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**A PROGRAM GUIDE TO  
THE OFFICE OF AGRICULTURE  
BUREAU FOR RESEARCH AND DEVELOPMENT  
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT**

*November, 1991*

*Prepared by the:*  
Office of Agriculture  
Bureau for Research and Development  
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 Bureau for Research and Development  
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OFFICE OF AGRICULTURE  
BUREAU FOR RESEARCH AND DEVELOPMENT  
TECHNICAL STAFF BIOGRAPHICAL PROFILES

**Dean Alter - Agribusiness Specialist**

**Education:** M.B.A. - Masters in Business Administration (1972) from University of Hawaii; B.A. (1971) South Asian Regional Studies and Economics from Haverford College and University of Pennsylvania.  
**Experience:** Agricultural Project Manager in Bangladesh, Pakistan, and Washington, D.C.  
**Languages:** Hindi, Urdu, and Bengali.

**Kenneth H. Baum - Natural Resource Economist**

**Education:** Ph.D. - Agricultural Economics (1978); M.S. - Economics/Urban Studies (1973), University of Chicago, Iowa State University, B.S. - Economics (1971) Northwestern University.  
**Experience:** Assistant Professor, Virginia Tech; Section Leader, Farm Costs and Returns, Chief, Livestock Branch, Assistant Director, Resources and Technology Division, ERS/USDA; Visiting Senior Resource Economist, World Bank.

**Robert B. Bertram - Plant Geneticist**

**Education:** Doctoral Candidate - Botany, University of Maryland; M.A. - Middle East Economic Development, Georgetown University (1982); M.Sc. - Plant Breeding, University of Minnesota (1978); B.Sci. - Plant Sciences, University of California, Davis (1976).  
**Experience:** Research Officer, International Agricultural Research Centers Staff (1983-present), RD/AGR; Program Officer, Office of International Cooperation and Development, USDA (1980-1982); Research Associate, International Center for Agricultural Research in the Dry Areas, Aleppo, Syria (1978-1979).  
**Languages:** French, Arabic

**Harvey D. Blackburn - Livestock Systems Analyst**

**Education:** Ph.D. - Animal Breeding and Genetics (1984), Texas A&M University, M.S. - Animal Science (1978), University of Wyoming; B.S. - Animal Science (1976) Colorado State University.  
**Experience:** Research Scientist and Co Principal Investigator of the Small Ruminant CRSP at Texas A&M University Development and application of computer simulation models in Kenya, Botswana, Brazil and Peru.

**James W. Bonner - Agroecologist**

**Ph.D.** Plant Physiology (1976), University of Florida; **M.S.** Horticulture (1972), University of Hawaii; **B.S.** Natural Resource Management, University of Rhode Island (1969).  
**Experience:** Afghanistan (1976-78), Sri Lanka (1978-85) Agricultural Development Officer; Senegal (1986-90) Supervisory Agriculture Development Officer  
**Languages:** French

**Chris Brown - Program Leader, Agricultural Policy**

**Education:** Ph.D. Economics (1989), M.A. Agricultural and International Finance Economics (1981), Fletcher School, Tufts University. B.A. International Relations, Occidental College  
**Experience:** Indonesia/South Pacific Desk Officer (1987-90), Project Development Officer, Liberia and Mauritania (1983-87).  
**Languages:** French (bilingual); Urdu/Hindi, Farsi and Arabic (spoken).

- Judith Chambers - RSSA Biotechnology Specialist**  
**Education:** Ph.D. - Genetics (1986), University of Pennsylvania, B.A. Biology, Immaculata College (1977)  
**Experience:** Genetic toxicology and risk assessment of agricultural chemicals, Rohm and Haas Company; genetic engineering of avian viruses, University of Pennsylvania; genetic engineering of biopesticide bacterial toxin genes, Ecogen, Inc. AAAS Science and Diplomacy Fellow.
- Joel I. Cohen - Biotechnology and Plant Germplasm Genetist**  
**Education:** Ph.D. - Plant Breeding and Molecular Genetics (1982), B.S. Plant and Soil Sciences, both from University of Massachusetts.  
**Experience:** Research Station Manager and Biotech Liaison Officer, Dekalb-Pfizer Genetics; Peace Corps-Nepal; AAAS Fellow.  
**A.I.D.:** R&D/AGR/AP, USAID/India (TDY)  
**Languages:** French and Nepalese
- Daniel Connolly - RSSA Foreign Affairs Specialist**  
**Education:** B.S. - Business/Economics (1987)  
**Experience -** Legislative Aide, U.S. House of Representatives (1988-89)  
Tanzania - Fisheries development (Summer 1986)
- Ralph W. Cummings, Jr. - Coordinator, IARC Staff**  
**Education:** Ph.D. - Economics (1965), University of Michigan, Ann Arbor; B.A. - Economics (1960), University of North Carolina at Chapel Hill  
**Experience:** Faculty, University of Illinois (1965-70); Chief, Agricultural Economics Division, USAID/India (1965-69); Advisor, Agricultural Economics, BAPPENAS (Indonesia) (1970-72); Agricultural Economist, The Rockefeller Foundation (1972-82); A.I.D. (since 1982)  
**Author:** Several Books and published articles  
**TDYs (with A.I.D.):** Philippines, Thailand, Taiwan (AVRDC), Rwanda, Caribbean (CARDI), Burkina Faso (SAFGRAD), Central American (CATIE); extensive travel, primarily in Asia and Latin America with Rockefeller Foundation  
**Languages:** Spanish (some)
- Vincent Cusumano - Chief, Economic Policy and Sector Analysis Division, Senior Agricultural Economist**  
**Education:** Ph.D. - Agricultural Economics (1974), M.A. - Economics (1970) University of Kentucky; B.S. Bradley University (1966)  
**Experience:** Peace Corps - Chile, Food Foundation Fellow - Peru, Consultant (OAS) - Brazil, Project Economist, Brazil (FAO), Assistant Professor of Agricultural Economics.  
**A.I.D.:** LAC/DR/RD. Agricultural Economist; USAID/Ecuador, Rural Development Officer, USAID/Haiti, Supervisory Agriculture Development Officer; R&D/AGR.  
**Languages:** Spanish, French, Portuguese and Italian.
- Dana G. Dalrymple - Research Advisor**  
**Education:** Ph.D. - Agricultural Economics (1962), Michigan State University; M.S. - Agricultural Economics (1956), Cornell University; B.S. - Pomology (1954), Cornell University  
**Experience:** Agricultural Economist, Office of International Cooperation and Development, USDA (1967-72); Marketing Economist, Federal Extension Service, USDA (1962-67); Extension Marketing Economist, University of Connecticut (1956-59); TDYs in Bangladesh, Pakistan, Tunisia  
**A.I.D. -** Research Advisor to the IARC Staff, R&D/AGR (1974 - Present); Agricultural Economist, PPC and R&D (1972-78).

**Tejpal S. Gill** - Senior Agronomist, Chief, Renewable Natural Resource Division  
Ph.D. - Agronomy (1954), Rutgers University, M.S. - Plant Breeding (1950) Utah State University; B.S. - Agriculture (1948)  
**Experience:** U.S./ International Agricultural R&D companies (1954-71).  
**A.I.D.:** S&T/AGR/RNR R&D in sustainable natural resources (soil, water and fertilizer); and computerized agrotechnology transference and decision making mechanisms (1971-present).  
**Languages:** Urdu, Hindi and Punjabi.

**Robert C. Hedlund** - Entomologist/Integrated Pest Management  
**Education:** Ph.D. - Entomology (1974) Pennsylvania State University; M.S. - Entomology (1967) University of Kentucky; B.A. Biology (1964) Asbury College.  
**Experience:** Medical Entomologist, U.S. Army; Microbial Control of Mosquitos, Florida; Research Entomologist, USDA/ARS, Delaware and France; USDA/OICS Collaborative Research Program Management, Washington and New Delhi.  
**Languages:** French

**Harvey Hortik** - Senior Horticulturist and Plant Physiologist  
**Education:** Ph.D. & M.S. - Horticulture/Plant Physiology (1962), B.S. - Horticultural Food Crops (1957), University of Illinois.  
**Experience:** Libby foods, Plant Physiologist/Crop Ecologist, Assoc. Direc. & Director Ag Research (U.S. and Int'l.); Nestle Foods, Director Ag Research.  
**A.I.D.:** R&D/AGR/AP - Sr. Horticulturist/Division Chief (1986 - present)

**Dianne N. Janczewski** - Geneticist  
**Education:** Ph.D. - Zoology/Genetics (1991), University of Maryland; M.S. Population Ecology/Genetics, George Mason University (1989); B.S. Biology, Virginia Polytechnic Institute and State University (1981).  
**Experience** - Research Associate 1985-1991 Laboratory of Viral Carcinogenesis/Department of Genetics/National Cancer Institute/NIH.

**Edward Lijewski** - Program Analyst  
**Education:** B.A. English Literature (1963), University of St. Thomas; Area Studies Latin America (1964); Area Studies, Southeast Asia (1966); Economic/Financial/Commercial Studies Foreign Service Institute (FSI), (1971); Economics-Finance of Capital Development (FSI), (1972).  
**Experience:** Peace Corps, Bolivia, 1964-66.  
**A.I.D.:** Rural Development/Refugee Resettlement, Vietnam; Staff, Vietnam Training Center (FSI); Private Enterprise Officer, LAC/DR; Development Banks Division, LAC/DR; Financial Analyst, PPC; Program Review Officer, PPC; Program Analyst, Rural/Agricultural Development, PPC.  
**Languages:** Spanish, French, Vietnamese.

**Chung-Chi Lu** - Agriculture Economist  
**Education:** Ph.D. - Agriculture Economics (1973), M.S. - Agricultural Economics (1968), both from Iowa State University.  
**Experience:** Asst. Prof. of Econ., Kentucky; Consultant Economist/Agr. Economist to IBRD  
**A.I.D.:** ASIA/TR/AFD, USAID/Bangladesh, R&D/AGR.  
**Languages:** Japanese and Chinese.

