownman to report problems. Meeting was arranged for June 1.
- Weever and Bourne spent the day interviewing on highway to airport.
- June 1 Meeting with Mr. Brownman and Dr. Fernandes. Meeting was held to discuss lack of cooperation of the producers on the coast with the survey. Bourne and Weever had indicated that the matter might be helped if livestock assistants in each of the areas were asked to introduce the interviewers to the producers. This was acceptable to Mr. Brownman and Dr. Fernandes. Dr. Fernandes suggested that we meet with Dr. Ramudit, Monday, June 3 and work out the details.

June 2 Howze spent the day editing interviews and finalizing the details for the final phases of data collection. An evening meeting was held with Mr. Joe Ritzen to discuss the Livestock Development Project.

June 3 A meeting was held with Dr. Ramudit. He agreed to contact veterinarians and livestock producers in each of the areas. Weever and Bourne spent the day interviewing poultry producers on the airport highway.

Howze spent the day in the Aid Memory Bank.

June 4 Weever and Bourne renewed their interviewing in the Berbice area with the assistance of the livestock assistants. Howze spent the day on personal matters in preparation for his departure to the United States.

At 7:00 p.m. Mr. Brownman was unable to attend meeting.

June 5 Howze departed for the United States.

Observations Concerning Cattle Production in Guyana

During his visits to various parts of Guyana and in talking with livestock producers and other knowledgeable persons, Howze gained a number of impressions of livestock production in Guyana. Some of them are as follows:

1. The livestock extension effort seems very much devoted to (1) enforcing rules and regulations concerning production and slaughter of animals and (2) the operation of government controlled livestock activities (stock farms, ranches, and dairies). Typical extension activities such as educational activities and veterinary services seem to have a tertiary emphasis. This is especially true for the Rupununi. The only contact that most (almost all) producers in the Rupununi have had with livestock offices has been for foot and mouth control and/or

inspection of animals prior to sale. While on the coast the situation seems better, the extension effort seem minimal.

2. There is very little animal husbandry practiced. Guyana's producers seem to lack even rudimentary knowledge about nutrition, health and other management subjects. On the coast owning livestock seems to be less of a commercial venture and more of a way of accumulating wealth. Animals are sold when cash is needed. In the Rupununi most producers have very little contact with their animals. Animals are left to roam freely; nothing is done to them. Once or twice a year some are rounded up for sale. While this is true of most operators it tends to be more true of the larger producers.
3. Government efforts at increasing livestock production seems to be directed toward government owned, greater corporate owned operations, or larger producers. There seems to be little effort to deal with small producers.
4. Livestock development schemes in the Rupununi seem to be devoted to bringing coastlanders over to settle the district rather than encouraging the Amerindians to develop the cattle industry.
5. Race and ethnic attitudes are apparently real problems in Guyana. The government and government personnel (Ministry of Agriculture employees) tend to be distrusted, even hated, by the East Indian and Amerindian population.