**John Malcolm - Senior Soil and Fertilizer Specialist**  
Education: Ph.D. - Soil Science (1948), M.S. - Soil Science (1945),  
B.S. - Soil Science (1943) all from Rutgers University.  
Experience: University of Florida, FAO-Ghana, Soil fertility management  
for horticulture, tropical field crop research, fertilizer control,  
program planning, and use.  
A.I.D.: El Salvador, India and R&D/AGR/RNR.  
Languages: Spanish

**Frank Mertens - Agronomist/Ecologist**  
Education: Ph.D. - Ecology (1973), University California/Davis; B.S. -  
International Agricultural Development/Agronomy/Vegetable Crops (1971)  
Experience: Irrigation projects - Libya and Nigeria; Development of  
pilot farms-Oman and Quatar; Rubber plantation development - Liberia.  
A.I.D.: USAID Ghana, USAID Yemen, R&D/AGR/AP.  
Languages: German, Dutch

**Raymond E. Meyer - Soil and Water Management Specialist**  
Education: Ph.D. - Soil Physics (1963). Oklahoma State University, B.S.  
- Agronomy, Kansas State.  
Experience: Consultant; irrigation agronomist Utah State - Peru;  
agronomist International Potato Center-Peru; professor in soil physics -  
Peru and Texas Tech; PCV/Peru; Research Plant Physiologist USDA; farmer.  
A.I.D.: LAC/DR/RD, R&D/AGR/RNR  
Languages: Spanish

**H. Patrick Peterson - Director of the Office of Agriculture**  
Education: Ph.D. - Agricultural Economics (1972), University of  
Wisconsin; M.A. Agricultural Economics (1971), University of  
Wisconsin; M.S. Agriculture (1970), University of Florida; B.A.  
History, Government (1964), Florida State University  
Experience: Liberia (1964-66) Peace Corps Volunteer. Jamaica (1968-69)  
IBRD consultant.  
A.I.D. - Economist AFR (1974-76), PPC (1976-78). Senior Agricultural  
Officer Jamaica (1978-80), Yeman (1980-84), Bangladesh (1984-87),  
Pakistan (1987-91).  
Languages: French and Arabic

**Robert E. Schaffert - Sr. Agronomist**  
Education: Ph.D. - Plant Breeding and Genetics (1972), Purdue  
University; M.S. - Plant Breeding and Genetics (1967), B.S. - Agronomy  
(1966), University of Nebraska.  
Experience: Teaching Agronomy and Genetics, Purdue University;  
Strengthening Agricultural Research - Brazil; National Sorghum and Maize  
Research Coordinator, EMBRAPA/IICA/World Bank-Brazil.  
A.I.D.: R&D/AGR/AP.  
Languages: Portuguese and Spanish

**Loren L. Schulze - Agronomist/Special Assistant to the Director**  
Education: Ph.D. Plant Physiology (1978), M.S. - Agronomy (1976),  
University of Georgia; B.S. - Agronomy (1969), University of Nebraska.  
Experience: - Peace Corps - Colombia; Instructor of Agronomy, University  
of Georgia.  
A.I.D.: Agricultural Development Officer - USAID/Peru. Grain Legume  
Specialist - S&T/AGR/AP  
Languages: Spanish

**Allan Showler - Integrated Pest Management Specialist**

**Education:** Ph.D. - Integrated Pest Management (1987) Louisiana State University, M.S. - Plant Protection and Pest Management (1981), B.S. - Entomology (1979), University of California-Davis

**Experience:** Peace Corps - Tunisia, Abbott Labs Research & Development Scientist, AAAS Fellow/OFDA.

**A.I.D.:** - TDYS - Tunisia, Algeria, Egypt, Morocco, Sudan, Chad, Mali, Niger, Senegal, Mauritania, Bangladesh, Italy.

**Languages:** Arabic, French

**Charles Sloger - Soil Microbiologist**

**Education:** Ph.D. - Plant Physiology (1968) from University of Florida, M.S. - Biology (1963) and B.S. - Biology (1961) from State University of New York at Albany.

**Experience:** Biological Nitrogen Fixation specialist - USDA/ARS (1968-89)

**A.I.D.:** R&D/AGR/RNR - Biological Nitrogen Fixation Specialist.

**Lamarr B. Trott - Senior Fisheries Advisor**

**Education:** Ph.D. - Zoology, (1967), UCLA; M.S., B.A. - Biology, (1960, 1967), both from Florida State University; A.A. (1955), St. Petersburg J.C.

**Experience:** Science and Environment, National Marine Fisheries Service (Director, Dep. Director & Division Chief); Marine Science Lab., Chinese University of Hong Kong; Visiting Professor, University of Hawaii; Asst. Professor, College of Guam

**A.I.D.:** Indonesia, Philippines, Thailand, South Pacific, Costa Rica, Guatemala, W. Africa (TDYs); S&T/AGR/RNR

**Languages:** German, Cantonese (both minimal)

**Joyce M. Turk - Animal Scientist**

**Education:** M.S. - Animal Science/Nutrition (1986), Cornell University; B.S. - Livestock Production, (1970) The Ohio State University.

**Experience:** Livestock Advisor - Sudan, Kenya, Morocco, Peru, Indonesia: Evaluation-Kenya; Extension-Philippines; Peace Corps; Vet Technician.

**A.I.D.:** AFR/EA - Sudan, AFR/TR/ARD, USAID/Sudan, R&D/AGR/AP.

**Language:** Arabic

**Benjamin Waite - Plant Pathologist**

**Education:** Ph.D. - Plant Pathology (1961), M.S. - Entomology (1951), B.S. - Plant Pathology; all from University of California, Berkeley.

**Experience:** Plant Pathology Research and Horticulture; Latin American countries, Kenya.

**Languages:** Spanish

**William Phillip Warren - Agriculture & Livestock**

**Education:** Ph.D. - Nutrition (Livestock), 1976, University of Missouri, M.S. - Dairy Science, 1972, University of Missouri, B.A. - Agriculture Education, 1966, University of Missouri.

**Experience:** VO-AG Instructor; University of Missouri, Dairy Department, Research & Teaching Asst; Agricultural Advisor, Vietnam.

**A.I.D.:** Project Management Officer, Agriculture and Livestock Projects, Pakistan, Tanzania, Somalia and Bangladesh; Senior Livestock Officer, S&T/AGR, LAC/DR/ARD.

**Languages:** Vietnamese (limited)

**SECTION II**  
**AGRICULTURAL PRODUCTION DIVISION**

**A. CROP RESOURCES**

PROJECT TITLE: Spring X Winter Wheat

PROJECT #: 931-0621

COOP. AGREEM #: DAN-0621-A-00-0048-00

Duration: FY 1976 - FY 1995

Termination current agreement: 6/30/95

PURPOSE: To increase and sustain food production in developing countries with emphasis on small farms and adverse environmental constraints.

MEANS OF ACCESS: A buy-in to this project can provide: (1) short-and medium-term research and extension training on cereal production; (2) provide enhanced wheat germplasm tolerant to biotic and abiotic stresses; and (3) develop in-country symposia focusing on all phases of cereal production. Services under this project may be accessed through Purchase Orders to Oregon State University for tasks costing less than \$25,000 and under a BOA for tasks costing more than \$25,000.

GEOGRAPHICAL FOCUS: Worldwide, emphasis in arid/semiarid and rainfed zones.

DESCRIPTION: The project consists of four activities: (1) collect, evaluate, enhance and disseminate wheat and barley germplasm; (2) provide short-term and graduate training; (3) insure free exchange of germplasm between developing countries and regional and international cereal improvement projects; and (4) serve as a resource center and provide symposia all on aspects of cereal production, marketing and end uses.

Major accomplishments include: (1) currently, about 10 million hectares are growing cultivars from spring and winter wheat programs (researchers established that systematically crossed winter and spring gene pools enhances genetic variability for most agronomic traits and especially those associated with stress environments); (2) linkages established with 45 countries and 110 wheat breeding programs, with more than 10,500 advanced lines are now available for crossings; (3) 87 students (50 from LDCs) have received M.S. and Ph.D. degrees; (4) a number of non-degree programs held for LDC senior scientists; (5) three in-country symposia held; and (6) newer approaches using biotechnology to enhance genetic variability to specific limiting factors in wheat disseminated.

The following documents are available for distribution on request: (1) results of the International Wheat X Spring Wheat Screening Nursery, OSU-CIMMYT-USAID, from 1973 to present; (2) 51 referred publications since 1980; (3) proceeding from three in-country symposia (in two languages); (4) 84 M.S. and Ph.D. theses since 1973; and (5) abstracts of national and international meetings.

CONTACTS FOR SUPPORT

Project Director

Dr. Warren Kronstad  
Crop Science Department  
Oregon State University  
Corvallis, OR 97331  
Phone: (503) 737-3728  
FAX: (503) 737-1589

Project Officer/Monitor

Mr. Frank Mertens  
R&D/AGR/AP  
SA-18, Rm. 420-D  
Washington, D.C. 20523-1809  
Phone: (703) 875-4245  
FAX: (703) 875-5344

PROJECT TITLE: Sorghum and Millet CRSP (INTSORMIL)

PROJECT #: 931-1254

GRANT #: DAN-1254-G-00-0021-00

Duration: FY 1979 - Anticipated  
to be a 15-25 year  
project

Termination current agreement: 6/30/95

PURPOSE: To improve the overall quality of life, both economically and nutritionally, in LDCs where sorghum and millet are principal food crops through increasing sustainable production of these crops.

MEANS OF ACCESS: A buy-in to this project can provide short, medium and long term technical support services for sustainable agricultural programs involving sorghum and millet including: variety development, water and soil management, insect and disease management, cultural practices, food quality, utilization and socio-economic studies. In addition, this CRSP is capable of designing, implementing and managing degree training programs, managing collaborative research activities, enhancing research capability of LDC institutions and designing baseline data surveys.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: The Sorghum/Millet CRSP is a U.S.-LDC collaborative research network which enhances the ability of U.S. and LDC institutions to alleviate constraints to sorghum and millet production, marketing and utilization through the development of appropriate and sustainable technology. The Sorghum/Millet CRSP works collaboratively with scientists at national research institutions in the ecogeographic zones of East, West and Southern Africa, Latin America and Asia. Major program components are sorghum and millet agronomy, breeding, biotechnology, economics, entomology, food quality and utilization, pathology, physiology, and resource management.

Some major accomplishments of the Sorghum/Millet CRSP are: (1) Development of improved sorghum and millet varieties, hybrids and germplasm with higher human food quality traits, striga resistance, drought tolerance, bird resistance and insect and disease resistance; (2) Development of improved tillage programs, crop residue practices, and water harvesting techniques; (3) Development of insect and disease management programs; (4) Establishment of small food quality and utilization laboratories; (5) Identification of sorghum root exudate which stimulates striga germination and rapid laboratory striga screening methods; (6) Development of alternative food uses; and, (7) Training of over 500 LDC scientists to the MS and PhD levels in relevant aspects of sorghum and millet improvement. Upon request the Sorghum/Millet CRSP can provide: annual reports, Sorghum Quality Laboratory Manual for West Africa, proceedings from workshops and conferences, scientific articles and technical series reports on different topics.

CONTACTS FOR SUPPORT

Project Director

Dr. John M. Yohe  
INTSORMIL, Univ. of Nebraska  
Room 54, Nebraska Center  
Lincoln, NE 68583-0948  
Phone: (402) 472-6032  
FAX: (402) 472-7978

Project Officer/Monitor

Dr. Robert E. Schaffert  
R&D/AGR/AP  
SA-18, Rm. 420-A  
Washington, D.C. 20523-1809  
Phone: (703) 875-4320  
FAX: (703) 875-5344

PROJECT TITLE: Bean/Cowpea CRSP

PROJECT #: 931-1310

GRANT #: DAN-1310-G-SS-6008-00

Duration: FY 1980 - Anticipated to be  
a 15-25 year project

PURPOSE: To help organize and mobilize the financial and human resources available to: mount a multi-institutional US/LDC collaborative effort of research and training related to beans and cowpeas; improve the living conditions and income of small farm producers in developing countries; and increase the availability of low-cost, nutritious food for the rural and urban poor.

MEANS OF ACCESS: USAID missions can access specialized services through a grant to Michigan State University or use the Basic Ordering Agreement of this project.

GEOGRAPHICAL FOCUS: Africa and Latin America/Caribbean.

DESCRIPTION: The Bean/Cowpea CRSP is conducting research on the major constraints to bean and cowpea production and utilization. These include: (1) disease and insects; (2) growth and development stresses; (3) sustainable agriculture; (4) socio-cultural factors; (5) storage, food preparation and nutrition; and (6) farming systems. Short-term and degree training programs, workshops and seminars are also components of this CRSP. The role of women as producers, processors and consumers as well as in research and training is also the focus of the project.

The major accomplishments include: (1) dramatic increases in cowpea production in Senegal, (2) germplasm collection and evaluation for major bean and cowpea strains, (3) new varieties with increased yield and multiple disease resistance, (4) low-cost seed storage technologies, (5) collection of parasites to be used in biological control of insect pests., (6) new bean varieties with improved nitrogen fixation capacity, (7) non-race specific rust resistance, and (8) new varieties with improved nutritional value and reduced firewood/fuel requirements.

The Bean/Cowpea CRSP has published annual reports, Research Highlights, newsletters, workshop and seminar proceedings and participating scientists have published numerous journal articles. U.S. institutions include: Michigan State University, Purdue University, University of Georgia, Cornell University, University of Wisconsin, Boyce Thompson Institute, University of California-Riverside, University of California-Davis, University of Minnesota, University of Nebraska-Lincoln, University of Puerto Rico and Washington State University.

CONTACTS FOR SUPPORT

Project Director

Dr. Pat Barnes-McConnell  
200 Center for International Programs  
Michigan State University  
East Lansing, MI 48824-1035  
Phone: (517)-355-4693  
FAX: (517)-353-9732

Project Officer

Harvey Hortik  
R&D/AGR/AP  
Room 420C, SA-18  
Washington, D.C. 20523-1809  
Phone: (703)-875-4304  
FAX: (703)-875-5344

PROJECT TITLE: Storage and Processing of Fruits and Vegetables

PROJECT #: 931-1323  
Duration: FY 1981 - FY 1992

COOP. AGREEM. #: DAN-1323-A-00-5093-00  
Termination current agreement: 12/31/92

PURPOSE: To conserve perishable agricultural commodities after harvest by improving LDC postharvest handling and marketing systems, to strengthen LDC institutions and staff, to implement economically sound and environmentally safe postharvest programs and to increase the University of Idaho and its Postharvest Institute for Perishables (PIP) resource base for networking with U.S., LDC, and international institutions.

MEANS OF ACCESS: Buy-ins to this project can be made through a Basic Ordering Agreement, Purchase Orders and a grant to the University of Idaho. Requests for information and advice can be made directly to the PIP Information Center (PIPIC). PIP is a subcontractor on the S&T/RD Agricultural Marketing Improvement Strategies (AMIS) project so requests for marketing research and technical assistance can be made through the AMIS buy-in mechanism. PIP also provides services through direct contracts with non-USAID organizations.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: PIP: (1) conducts adaptive research on postharvest handling and marketing problems of perishable fruits and vegetables; (2) provides technical assistance to Missions and LDC organizations; (3) trains LDC personnel; and, (4) provides printed information on the postharvest handling and marketing of perishable commodities through PIPIC.

PIP has: (1) completed over 90 technical assistance projects in 30 countries; (2) completed 12 adaptive research programs; (3) conducted 28 training workshops; and (4) supported 12 graduate students. Additionally, PIPIC has accumulated nearly 12,000 postharvest documents and has distributed 75,000 copies to nearly 900 clients in 125 countries.

Missions should recognize PIP as a resource available to help them train personnel and develop sustainable strategies to better utilize existing agricultural production. Improved postharvest handling and marketing result in greater national and individual incomes, improved nutrition, new products and markets, increased private sector development and improved welfare for LDC farmers and food handlers.

CONTACTS FOR SUPPORT

Project Director  
Mr. Harvey Neese  
Post Harvest Institute  
for Perishables  
129 West Third Street  
University of Idaho  
Moscow, Idaho 83843  
Phone: (208) 885-6791  
FAX: (208) 885-6654

Project Officer/Monitor  
Dr. Harvey J. Hortik  
R&D/AGR/AP  
SA-18, Rm. 420-C  
Washington, D.C. 20523-1809  
Phone: (703) 875-6304  
FAX: (703) 875-5344

PROJECT TITLE: Peanut CRSP

PROJECT #: 936-4048

GRANT #: DAN-4048-G-00-0041-00

Duration: FY 1982 - Anticipated  
to be a 15-25 year  
project

Termination current agreement: 6/30/95

PURPOSE: To improve the availability and consumption of food, increase incomes, and maintain and enhance the natural resource base through the development of a peanut research base in both the U.S. and host countries that can bring relief to constraints to peanut production and utilization.

MEANS OF ACCESS: Missions can access specialized through bilateral arrangements with the University of Georgia. A Basic Ordering Agreement has been negotiated and is in place between A.I.D. and the University of Georgia.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: The Peanut CRSP conducts research, in both host countries and the U.S., on the major constraints to peanut production and utilization. These include: (1) low yielding varieties; (2) mycotoxin hazards to health; (3) pest damage to crops; (4) inadequate food supplies; (5) soil microbiological barriers; and (6) resource management practices. The Peanut CRSP coordinates complementary activities with the ICRISAT programs in Asia and Semiarid Tropical Africa, IDRC and ACIAR in Asia and CARDI in the Caribbean. Degree training, non-degree training, short courses, and workshops prepare host country collaborators and stimulate technology transfer.

The major accomplishments include: (1) the varietal research program released three new varieties in Thailand, three in the Philippines, one in the Caribbean, three in North Carolina, two in Texas, with others in final stages of evaluation in Texas, Senegal, Nigeria and Burkina Faso; (2) advancements are being made toward development of varietal resistance to aflatoxin-producing fungi; (3) germplasm with multi-pest and multi-location resistances to major insects and viruses has been developed in collaboration with the Philippines, Thailand, Burkina Faso, Nigeria, Georgia, Texas and North Carolina; IPM improvements are being made with resistant varieties, bio-control agents, and cultural practices to reduce chemical inputs; (4) improved storage and selection for aflatoxin-free peanuts have resulted from hot water blanching; (5) a synergistic effect with specific varieties and selected Rhizobium species resulted in significant yield increases due to improved nitrogen-fixation; and a highly adsorbent clay identified to bind and remove aflatoxin from village processed peanut oil and meal fed to animals has been developed; (6) new food products such as cheese-flavored peanut spread and peanut enriched wheat/sorghum flour to improve dietary intake.

The Peanut CRSP has published annual reports, research publications, journal articles, workshop and seminar proceedings and the International Arachis Newsletter in collaboration with ICRISAT. U.S. institutions include the University of Georgia as the Management Entity, and Alabama A&M, Georgia, North Carolina State and Texas A&M as collaborating institutions in the U.S.

CONTACTS FOR SUPPORT

Project Director

Dr. David G. Cummins  
University of Georgia  
Georgia Experiment Station  
Griffin, GA 30223-1797  
Phone: (404) 228-7312  
FAX: (404) 228-7270

Project Officer/Monitor

Dr. Robert E. Schaifert  
R&D/AGR/AP  
SA-18, Rm. 420-A  
Washington, D.C. 20523-1809  
Phone: (703) 875-4320  
FAX: (703) 875-5344

**PROJECT TITLE: Soybean Utilization and Research**

**PROJECT #:** 931-4132  
**Duration:** FY 1985 - FY 1991

**COOP, AGREEM #:** DAN-4132-A-00-0038-00  
**Termination current agreement:** 12/31/92

**PURPOSE:** Develop small-scale soybean processing technologies and promote their use by agribusiness in LDCs to enhance indigenous foods and feeds and to improved employment and nutrition.

**MEANS OF ACCESS:** Consulting with agribusiness and conducting collaborative research, conducting specialized training program, and providing technical information for government organizations are activities which can be arranged with the Project Director and/or Monitor. These organizations are activities which can be arranged with the Project Director and/or Monitor. These services may be accessed through Purchase Orders to the University of Illinois at Urbana-Champaign (UIUC) for tasks costing less than \$25,000 and under a BOA for tasks costing more than \$25,000.

**GEOGRAPHICAL FOCUS:** Worldwide

**DESCRIPTION:** The International Soybean Program (INTSOY) is headquartered at the University of Illinois (UIUC) the world's premier soybean research center. INTSOY has a small core of full-time staff in several disciplines and draws on specialized expertise in several departments in the College of Agriculture. Among the major achievements are the following. (1) Extrusion and mechanical expelling equipment have been adapted to efficiently extract edible oil from soybeans and produce a food-grade, high-protein meal for food and feed. The capacity of commercially available systems range from 700 to 2500 pounds per hour at a cost ranging from \$100,000 to \$300,000, depending on the capacity and the degree of refining of the final products. Commercial extrusion/expelling plants are now operational in several countries of Asia, Africa and North America. (2) An improved quality soymilk and dairy analogs such as ice cream and yogurt have been developed. Technical advice has been given to entrepreneurs in many countries. (3) Techniques for harvesting and processing vegetable soybeans have been developed. (4) Home or village-level processing vegetable soybeans techniques have developed and refined. (5) Extensive training has been conducted through annual short courses, specialized non-degree and graduate training at UIUC, and through workshops tailor made for individual countries or regions. Feasibility studies of the above processing and utilization for human and animal consumption are also available.

A complete series of technical pamphlets, reports, and special publications are available for distribution. Equipment specifications for soybean processing and utilization for human and animal consumption are also available.

**CONTACTS FOR SUPPORT**

**Project Director**  
Dr. Harold Kauffman  
Intl. Soybean Program (INTSOY)  
113 Mumford Hall,  
University of Illinois  
Urbana, IL 61801  
Phone: (217) 333-6422  
FAX: (503) 333-5838  
Telex: 20657

**Project Officer/Monitor**  
Dr. Frank Mertens  
R&D/AGR/AP  
SA-18, Rm. 420-D  
Washington, D.C. 20523-1809  
Phone #: (703) 875-4245  
FAX: (703) 875-5344

**PROJECT TITLE: Collaborative Research and Special Constraints Project  
for International Agricultural Research Centers**

**PROJECT #: 936-4136  
Duration: FY 1986 - FY 1995**

**COOP. AGREEM. #: BST-4136-P-AG-5083-00  
Termination current agreement: 7/30/95**

**PURPOSE:** To provide, as required, scientists and technological resources in the U.S. agricultural science community to the international agricultural research center (IAPC) network.

**MEANS OF ACCESS:** This project addresses exclusively research constraints for the International Agricultural Research Centers.

**GEOGRAPHICAL FOCUS:** Worldwide.

**DESCRIPTION:** This project awards small research grants (up to \$90,000) to U.S. researchers to solve research constraints of the IARCs.

The project awarded 35 grants to 28 different universities for collaborative research with 11 IARCs. The project committee evaluates, annually, the research constraints of the IARCs and invites U.S. institutions to submit proposals which are then evaluated and graded. Research grants are awarded, subject to availability of funds, usually five per year. Projects are for up to three years in length and amount to not more than \$93,000. The project strengthens and increases the research network between the IARCs and U.S. institutions and familiarizes researchers with LDC research problems.

**CONTACTS FOR SUPPORT**

**Project Director**  
Dr. Samuel Wiggins  
USDA/CSRS  
Aerospace Building  
901 D Street, S.W.  
Washington, D.C. 20523  
Phone: (202) 401-4202  
FAX: (202) 401-6488

**Project Officer/Monitor**  
Frank Mertens  
R&D/AGR/AP  
SA-18, Rm. 420-C  
Washington, D.C. 20523-1809  
Phone: (703) 875-4245  
FAX: (703) 875-5344

PROJECT TITLE: IPM and Environmental Protection, Including Bio-control

PROJECT #: 936-4142

CONTRACT #: DAN-4142-C-00-5122-00

Duration: FY 1985 - FY 1991

Termination current agreement: 12/30/91

PURPOSE: Provide technical assistance, training, research and networking to LDCs in the areas of pest and pesticide management.

MEANS OF ACQUISITION: Buy-ins through contracts, purchase orders, direct contracts.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: The project conducts regional seminar/workshops in pest and pesticide management, training courses in crop loss assessment, weed technology and pesticide residue analyses; assists in project planning in crop protection as related to A.I.D. country projects; conducts train-the-trainer programs in pesticide safety; and prepares environmental assessments for clearance of pesticides in country projects.

The main recent accomplishments of the project include: (1) a Seminar/Workshop on Biological Control Caribbean Basin Nations in Jamaica in collaboration with CARDI, UWI and CIBC; (2) conducted a Seminar/Workshop on Pest and Pesticide Management in Bangkok, Thailand, in collaboration with GTZ, FAO, IRDC and IRRI; (3) Highland Agricultural Development Project in Guatemala; (4) conducted Programmatic Environmental Assessments for Bont Tick Program (Caribbean), Mediterranean Fruit Fly Eradication (Central America), Desert Locust (Africa); (5) provided technical backstopping for locust and grasshopper control program in Africa; (6) conducted Pesticide Disposal Studies (East Africa, South Pacific and Asia); and (7) supported training courses in pesticide safe use, weed control, pesticide residue analysis, crop loss assessment, integrated pest management and microcomputer use in pest management in Africa, Middle East and Latin America; (8) developed eight collaborative research projects in pest management between NARP and U.S. universities.

Additionally, the project funded the Nematology Newsletter in cooperation with North Carolina State University.

CONTACTS FOR SUPPORT

Project Director  
Dr. Allen Steinhauer  
Consortium for International  
Crop Protection  
4321 Hartwick Road, Suite 404  
College Park, MD 20740  
Phone: (301) 403-4223  
FAX: (301) 403-4226

Project Officer/Monitor  
Dr. Harvey J. Hortik/  
Dr. Ben Waite  
R&D/AGR/AP  
SA-1C, Rm. 420  
Washington, D.C. 20523-1809  
Phone: (703) 875-4324  
FAX: (703) 875-5344

PROJECT TITLE: Improved Seed Production and Utilization R&D

PROJECT #: 936-4143

COOP. AGREEM. #: DAN-413-A-00-6047-00

Duration: FY 1986 - FY 1993

Termination current agreement: 7/15/93

PURPOSE: To improve capabilities in the LDCs for the efficient production, conditioning, distribution and utilization of seeds of improved food and feed crop varieties.

MEANS OF ACCESS: Collaborative research and development, in-depth and special training programs, informational services and networking arranged through direct contact with Project Director and/or Officer. Technical assistance, advisory services, in-country and regional training and major technology transfer tasks, accessed through Purchase Orders to Mississippi State University (MSU) for tasks costing less than \$25,000, and under Basic Ordering Agreement for tasks costing more than \$25,000.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: This project has five components: (1) research and development related to seed production and utilization in LDCs; (2) degree (BS and PhD) and special training programs at MSU; (3) in-country, regional and in-service training and workshops in LDCs; (4) technology transfer and informational services; (5) networking and collaboration with other projects, the IARCS, LDC institutions, and others; and (6) technical assistance on seed program/industry development including analyses of existing programs, feasibility studies, design and specification of facilities and organization structures, related extension and privatization.

Activities under the present project and its predecessors since 1958, had a major influence on the seed program/industry in more than 25 LDCs, and substantial influence in 10 other LDCs. Most program/industry leaders and seed specialists in LDCs received training either at MSU, or in-country and regional courses/workshops organized by MSU. Project staff have also been involved in many seed projects financed by other donors. For 34 years the project has been the main vehicle for transfer and adaptation of the essential appropriate technology for seed production, conditioning and storage in LDCs, especially those in humid tropics.

Information materials in excess of 200 reprints, reports, special publications and handbooks available for distribution. Layout designs and equipment specifications for seed facilities of all types also on request.

CONTACTS FOR SUPPORT

Project Director

Dr. James C. Delouche  
Seed Technology Laboratory  
Mississippi State University  
P.O. Box 5267  
Phone #: (601) 325-2391  
FAX #: (601) 325-8827

Project Officer

Mr. Frank Mertens  
R&D/AGR/AP  
SA-18, Room 420-D  
Washington, D.C. 20523-1809  
Phone #: (703) 875-4245  
FAX #: (703) 875-5344

**PROJECT TITLE: Postharvest Grain Systems R&D**

PROJECT #: 936-4144  
Duration: FY 1985 - FY 1992

CONTRACT #: DAN-4414-A-00-5095-00  
Termination current agreement: 12/31/92

PURPOSE: The purpose of the project is to assist the Food and Feed Grains Institute (FFGI) of Kansas State University (KSU) in maintaining its resource base -- and in collaboration with U.S., LDCs, and international institutions -- to reduce grain losses after harvest by: (1) improving LDC postharvest grain systems; (2) strengthening LDC institutions agro-industry and staff and (3) implementing economically sound and environmentally safe programs in postharvest agro-industry development.

MEANS OF ACCESS: Access to technical expertise available under this project may be accomplished by buy-ins to the Basic Ordering Agreement. Purchase orders or direct contracts can also be used to access this source of expertise for tasks costing less than \$25,000.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: The major components of the project are: (1) applied research related to postharvest grain systems in the LDCs; (2) provision for LDC graduate students to be involved in research; (3) technical advice and assistance on postharvest grain systems (agro-industry and grain policies; (4) collect and distribute materials on postharvest problems; (5) documentation services (PHDS) on postharvest grain systems; (6) academic training guidance at KSU; (7) in-country and on-campus short courses, workshops and seminars; and (8) strengthening existing and new relationships under the network program.

Major accomplishments of the project include: 30 current research projects, 36 M.S. and Ph.D. graduates, 240 participants trained in short courses, collaborative postharvest loss research project completed in Costa Rica, Improvement in operations of Belize Marketing Board, and grain policy adjustment in Costa Rica, rice/cashew study and policy analysis in Guinea-Bissau. Flour mill operational management in Haiti, privatization/cereals policy and operators in El Salvador.

CONTACTS FOR SUPPORT

Project Director  
Dr. Charles W. Deyoe  
Kansas State University  
Food and Feed Grains Institute  
Shellenberger Hall  
Manhattan, KS 66506  
Phone: (913) 532-6161  
FAX: (913) 532-7010

Project Officer/Monitor  
Mr. Frank Mertens  
R&D/AGR/AP  
SA-18, Rm. 420-D  
Washington, D.C. 20523-1809  
Phone: (703) 875-4245  
FAX: (703) 875-5344

PROJECT TITLE: Agricultural Technology Research and Development  
(Plant and Seed Materials)

PROJECT #: 936-4200  
Duration: FY 1981 - FY 1991

CONTRACT #: BST-0829-R-AG-2216-04  
Termination current agreement: 7/31/92

PURPOSE: Plant introduction and material exchange; to provide genetically diverse plant materials and associated information to A.I.D. Missions and developing countries.

MEANS OF ACCESS: Direct contact with Project Officer of Project Director.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: This project provides a wide range of diverse plant materials, Rhizobium inoculant for legume seeds, and associated information to A.I.D. Missions, Mission cooperators, Peace Corps and American Embassy Agricultural Attache offices. Seed stocks of frequently requested species are maintained in storage for rapid dissemination. These services are free. Commercial sources information is supplied when requested quantities exceed the scope of this project.

The project has been supported by A.I.D. for more than 35 years. In 1990, 734 items were sent to 35 countries. During 1991 through September, 134 shipments of 698 items were sent to 31 countries. An article about the Plant and Seed Materials project appears in STAR Vol. 3 (2): 7-8, 1991. Extensive interactions are anticipated with Bolivia, Ecuador, Haiti, and Pakistan during 1992.

Plant Material shipments must conform to quarantine regulations of importing countries.

CONTACTS FOR SUPPORT

Project Director  
Dr. George A. White  
National Germplasm Research Laboratory  
USDA Agricultural Research Center  
Building 011, Rm. 322  
Beltsville, MD 20705  
Phone: (301) 344-3328  
FAX: (301) 344-3305

Project Officer/Monitor  
Dr. Harvey J. Hortik/  
Dr. Ben Waite  
R&D/AGR/AP  
SA-18, Rm. 420-C  
Washington, D.C. 20523-1809  
Phone: (703) 875-4304  
FAX: (703) 875-5344

**PROJECT TITLE:     Improving Cassava for African Farmers Through Biotechnology**

**PROJECT #:   936-4200**

**GRANT #:    DAN-4109-G-00-0085-00**

**Duration:   FY 1990 - FY 1991**

**Termination current agreement: 9/30/93**

**PURPOSE:** To train African scientists at Monsanto Agricultural Company in technologies for the transformation and regeneration of virus-resistant cassava, sweet potato and yams for eventual distribution to Africa.

**MEANS OF ACCESS:** Monsanto Company will provide advanced research experience for African scientists in plant biotechnology and evaluation of relevant plant materials. Recruitment of African scientists by Monsanto Company will be aided by R&D/AGR, USAID missions and national programs.

**GEOGRAPHICAL FOCUS: Africa**

**DESCRIPTION:** This project will support the improvement of agronomically important root and tuber crops in Africa through the utilization of Monsanto's proprietary technologies in plant biotechnology. Specific focus will be the development of virus resistance through molecular transformation of cassava, sweet potato and yams using virus coat protein genes. African scientists will gain valuable expertise in tissue culture and plant regeneration techniques, the molecular biology of gene cloning and construction, and techniques for stably introducing virus genes into plants to confer resistance to virus infection.

Besides the obvious human resource advantages offered to African countries, the project will also evaluate the transformed germplasm through greenhouse studies conducted at Monsanto's facilities and will acquaint African scientists with U.S. procedure for field testing of genetically transformed germplasm. The project's ultimate goal is to export improved cassava germplasm to Africa, after compliance with USDA/APHIS requirements, for further testing, pre-breeding and cultivar developments.

Monsanto has indicated a willingness to waive proprietary restrictions regarding these technologies for their use in cassava, sweet potato or yam in Africa.

This project will collaborate with Dr. Roger Beachy, presently with Washington University and with International Institute for Tropical Agriculture, as appropriate, in the development of the improved germplasm.

**CONTACTS FOR SUPPORT**

**Project Director**

Dr. Robert Horsch  
Plant Science Division  
Monsanto Company  
700 Chesterfield Village Plwy.  
St. Louis, MO 63141  
Phone: (314) 537-6411

**Project Officer**

Dr. Joel Cohen  
R&D/AGR/AP  
SA-18, Room 412  
Washington, D.C. 20523-1809  
Phone: (703) 875-4219  
FAX: (703) 875-5344

**B. LIVESTOCK RESOURCES**

PROJECT TITLE: Vertebrate Pest Management

PROJECT #: 936-4173

CONTRACT #: DAN-4173-X-AG-6001

Duration: FY 1986 - FY 1991

Termination current agreement: 9/30/92

PURPOSE: To increase the available food supply in developing countries by reducing preharvest and postharvest losses to vertebrate pests utilizing safe, effective and economical control methods which are suitable for traditional farmers and acceptable in the broader context of agricultural development.

MEANS OF ACCESS: Buy-ins through S&T/AGR "ribbon" PASA purchase orders. USAID missions can access the specialized services through bilateral arrangements with the implementing institution via the S&T/AGR PASA.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: This project provides problem definition, technical assistance, training, research and networking in vertebrate pest management. This is accomplished via a RSSA with the Denver Wildlife Research Center (DWRC) of the USDA Animal and Plant Health Inspection Service. Through its ties with ST/AGR, DWRC is able to extend its expertise worldwide. Research emphasis is aimed at developing new and or modifying existing control measure applicable within the existing agricultural production modes. Special emphasis is given to environmentally sound methods appropriate for small farmers. Both chemical and non-chemical approaches are evaluated.

Recent DWRC accomplishments include: (1) environmental assessments in Morocco; (2) training and field studies on rodent control in Bangladesh; (3) wild boar control studies in Pakistan; (4) graduate training in vertebrate pest management of 40 scientists from 15 countries; (5) demonstration of bird-scaring reflecting tape to reduce bird damage to cereal crops; (6) development of techniques (fluorescent particle markers, radiotelemetry, and trace element profiles) to survey quelea bird populations and improve national control efforts.

Numerous publications have resulted from this project such as: (1) Fall, M.W. Rodents in Tropical Rice; (2) Fiedler, L.A. Vertebrate Pest Control Training Manual; (3) Jaeger, M.M., et al., Evidence of Itinerant Breeding of the Red-billed Quelea; (4) Quelea in the Ethiopian Rift Valley; (5) Brugers R., et al., Impact of Fenthion Sprays on Non-target Birds During Quelea Control in Kenya; and (6) Quelea - Africa's Bird Pest.

CONTACTS FOR SUPPORT

Project Director

Dr. Richard L. Bruggers  
International Programs Section  
Denver Wildlife Research Center  
Building 16, Denver Federal Center  
Denver, CO 80225  
Phone: (303) 236-7878  
FAX: (303) 236-7863

Project Officer/Monitor

Dr. Harvey J. Hortik/  
Dr. Ben Waite  
R&D/AGR/AP  
SA-18, Rm. 420-C  
Washington, D.C. 20523-1809  
Phone: (703) 875-4304  
FAX: (703) 875-5344

PROJECT TITLE: Small Ruminant CRSP

PROJECT #: 931-1328  
Duration: FY 1978 -Anticipated  
to be 15-25 year project

GRANT #: DAN-1328-G-SS-4093-00  
Termination Current Grant: 9/30/95

PURPOSE: To improve production of meat, milk and fiber from sheep, goats, and alpacas owned by smallholders in LDCs.

MEANS OF ACCESS: A buy-in through the Basic Ordering Agreement of this project will provide technical advisory services for: (1) designing, implementing and evaluating projects concerned with health, production or marketing of small ruminants; (2) co-sponsoring collaborative research to identify and assess possible opportunities for small ruminant production; and (3) developing and conducting in-country training programs.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: The SR-CRSP is multidisciplinary program that investigates the biological and socioeconomic elements of small ruminant production in four countries, Bolivia, Indonesia, Kenya and Morocco. The University of California/Davis is the grantee and subcontracts to nine other universities (University of Missouri, Utah State, Texas Tech., Texas A&M, Colorado State, UCD, Montana State, Washington State, and North Carolina State) and Winrock International. Linkages have been established with more than one national agency within each country, and between U.S. and LDC institutions in research components involving animal nutrition, physiology, health, range management, sociology, economics, breeding and genetics.

ACCOMPLISHMENTS:

- integration and adaptation of SR-CRSP into national programs of Kenya, Indonesia, and Peru;
- development of a diagnostic field test to detect organisms causing contagious caprine pleuropneumonia (CCPP) in goats;
- developed and published nutrient requirement tables for tropical sheep;
- development of a criterion for identifying homozygous prolific ewes;
- verification of significant yield response to use of goat manure on maize hills.

Key publications include an annual research report; a reference book entitled, Genetics of Reproduction in Sheep; over 150 technical reports; a quarterly newsletter; listing of research publications; technical manuals for extension workers; four technical package documents translated into seven languages; and a program information brochure.

CONTACTS FOR SUPPORT

Project Director  
SR-CRSP Office  
University of California, Davis  
Davis, CA 95616-1721  
Phone: (916) 752-1721  
FAX: (916) 752-7523

Project Officer/Monitor  
Ms. Joyce Turk  
R&D/AGR/AP  
Room 420, SA-18  
Washington, D.C. 20523-1809  
Phone: (703) 875-4081  
FAX: (703) 875-5344

**PROJECT TITLE: Improved Animal Vaccines Through Biotechnology:  
Phase I, Rinderpest**

**PROJECT #: 936-4178(a)                      COOP. AGREEM. #: DAN-4178-A-00-6040-00  
Duration: FY 1986 - FY 1991              Termination agreement: 11/30/91**

**PURPOSE:** To develop and test a rinderpest vaccine in a recombinant vaccinia vector that is comparable to the Plowright vaccine in terms of safety and efficacy but which is more stable.

**MEANS OF ACCESS:** Once tested in Africa, access to the vaccine can be obtained through buy-ins of direct contracts. Training in molecular biology at the doctoral or postdoctoral level can be undertaken under Dr. Yilma's direction at University of California, Davis.

**GEOGRAPHICAL FOCUS:** Regional - Africa and Asia

**DESCRIPTION:** More than 30 countries are involved in the current Pan African Rinderpest Campaign. The severity of the epidemic has focused attention on the need for a cold chain required by the Plowright vaccine. This S&T/AGR project sponsors the development of a new thermo stable vaccine for rinderpest which will be easier to administer in the field, easier to produce and will provide the same degree of protection as the conventional Plowright vaccine.

Accomplishments to date include the development of several new recombinant vaccines for rinderpest expressing immunogenic genes, some of which have been successfully tested on cattle held in containment at Plum Island. Tests are continuing to further assess the purity, safety and efficacy of the eventual vaccine which will be field tested on cattle held in containment in Africa. At this point, a range of countries and missions are being considered which might support this testing phase. Host country and mission approval, along with export approval from USDA/APHIS, will be needed prior to commencement of field testing studies in Africa.

The project has also focused on the development of unique molecular diagnostics which could be used to distinguish between animals vaccinated with the recombinant vaccine and those which are naturally infected.

In addition, the training component of the project has successfully involved postdoctoral research by a Kenyan scientist.

**CONTACTS FOR SUPPORT**

**Project Director**  
Dr. T.D. Yilma  
Professor of Virology  
Department of Veterinary Microbiology  
and Immunology  
2075 Haring Hall  
School of Veterinary Medicine  
University of California  
Davis, CA 95616  
Phone: (916) 752-8306

**Project Officer**  
Joel Cohen  
A.I.D. - R&D/AGR/AP  
SA-18, Room 412  
Washington, D.C. 20523-1809  
Phone: (703) 875-4219  
FAX: (703) 875-5344

PROJECT TITLE: Improved Animal Vaccines through Biotechnology:  
Phase II, Anaplasmosis/Babesiosis

PROJECT #: 936-4178(b) COOP AGREEMENT #: DAN-4178-A-00-7056-00  
Duration: FY 1986 - FY 1992 Termination current agreement: 9/30/92

PURPOSE: To apply new biotechnologies towards the development of a vaccine which will provide sterile immunity in cattle to hemoparasitic diseases, anaplasmosis and babesiosis.

MEANS OF ACCESS: Buy-ins to this project could provide for services in epidemiology, veterinary medicine, biotechnology and vaccine development. It is estimated that missions, bureaus and other AID/W offices will request for training activities, technical assistance and operational research.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: Phase II of the vaccine project is directed towards the development of genetically engineered vaccines using vaccinia virus against anaplasmosis and babesiosis. This phase provides funds for (1) epidemiologic research, vaccine development and testing of the newly developed vaccine on a limited number of animals under contained conditions; (2) training host country scientists at the technical, graduate and postdoctoral level and providing in-service and on-the-job training to technicians and scientists; and (3) establishing a network of information exchange among participating scientists in both developed and developing countries.

The major accomplishments of the project are the formulation of the Vaccine Research Network and the completion of an informational brochure describing the project's training and research. The University of Florida has responsibility for the Asia/Near East region, Washington State University for the Africa region and the University of Missouri for Latin America and the Caribbean.

The first year of Phase II involves vaccine development by insertion of genes encoding for surface antigens of both diseases into vaccinia virus. Considerable progress has been made on the identification of these genes for both diseases. The project has also focused on the development of molecular diagnostic probes which could be used in the sensitive detection of subclinical infections. These are nearing commercial development and have attracted the interest of several animal health companies.

CONTACTS FOR SUPPORT

Project Director  
Dr. Michael BurrIDGE  
Center for Tropical Animal Health  
Box J-137 JHMHC SA-18, Room 412  
University of Florida  
Gainesville, FL 32610  
Phone: (904) 392-1841

Project Officer  
Dr. Joel Cohen  
A.I.D. - R&D/AGR/AP  
SA-18, Room 412  
Washington, D.C. 20523-1809  
Phone: (703) 875-4219  
FAX: (703) 874-5344

PROJECT TITLE: New World Screwworm Eradication Program for North Africa

PROJECT #: 936-4199

Contract #: DAN-4199-G-00-0088-00

DURATION: FY 1991 - FY 1992

Termination current agreement: 9/30/92

PURPOSE: Provide support to the FAO New World Screwworm eradication program for North Africa. A.I.D. funding is being used to upgrade the sterile screwworm production facility in Tuxtla Gutierrez, Mexico so that a sufficient number of flies can be provided to the North African program, and to purchase sterile flies for release in North Africa.

MEANS OF ACCESS: N/A

GEOGRAPHIC FOCUS: North Africa

DESCRIPTION: The New World Screwworm is an obligate parasite of warm-blooded animals which was recently introduced into Libya. An international effort has been organized by Food and Agriculture Organization of the United Nations (FAO) to eradicate this pest from Libya before it spreads to other countries in Africa, the Middle East, and Southern Europe. The eradication program relies on the release of sterile screwworm flies, a technique that was used successfully to eradicate this pest from the United States and Mexico. The sterile fly releases are complimented by the control of animal movement, and the use of insecticides to treat infested animals. Sterile flies will be produced at a production facility in southern Mexico, transported to Libya, and released in the infested area. A.I.D. funds will be used to upgrade the facility in Mexico to allow production of a sufficient number of sterile flies for the North African program, and for the purchase of sterile flies for release in the North African program.

CONTACTS FOR SUPPORT

Project Director

Dr. A. Papasolomontos  
Food and Agriculture Organization  
Via delle Terme di Caracalla  
00100 Rome  
Phone: 39-6-5797-3359  
FAX: 39-6-5797-5271

Project Officer/Monitor

Dr. Harvey Hortik  
R&D/AGR/AP  
SA-18, Room 420  
Washington, D.C. 20523-1809  
Phone: (703)-875-4304  
FAX: (703)-875-5344

SECTION III.

RENEWABLE NATURAL RESOURCES MANAGEMENT DIVISION

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**A. SOIL AND WATER**

PROJECT TITLE: International Fertilizer Development Center (IFDC)

PROJECT #: 931-0054

Grant #: DAN-0054-G-00-0044-00

Duration: FY 1975 - Continuous

Termination Current Agreement: 6/30/93

PURPOSE: To assure farmers of developing countries a dependable supply of fertilizers that are affordable, environmentally safe, and which will sustain agricultural production under cooperative agreement.

MEANS OF ACCESS: Any service, technical assistance, training, feasibility study, sector evaluation, process or product development, fertilizer related environmental impact assessments, and policy counseling, directly related to the core grant can be accessed through a Basic Ordering Agreement. Small activities can best be covered by a purchase order. Large activities in which USAID wishes to exert direct control should be under contract.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: IFDC is conducting research, development and providing assistance in fertilizer production, distribution, marketing, and use. It is a clearinghouse of information on raw materials, processes, products, trade, supply and demand. Twelve or more training courses annually cover sector development manufacturing and distribution management, marketing, quality control, pollution control, dealership, agronomic research, and computer simulation of crop growth, soil testing, and fertilizer recommendations. IFDC scientists characterize agrominerals and recommend processing and use. The project staff assist in project design, and provide guidance on policies relating to mining, processing, marketing, including privatization, transportation tariffs and taxes. They also evaluate and recommend modification of practices relating to subsidies, credit, profit margins and levels of potential and actual returns on investment.

Among IFDC's most notable achievements are: (1) privatization of fertilizer distribution in Bangladesh; (2) testing and modifying a village-level briquetter for producing pillow-shaped urea supergranules for deep-placement of USG to the rice farmer in developing countries; (3) development of crop simulation models, which are being used to assess crop production in developing countries by providing a more efficient way of realizing the impact fertilizer, climate, management, and genotype have on production of key commodity crops; (4) identifying phosphate rock in various developing countries for use by local industry; and (5) developing management practices to promote increased crop production while maintaining the natural resource base or sustaining agriculture in the sub-Saharan region.

Useful IFDC publications are: the list of training courses; IFDC Publication Catalog; the Fertilizer Manual published under UNFPA sponsorship; and the slide modules.

CONTRACTS FOR SUPPORT

Project Director

Dr. Paul J. Stangel  
IFDC  
P.O. Box 2040  
Mobile Shoals, Alabama 35662  
Phone: (205) 381-6600  
FAX: (205) 381-7408

Project Officer

Dr. John L. Malcolm  
A.I.D. - F&E, AGR/RNP  
Room 106B, SA-18  
Washington, D.C. 20523-1809  
Phone: (703) 875-4328  
FAX: (703) 875-4186

PROJECT TITLE: Soil Management JRSP - (TropSoils)

PROJECT #: 931-1311  
Duration: FY 1981 - FY 1994

GRANT #: DAN-1311-G-SS-6018-00  
Termination current agreement: 9/24/94

PURPOSE: To develop, demonstrate and assist in the transfer of soil and water technologies that are agronomically, economically and environmentally sustainable in developing countries in the tropics.

MEANS OF ACCESS: Services which relate directly to the research and outreach under this project may be accessed through a Basic Ordering Agreement with North Carolina State University. Expertise is available from the cooperating agencies and institutions: Cornell University, University of Hawaii, Texas A&M University, and USDA. When services of only one organization are required direct contracting may be best.

GEOGRAPHICAL FOCUS: Tropics worldwide.

DESCRIPTION: The research and technical assistance under this project focuses on soil management constraints to sustainable agricultural production and natural resource management, including soil fertility, soil physical properties, moisture management and susceptibility to erosion. The research and technology may be applied to underutilized lands, low-input agriculture, alley cropping, intensified commercial farming, soil and water conservation, degraded pasture reclamation, control of soil acidity and aluminum toxicity, soil resource inventories, soil analyses and fertilizer recommendation and project planning and design.

Sustainable agriculture production technologies developed in Brazil, Indonesia and Peru are adaptable to other countries in the humid tropics. Systems maximizing recycling and legume rotation offer an interim technology to permit farmers to become established. Liming at modest levels has been shown to be profitable and deep liming to offer critical insurance against drought during the cropping season. Fertility management improves water use efficiency and yield stability in the Sahel.

USDA has data bases of current research on soil and water management in Jordan and N.E. Thailand, recommendations for soil and water research in three regions, improved cropping strategies for the Sahel and whole farm models for improved investment decisions in rainfed agriculture. It has assisted 30 countries in the adoption of U.S. Soil Taxonomy and provided technical assistance to over 50 countries in the adoption of U.S. Soil Taxonomy and provided technical assistance to over 50 countries. It has the capability to assist in research and development planning through the interpretation of soil classification to evaluate utilization and soil management options.

All cooperators offer relevant publication and computer programs as guides to further research and development of soil and water management.

CONTACTS FOR SUPPORT

Project Director  
Dr. Roger G. Hanson  
TropSoils  
Box 7113 - Williams Hall  
North Carolina State University  
Raleigh, N.C. 27695-7113  
Phone: (919)-737-3922  
FAX: (929)-737-3942

Project Officer  
Dr. John L. Malcolm  
A.I.D. - R&D/AGR/RNR  
Room 406B, SA-18  
Washington, D.C. 20523-1809  
Phone: (703)-875-4328  
FAX: (703)-875-4186

PROJECT TITLE: International Benchmark Sites Network for  
Agrotechnology Transfer (IBSNAT)

PROJECT #: 936-4054 COOP. AGREEM. #: DAN-4054-A-00-7081-00  
Duration: FY 1987 - FY 1992 Termination current agreement: 8/31/92

PURPOSE: To provide decision-makers at the national and farm levels with easy access to crop models and expert systems to evaluate various options for sustainability in agriculture.

MEANS OF ACCESS: A buy-in to this project can provide technical services for: (1) training in the use of a computerized Decision Support System for Agrotechnology Transfer (DSSAT) for predicting outcomes of alternative strategies in agriculture; and, (2) validating DSSAT for simulating agricultural performance under local situations.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: IBSNAT has developed a computerized decision support system for agrotechnology transfer consisting of a natural-resource data-base management system, crop simulation models, expert systems and application programs to enable decision makers to recommend reliable alternatives for solving problems. DSSAT is capable of simulating the performance of new crops, products and management practices for 10-50 years to assess their suitability for sustainable agriculture. DSSAT is currently being tested at 162 locations in developed and developing nations, one regional center (CATIE) and six IARC's (ICRISAT, IITA, IFDC, CIAT, IRRI and ICARDA) for: (i) assessing risk of adopting new practices in rainfed agriculture, (ii) matching germplasm to new environments, (iii) coupling crop protection models to crop models for estimating yield loss from pest damage, and, (iv) assessing economic feasibility of alternative practices.

This system has been adopted by an international environmental project called Predictive Assessment Network for Ecological and Agricultural Responses to Human Activities (PAN-EARTH). PAN-EARTH is to characterize environmental stresses that can be globally experienced due to nuclear war and to predict their effects. EPA is also using IBSNAT models in 22 countries.

Available IBSNAT material include software on DSSAT and CROP MODELS (5), and a number of technical and other publications.

CONTACTS FOR SUPPORT

Contractor/Grantee  
Dr. Goro Uehara, Project Director  
IBSNAT  
University of Hawaii at Manoa  
Department of Agronomy and Soil Science  
2500 Dole Street, Kr 22  
Honolulu, Hawaii 96822  
Phone: (808) 956-8858 or 956-6604  
EMAIL -- MCI: UHIBSNAT;  
FAX: (808) 956-3421

Project Officer  
Dr. Tejpal S. Gill  
A.I.D. - R&D/AGR/RNR  
Room 408, SA-18  
Washington, D.C. 20523-1809  
Phone: (703) 875-4307  
EMAIL: TELEMAIL ST.AGR  
MCI: 172-4404  
FAX: (703) 875-4186

**PROJECT TITLE: Improved Biological Nitrogen Fixation (BNF) Through  
Biotechnology (Also Called NifTAL)**

**PROJECT #:** 936-4177  
**Duration:** FY 1986 - FY 1996

**COOP. AGREEM. #:** DAN-4177-A-00-6035-00  
**Termination Current Agreement:** 09/24/94

**PURPOSE:** To enable developing country farmers to use legume crops and trees to increase production of high protein food, nitrogen for other crops, and sustainable agricultural systems.

**MEANS OF ACCESS:** A buy-in to this project can provide short- and long-term services for: (1) research activities to increase production and nitrogen gained from BNF in grain, forage and tree legumes; (2) BNF training programs for extension workers, PVOs, researchers and commercial legume inoculant producers; (3) application of computer models for predicting legume responses to rhizobia inoculation and economic benefit to farmers; (4) technical and marketing assistance to private sector commercial legume inoculant production in developing countries.

**GEOGRAPHICAL FOCUS:** Worldwide.

**DESCRIPTION:** BNF technology is a biological alternative to chemical nitrogen fertilizers and is the foundation of sustainable agriculture. The training, research, and outreach components of NifTAL promote the low-input renewable natural resource for agriculture and forestry, train agriculturalists to adapt, use, and disseminate information about BNF and help agribusiness to produce and distribute BNF inoculants.

The major accomplishments of NifTAL include: (1) establishing inoculant production capability in Thailand, Zambia, Haiti, and Uganda; (2) assisting inoculant producers in Bangladesh, Burma, Egypt, Indonesia, Morocco, Pakistan, Philippines, and Sri Lanka; and (3) training government extension agents and PVO workers in applying BNF technologies in Indonesia, Uganda and Thailand.

Publications and BNF resource materials are available upon request. South and South-East Asia regions are serviced from NifTAL's BNF Resource Center in Bangkok, Thailand.

**CONTACTS FOR SUPPORT**

**Project Director**  
Dr. Paul Singleton  
NifTAL Project  
University of Hawaii  
1000 Holomua Avenue  
Paia, HI 96779-9744  
Phone: (808) 579-9568  
FAX: (808) 579-8516  
TELEX: 7430315 (ITT)  
Cable: NifTAL  
CGNET: 157:CG1056  
BITNET: NIFTAL@UHUNIX

**Project Officer**  
Dr. Tejpal S. Gill/Dr. Charles Sloger  
A.I.D. - R&D/AGR/RNR  
Room 408, 3A-18  
Washington, D.C. 20523-1809  
Phone: (703) 875-4307  
FAX: (703) 875-4186  
CGNET: 57: CG1901

**B. FISHERIES AND AQUACULTURE**

PROJECT TITLE: Pond Dynamics/Aquaculture CRSP

PROJECT #: 936-4023

COOP. AGREEM. #: DAN-4023-G-00-0031-00

Duration: FY 1982 - FY 1995

Termination current agreement: 8/31/95

PURPOSE: To define the principles underlying sound aquaculture management and improve practices so as to provide increased employment and a dependable, inexpensive source of animal protein.

MEANS OF ACCESS: Short-term services costing more than \$25,000 can be accessed through a purchase order from the Mission directly to the University.

A Basic Ordering Agreement is in place through which short and medium-term services costing more than \$25,000 can be provided through buy-ins. Buy-ins can be used to provide training, research and technical assistance or problem-solving activities related to the research thrusts of the program.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: This is a research project designed to improve understanding of fish production systems; nevertheless, participating institutions have excellent resources that can and are being tapped through buy-ins to strengthen aquaculture programs and industries in LDC's.

Under this project, physical, chemical, and biological mechanisms regulating the productivity of pond culture systems are being studied in a continuing series of field experiments. Areas of focus include: biotechnology, water quality, aquatic resources management, and women in development. The participating host countries are Rwanda, Thailand, and Honduras.

Research progress is being made to:(1) quantitatively determine how physical, chemical, and biological pond variables regulate pond activity;(2) develop quantitative models describing these processes; (3) transform these models into pond management models and production functions; and (4) improve the efficiency of pond culture systems.

"Principles and Practices of Pond Aquaculture; A State of the Art Review," is available, as are two technical report series (CRSP Research Reports and Data Reports) and the publication "Aquanews", the newsletter of the Pond Dynamics/Aquaculture CRSP.

CONTACTS FOR SUPPORT

Project Director

Ms. Hillary Egna  
Oregon State University  
Snell Hall  
Corvallis, Oregon 97331-1641  
Phone: (503) 737-2228  
FAX #: (503) 737-3447

Project Officer

Dr. Tejpal S. Gill/Lamarr Trott  
A.I.D. - R&D/AGR/RNR  
Room 408, SA-18  
Washington, D.C. 20523-1809  
Phone: (703) 875-4307  
FAX # (703) 875-4186

PROJECT TITLE: Fisheries Development Services (FDSS)

PROJECT #: 936-4024

COOP. AGREEM. #: DAN-4024-A-00-2072

Duration: FY 1982 - FY 1991

Termination current agreement: 6/30/92

PURPOSE: To provide technical assistance, training, and information to A.I.D. and LDCs regarding fisheries development, especially relating to living marine resources.

MEANS OF ACCESS: Short-term services costing more than \$25,000 can be accessed through a purchase order from the Mission directly to the University.

A Basic Ordering Agreement is in place through which short and medium-term services costing more than \$25,000 can be provided through buy-ins. Buy-ins can be used to provide training, research and technical assistance or problem-solving activities related to the research thrusts of the program.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: Project components include assistance, training, and research in four established priority areas: fisheries management and resource utilization, postharvest losses, mariculture, and socio-cultural factors. Training and assistance can be provided on a long-or short-term basis. Degree training can be at all levels, including programs in economics, sociology, fisheries, oceanography, or biological sciences.

Major accomplishments include: (1) research on fisheries in Latin America and West Africa; (2) training of fisheries researchers and administrators from Asia, Africa, Latin America, and the Near East, with group training for Oman, Philippines, and Guinea Bissau; (3) assistance to USAID/Djibouti Suva, Oman in PP development, and evaluation; (4) development of an information search capability for fisheries-related publications; (5) studies and project assistance focussing on small-scale fishery needs and on opportunities to increase incomes and improve nutrition through proper fisheries management; (6) preliminary investigation of coastal crab resources in coastal and estuarine waters of Ecuador; (7) research on nutritive value of brine shrimp as larval fish food in aquaculture; (8) basic research on the effects of blast fishing in the Philippines; (9) fisheries profiles of A.I.D. countries in Africa.

Specific publications include postharvest fishery losses, evaluating the role of fishermen's cooperatives in developing countries. Video are available on postharvest fishery losses, mariculture and the role of women in fisheries development.

CONTACTS FOR SUPPORT

Contractor/Grantee

Dr. Spiros Constantinides  
or Dr. Donald McCreight  
ICMRD, Woodward Hall  
University of Rhode Island  
Kingston, Rhode Island 02881  
Phone: (401) 792-2479  
MCI: 244-1258

Project Officer/Monitor

Dr. Tejpal Gill  
or Dr. Lamarr Trott  
A.I.D. - R&D/AGR/RNR  
SA-18, Room 408  
Washington, D.C. 20523-1809  
Phone: (703) 875-4307  
MCI: 172-4404  
FAX (703) 875-4186

PROJECT TITLE: Fisheries and Aquaculture Technical Assistance (RSSA)

PROJECT #: 936-4200

RSSA #: BST-4200-R-AG-1085-01

Duration: FY 1991 - FY 2001

Termination current agreement: 5/31/2001

PURPOSE: To provide expertise in a wide range of development needs related to fisheries resource management, and aquaculture.

MEANS OF ACCESS: R&D/AGR can provide, on a fully or partially reimbursable basis, the service of its RSSA and experts in fisheries and related disciplines on a short-term basis as requested by Regional Bureaus, Missions and Host Country governments. Expertise from a wide variety of other related disciplines may also be available on a fully reimbursable basis.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: This activity was initiated through a Resources Services Support Agreement with the National Oceanic and Atmospheric Administration and National Marine Fisheries Service. This RSSA provides long-term assistance to the S&T Bureau in fisheries and aquaculture planning and development and project identification. It also provides continued oversight, assistance and expert advice for R&D fisheries projects.

Experts provide assistance to identify, develop, design and evaluate fisheries and aquaculture projects in the following areas: (1) the problems of communities that depend on small-scale fisheries and aquaculture for their livelihood; (2) the problem of postharvest loss in fishery products; (3) assisting developing countries in establishing effective management and sustainable productivity of the living marine resources within their exclusive economic coastal zones; (4) environmental impact assessment and coastal zone management aspects of fishery resources, habitats and small-scale fisheries; (5) Fish Aggregating Device studies for improving access of small-scale fishermen to off-shore resources; and, (6) training programs in technical and computer-related aspect of modern fisheries and aquaculture.

The following short-term outputs are available: (1) surveys and studies of country needs in fisheries and aquaculture development assistance; (2) writing and review of project document; (3) project and proposal evaluation reports; and (4) facilitation of training projects, workshops, publication development.

CONTACTS FOR SUPPORT

Project Director

Mr. Frederick Beaudry  
NOAA/Fisheries (F/IA2) Rm. 7248  
1335 East West Highway  
Silver Spring, MD 20910  
Phone: (301) 427-2288  
FAX: (301) 427-2258  
MCI: 288-7342

Project Officer

Dr. Tejpal S. Gill  
A.I.D. - R&D/AGR/RNR  
Room 408A, SA-18  
Washington, D.C. 20523-1809  
Phone: (703) 875-4307  
FAX: (703) 875-4186

PROJECT TITLE: Fisheries Stock Assessment CRSP

PROJECT #: 936-4146

COOP. AGREEM. #: DAN-4146-G-SS-5071-00

Duration: FY 1986 - FY 1993

Termination current agreement: 6/30/93

PURPOSE: To improve analytical and sampling methodology for assessment and management of the size and sustainable yields of small-scale multispecies tropical marine capture fishery populations.

MEANS OF ACCESS: Short-term services costing more than \$25,000 can be accessed through a purchase order from the Mission directly to the University.

A Basic Ordering Agreement is in place through which short and medium-term services costing more than \$25,000 can be provided through buy-ins. Buy-ins may be used to provide training, research and technical assistance or problem-solving activities related to the research thrusts of the program.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: The project develops specific approaches to assessing multispecies fish stocks in the marine tropical environment. Emphasis is on developing techniques for assessing the stocks, not actually conducting the assessment. The project addresses: (1) assessment of current stock determination techniques (mostly temperate); (2) development of expert systems for assessing best methods of stock determination; (3) determination of improved methods for aging of tropical fish; and, (4) development of improved methods for sampling multispecies fisheries in the tropics.

Major collaborators are the Universities of Maryland, Rhode Island and Washington. Host countries are Costa Rica and the Philippines.

Major accomplishments include: (1) The Universities of Maryland and Costa Rica developed the first version of a microcomputer expert system for analyzing tropical fish stocks. (2) The Universities of Washington and Costa Rica have developed new hydroacoustic techniques for assessing fish abundance in shallow water, techniques for ageing of tropical fish through microline reading of otoliths, and new size-based stock assessment models and techniques. (3) The Universities of Rhode Island and the Philippines developed innovative techniques for analyzing multispecies fish assemblages and are conducting a comprehensive coral reef fishery sampling program in the Philippines. (4) Each collaborative program has advanced in sampling methodologies for multispecies tropical fisheries. (5) Several regional workshops on new stock assessment methodologies have been conducted in both Costa Rica and the Philippines. (6) The initial version of a ten volume Fish Stock Assessment Manual of Methods has been completed and the approaches now are being tested and refined in various tropical marine environments.

Publications include 80 technical reports and working papers, several M.Sc. and Ph.D. theses, and many publications in peer-reviewed journals.

CONTACTS FOR SUPPORT

Contractor/Grantee

Dr. John Rowntree  
2331 Computer Science Building  
Univ. of Maryland  
College Park, Md 20742  
Phone: (301) 405-4778  
FAX #: (301) 314-9328

Project Officer/Monitor

Dr. Tejpal S. Gill or  
Dr. Lamarr Trott  
A.I.D. - R&D/AGR/RNR  
Room 408, SA-18  
Washington, D.C. 20523-1809  
FAX # (703) 875-4307

**PROJECT TITLE: Reproductive Studies on Milkfish**

**PROJECT #:** 936-4161

**COOP. AGREE. #:**DAN-4146-A-00-4055-00

**Duration:** FY 1984 - FY 1990

**Termination current agreement:** 7/14/94

**PURPOSE:** To carry out research on milkfish, mullet and other marine finfish in Southeast Asia, the Pacific and the Middle East.

**MEANS OF ACCESS:** Short-term services costing more than \$25,000 can be accessed through a purchase order from the Mission directly to the University.

A Basic Ordering Agreement is in place through which short and medium-term services costing more than \$25,000 can be provided through buy-ins. Buy-ins can be used to provide training, research and technical assistance or problem-solving activities related to the research thrusts of the program.

**GEOGRAPHICAL FOCUS:** Worldwide

**DESCRIPTION:** Training of LDC research personnel and transfer of technology for techniques of maturing, spawning and hatchery rearing of milkfish, mullet and other marine fish.

Research is directed toward two improvements in the methods for culturing milkfish, mullet and other marine finfish: (1) maturing adult fish to spawning condition in captivity and (2) reducing the mortality of larvae during culture. This cooperative agreement directly addresses these problems through research. It allows considerable interaction between The Oceanic Institute and research institutions in LDCs which work on milkfish, mullet and other marine finfish. Principal involvement is in Taiwan, the Philippines, Indonesia and Egypt. Activities include the exchange of scientists, training and technology transfer to government facilities and the private sector in Indonesia and Egypt.

Publications describing the state-of-the-art of milkfish farming and reviewing progress on control of reproductive processes of milkfish are available.

**CONTACTS FOR SUPPORT**

**Project Director**

W.C. Rowland  
The Oceanic Institute, Hawaii  
Makapuu Point  
P.O. Box 25280  
Honolulu, Hawaii 96825  
Phone: (808)-259-7951  
FAX: (808)-259-8450

**Project Officer**

Dr. Tejpal S. Gill or Dr. Lamarr Trott  
A.I.D. - R&D/AGR/RNR  
Room 408, SA-18  
Washington, D.C. 20523-1809  
Phone: (703)-875-4307  
FAX: (703)-875-4186

**PROJECT TITLE: Aquaculture Research and Support**

**PROJECT #:** 936-4180

**COOP. AGREEM. #:** DAN-4180-A-00-8008-00

**Duration:** FY 1988 - FY 1993

**Termination current agreement:** 12/31/92

**PURPOSE:** To backstop aquacultural development in LDC's and to research and extend appropriate new technologies in fish culture.

**MEANS OF ACCESS:** Short-term services costing more than \$25,000 can be accessed through a purchase order from the Mission directly to the University.

A Basic Ordering Agreement is in place through which short and medium-term services costing more than \$25,000 can be provided through buy-ins. Buy-ins can be used to provide training, research and technical assistance or problem-solving activities related to the research thrusts of the program.

**GEOGRAPHICAL FOCUS:** Worldwide

**DESCRIPTION:** Buy-ins may be used to provide assistance as follows:  
(1) library and information services; (2) biological and economic feasibility studies leading to the development of aquaculture projects; (3) technical assistance in hatchery operation, pond construction, pond management, fish nutrition and feeds, disease control and integrated aquaculture-agriculture; (4) impact studies and evaluations; and, (5) non-degree training courses at Auburn; (6) M.Aq (non-thesis, professional practice) M.Sc and Ph.D. degrees.

A highly competent capability has been developed at Auburn University for education, research, technology transfer and specialized training in aquaculture. Auburn has been the lead U.S. institution for freshwater aquaculture training and development for the last decade. Through A.I.D.'s involvement over the years, Auburn places a major emphasis on addressing issues related to LDC fish production. Hundreds of technical and scientific publications are available including a recent set of extension materials with simple explanations of advanced aquacultural practices.

One highlight of this program is the intensive 16-week aquaculture course that is conducted each spring by the Auburn staff. This course, designed primarily for LDC extensionists and advanced farmers, provides essential information on the range of topics necessary for successful private sector production of fish (i.e. pond construction, biology, nutrition, economics, marketing etc.)

**CONTACTS FOR SUPPORT**

**Project Director**

Dr. Bryan Duncan  
International Center for Aquaculture  
Auburn University  
Auburn, Alabama 36830  
Phone: (205)-844-9201  
FAX: (205)-844-9208

**Project Officer**

Dr. Tejpal S. Gill/Dr. Lamarr Trott  
A.I.D. - R&D/AGR/RNR  
Room 408, SA-18  
Washington, D.C. 20523-1809  
Phone: (703)-875-4307  
FAX: (703)-875-4186

**SECTION IV.**  
**ECONOMIC POLICY AND PLANNING DIVISION**

27a

PROJECT TITLE: Agricultural Policy Analysis Project (APAP)

PROJECT #: 936-4084

CONTRACT #: DAN-4084-Z-00-8034-00

Duration: FY 1988 - FY 1993

Termination of Agreement: 12/31/93

PURPOSE: To increase developing country decision-maker's knowledge and understanding about how key economic policies affect agricultural and rural sector development.

MEANS OF ACCESS: An Office of Agriculture core-supported project with provisions for buy-in or budget transfer to provide short and medium-term technical advisory services for: (1) designing, implementing and evaluating programs and projects concerned with agricultural policy analysis capacity building; (2) co- sponsoring collaborative research to identify and assess relevant policy issues and providing assistance to resolve them; and (3) training of trainers, developing and conducting in-country and regional training programs.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: APAP's Phase II (1989 - 1993) employs six activities including: (1) policy project design, evaluation and implementation assistance; (2) collaborative agricultural policy research studies; (3) policy analysis guidelines and methodological tools; (4) training and workshops; (5) an agricultural policy consultant roster; and (6) dissemination and networking.

APAP-II is already involved in a wide range of bureau and mission-supported efforts, including:

- long-term technical advisory arrangements in Pakistan, the Philippines and Niger;
- conducting policy research for the Asia/Near East and Africa bureaus;
- preparing natural resource policy assessments for the Central American countries; and
- drafting the Latin America/Caribbean Bureau's Agricultural and Natural Resource Strategy.

Abt Associates, Inc. is implementing APAP's phase II collaboration with Harvard Institute for International Development (HIID); Food Research Institute, Stanford (FRI); North Carolina State University (NCSU); Abel, Daft, Earley (ADE); and International Science and Technical Institute (ISTI).

Documents available on request include: Ag. Policy Analysis Guidelines, (1986); Ag. Policy Analysis: Tools for Economic Development, (1988); Manual for ARDOs; Staff Papers on diverse ag. policy topics; and microcomputer tools.

CONTACTS FOR SUPPORT

Project Director

Dr. William Levine  
Abt Associates, Inc.  
4800 Montgomery Lane  
Bethesda, MD 20814  
Phone: (301) 913-0500  
FAX: (301) 652-7530

Project Officer

Dr. Chris Brown  
A.I.D. - R&D/AGR/EPP  
SA-16, Room 403C  
Washington, D.C. 20523-1809  
Phone: (703) 875-4015  
FAX: (703) 875-4384

PROJECT TITLE: Sustainable Agricultural Systems CRSP

PROJECT #: 936-4193

GRANT #: To Be Determined

Duration: FY 1990 - FY 2001

Termination current agreement: N/A

PURPOSE: To identify constraints to development of sustainable agricultural systems and to prepare a research plan for a program that will bring about sustainable agriculture in developing countries.

MEANS OF ACCESS: Direct contact with Project Officer.

GEOGRAPHICAL FOCUS: Worldwide.

DESCRIPTION: Agricultural practices in many developing countries are often unsustainable. As a result, rangelands are overgrazed, forests disappear, soil fertility is lost, soil erodes, biological diversity is reduced, fisheries decline, water is polluted and people suffer from pesticide misuse. In turn agricultural productivity declines, less land is available for cultivation and farmers are forced to move into forests and other areas that are ill-suited to agriculture. Sustainable agriculture systems which are developed through interdisciplinary research can, when coupled with the appropriate policy environment, reverse this environmental degradation and improve peoples' lives.

The National Academy of Sciences (NAS) has assisted A.I.D. in the development of this CRSP. The NAS will appoint a panel of experts from U.S. and international institutions; identify researchable constraints to sustainable agriculture; identify required component disciplines; develop mechanisms for integration of components; and design a global implementation plan for a sustainable agriculture CRSP. The panel has collaborated closely with the Board for International Food and Agricultural Development (BIFAD) and the university and environmental communities and place particular emphasis on constraints identified in previous studies including soil ecology, cultural practices, integrated pest management, socio-economics, and integration of agricultural, social and ecological disciplines.

CONTACT FOR SUPPORT

Project Officer

James Bonner

A.I.D. - R&D/AGR/EPP

SA-18, Room 403E

Washington, D.C. 20523-1809

Phone: (703) 875-4045

FAX: (703) 875-4384

PROJECT TITLE: A.I.D. Israel Cooperative Development Program (CDP)

PROJECT #: 930-0185

COOP. AGREEMENT #: PDC-0185-A-00-8092-00

Duration: FY 1988-97

Termination current agreement: 9/30/94

PURPOSE: To make available technical assistance and training from Israel to developing countries to address a range of assistance requirements for which Israeli experience, technology and expertise are particularly well-suited.

MEANS OF ACCESS: Host countries/Missions can request allocations of Israeli training or technical assistance financed by the annual contributions to the CDP from A.I.D. (\$5.0 million or 75%) and Israel (\$1.67 million or 25%), supplemented by local/USAID resources as appropriate. Israeli assistance can also be obtained through direct agreement between host countries/Missions and the Division of International Cooperation of the Ministry of Foreign Affairs.

GEOGRAPHICAL ACCESS: Worldwide.

DESCRIPTION: U.S. Government policy recognizes the value to the U.S. and Israel of A.I.D.-Israel collaboration in expanding development assistance from Israel to developing countries.

Israeli expertise and development experience can significantly assist developing countries -- and complement A.I.D. and other donor assistance programs -- in food production, natural resource management, rural/community development, education, health, cooperatives, labor and other areas.

Illustrative areas of such development assistance complementarily are:

- Exploration, Exploitation and Management of Water Resources
- Adaptive Agricultural Research
- Land Conservation
- Technical Training in Agriculture and Related Subjects for Rural Community Development
- Public Health; Potable Water Supply; Child Survival
- Public Cooperative Transport
- Regional/Rural Transport
- Horticulture
- Microenterprise Development
- Cooperative Development
- Irrigation and Soil Management
- Optimization of Yields
- Improving Agricultural Extension
- Agroforestry and Arid Zone Afforestation
- Crop Intensification in Semi-Arid Zones
- Water Harvesting/Micro Catchments
- Aquaculture
- AIDS Workshops
- Incorporation of Women in Economic and Social Development
- Animal Production and Extension Improvement
- Labor and Leadership Development
- Early Childhood Education

Israel possesses a substantial existing technical assistance infrastructure, both physical and programmatic, including several international training facilities, research institutions, and a roster of experts with experience in development projects in developing countries. Training is offered both in Israel and In-Country, and courses are offered in Spanish, French and English.

#### CONTACTS FOR SUPPORT

Collaborating Entity

Mr. Shlomo Bino  
Director, Division of International  
Cooperation (MASHAV)  
Ministry of Foreign Affairs  
Jerusalem, Israel  
Phone: 972-2-521-522  
FAX: 972-2-303-367

Project Officer

Mr. Edward Lijewski  
CDP Project Officer  
R&D/AGR/EPP  
Rm. 406H, SA-18  
A.I.D./W  
Phone: (703) 875-4266  
FAX: (703) 875-4384

**SECTION V.**

**OFFICE-WIDE PROJECT**

PROJECT TITLE: Agriculture Program Development and Support Project

PROJECT #: 936-4200

Duration: FY 1991 - FY 2000

Termination current agreement: n/a

PURPOSE: To improve the design, development, implementation, management and evaluation of the Office of Agriculture portfolio and to provide essential services and resources to the entirety of the portfolio that cannot be provided by other projects.

MEANS OF ACCESS: The Agriculture Program Development and Support (APD&S) Project funds an USDA RSSA for technical personnel for the Office of Agriculture, a USDA PASA for defined services, and additional funding for activities listed below. Regional bureaus, Missions and other offices of A.I.D. may contribute up to \$10 million through buy-ins or OYB transfers. Funding may be provided from the Economic Support Fund or the Development Fund for Africa, as appropriate, as well as other authorized accounts.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: The Agriculture Program Development and Support Project carries out the following types of activities as per Handbook 3, 1D.:

- a. Project or program development, feasibility studies, operational research and pilot testing of hypotheses which may lead to a final project design of an individual new project or to the exploration of new program directions.
- b. Sector assessments or other studies which enhance policy dialogue efforts or lead to a better understanding of technical or institutional constraints.
- c. General purpose activities such as seminars, workshops and special economic, sectoral or statistical surveys and studies which cannot be associated with a single, discrete project, including the publication and other dissemination of appropriate research and technical studies.
- d. Small exploratory research activities or support thereto, including state-of-the-art survey/studies required for preliminary program explorations.

The Agriculture Program Development and Support Project will fund on an exceptional basis and with justification and approval the following:

- a. Evaluations and financial management/audit activities not otherwise budgeted in specific project, program or other agreements.
- b. Reasonable pre-projected implementation costs or bridge funding between terminating and follow-on project.
- c. Program costs associated with monitoring or auditing non-project activities such as non-project assistance under the Development Fund for Africa (DFA) or other forms of sector assistance, PL 480 and CIP when the relevant program assistance agreement does not contain such funding.
- d. Program costs associated with monitoring or auditing Host Country-owned local currency when local currency is unavailable for this purpose.
- e. Travel or short-term training costs of host country public or private sector counterpart personnel when other funds are unavailable.

CONTACT FOR SUPPORT

Project Officer

Loren Schulze

A.I.D. - R&D/AGR

SA-18, Rm. 409D

Washington, D.C. 20523-1809

Phone #: (703) 875-4049

FAX: (703) 875-4379

**SECTION VI.**  
**INTERNATIONAL AGRICULTURAL RESEARCH CENTERS**

PROJECT TITLE: International Agricultural Research Centers Project  
Duration: Annually Renewed Project Termination: n/a

PURPOSE: To provide economic and technical support to the International Agricultural Research Centers (IARCs) and to provide a mechanism for the management of the A.I.D. contribution to the IARCs.

MEANS OF ACCESS: The International Agricultural Research Centers Project provides core funding from A.I.D. to the IARCs and an USDA RSSA for technical personnel for the management of IARC activities for the Office of Agriculture and Scientific Liaison Officers (SLOs). Regional bureaus, Missions and other offices of A.I.D. may access IARCs through agreements with individual IARCs.

GEOGRAPHICAL FOCUS: Worldwide

DESCRIPTION: The International Agricultural Research Centers project provides core budget contributions to 20 IARCs, 16 of which are sponsored by the Consultative Group on International Agricultural Research (CGIAR). The scientific liaison officers serve as resource persons for IARC and U.S. scientists seeking collaborative research opportunities and are identified from the U.S. agricultural research community and assigned to each IARC.

The 16 IARCs of the CGIAR assisted under the project follow:

- Centro Internacional de Agricultura Tropical (CIAT)
- Centro Internacional de Mejoramiento de Maize y Trigo (CIMMYT)
- Centro Internacional de la Papa (CIP)
- International Board for Plant Genetic Resources (IBPGR)
- International Center for Agricultural Research in the Dry Areas (ICARDA)
- International Center for Research on Agroforestry (ICRAF)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Food Policy Research Institute (IFPRI)
- International Institute of Tropical Agriculture (IITA)
- International Irrigation Management Institute (IIMI)
- International Laboratory for Research on Animal Diseases (ILRAD)
- International Livestock Center for Africa (ILCA)
- International Network for the Improvement of Banana and Plantain (INIBAP)
- International Rice Research Institute (IRRI)
- International Service for National Agricultural Research (ISNAR)
- The CGIAR is currently developing a new tropical forestry research institute to begin functioning in 1991.

Four IARCs funded under the project but not associated with the CGIAR follow:

- Asian Vegetable Research and Development Center (AVRDC)
- International Board for Soils Research and Management (IBSRAM)
- International Center for Living Aquatic Resources Management (ICLARM)
- International Center for Insect Physiology and Ecology (ICIPE)

CONTACT FOR SUPPORT

Project Officer

Robert B. Bertram

A.I.D. - R&D/AGR/IARC

SA-18, Rm. 513

Washington, D.C. 20523-1809

Phone #: (703) 875-4070

FAX: (703) 875-4379