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SMALL RUMINANT

COLLABORATIVE RESEARCH SUPPORT PROGRAM

SUMMARY OF ACCOMPLISHMENTS

THE FIRST THREE YEARS

DI01070/X11-6-03/9



SR - CRSP

1981

university of california - davis

**SR-CRSP
WHITE PAPER
SUMMARY OF ACCOMPLISHMENTS**

Requested by and prepared for the Board of Institutional Representatives

by

David W. Robinson

Program Director

The Small Ruminant CRSP (SR-CRSP) is now entering the beginning of its fourth fiscal year. This CRSP was the first, and therefore undertook much of the pioneering work associated with development and implementation of this new idea. At the time we took the CRSP over, there was an incredible amount of groundwork to be done in establishing foreign worksites and educating our many constituencies about the concept of Title XII in general, and CRSPs in particular.

THE CONCEPT OF THE CRSPs

The US, as the world's largest generator of surplus food has provided aid to millions of victims of hunger. Abundant harvests in the US have been widely distributed in acute disaster relief programs and on a regular basis to food deficient nations. It has become apparent, however, especially in the last forty years as the world's population burgeons, that supplying the hungry world with food through distribution of surpluses in no permanent way alters the cycle of poverty and deprivation in the less developed countries (LDC's). Improving the capability of these areas to supply their own food needs is the only real long-term solution to the problem. Recently, to promote this goal, the US Congress passed The International Development and Food Assistance Act of 1975.

Included in the act was Title XII - Famine Prevention and Freedom from Hunger, which states, "...in order to prevent famine and establish freedom from hunger the US should strengthen the capacities of US land grant... universities in program-related agricultural institution development and research... improve their participation in the US government's international efforts to apply more effective agricultural sciences to the goal of increasing world food production and in general should supply increased and longer term support to the application of science to solving food and nutrition problems of the developing countries."

The act also specified that USAID administer and fund Title XII with money from their existing budget and authorized the President to create the Board of International Food and Agricultural Development (BIFAD) to initiate implementation of the act. BIFAD appointed the Joint Research Committee (JRC) to oversee the research-related aspects of Title XII. It was their recommendation that Title XII-sponsored research be implemented through Collaborative Research Support Programs (CRSP's) and among their suggested topics was small ruminants.

WHY A SMALL RUMINANT CRSP?

Forty percent of the world's sheep and 77 percent of the world's goats are in the LDC's, owned primarily by small pastoralists and farmers of very limited means. Despite their low production, these animals contribute very significantly to the economy and food supply in these regions and demand for their products exceeds the supply.

Improving the performance of small ruminants would directly improve the diet and standard of living of a great many people because the animals are inherently well suited to the needs of smallholders and the conditions prevailing in the LDC's. For example, they:

- Have low initial and maintenance costs
- Are able to use marginal land and crop residues
- Produce milk and meat in small, readily usable quantities
- Produce fiber and skins which sustain cottage industries
- Are easily cared for by any member of the family

THE ORGANIZATION OF THE SR-CRSP

- THE MANAGEMENT ENTITY (ME).

Seventeen research proposals were selected to embark upon the first CRSP and UCD, one of the participating institutions, was designated the Management Entity (ME). A Program Director was appointed, and three committees, each of which play a distinct role in the function of the SR-CRSP, were established.

- THE TECHNICAL COMMITTEE (TC) is an executive committee of the CRSP which develops and implements research projects in the US and overseas. It consists of each Principal Investigator.

- THE BOARD OF INSTITUTIONAL REPRESENTATIVES (BIR) is an executive committee of budget and policy. It consists of representatives from the administrations of the participating institutions.

- THE EXTERNAL EVALUATION PANEL (EEP) is an advisory committee of the CRSP responsible for review and evaluation of CRSP research activities and progress. It consists of a multidisciplinary group of eminent scientists from institutions not participating in the CRSP.

- **THE OVERSEAS COUNTERPARTS.**

Overseas counterparts at the level of higher administration and at the scientific levels have made regular attendance and inputs to the Technical Committee and joint TC/Board meetings. In country, there are, in some cases, Program Administration Committees (PAC) in which Ministry, University and International Agency inputs are made to the SR-CRSP.

SR-CRSP BUDGET

Funds for the SR-CRSP have been committed by AID under the terms of Grant No. AID/DSAN/XII-G-0049 which requires a minimum cost sharing contribution of 25 percent from the participating US institutions. The terms of the grant are favorable for a research program, always a long term venture, providing a two year funding horizon and five year planning horizon for participants. The SR-CRSP budget for the initial five year funding period is 15 million US dollars. The overseas collaborators are likely to contribute substantial resources toward the SR-CRSP.

SR-CRSP OVERSEAS WORKSITES

The group of people towards whom the activities of SR-CRSP are directed are the limited resource producers in the LDC's like the smallholders and nomadic husbandmen. The problems unique to their situation make research overseas not only appropriate, but essential if meaningful progress is to be made in improving small ruminant productivity under these conditions. Because the overseas research component of the CRSP was considered the cornerstone of the project, great care was taken to select appropriate overseas worksites which meet the following criteria:

- The sites are representative of the various ecozones and production systems encountered in the tropics. The applicability of CRSP findings should extend beyond the borders of any nation in which the research was conducted and be useful in other areas of similar climate and topography.
- The countries in which the sites are located have established agricultural institutions, staffed by scientists, trained personnel, and students with whom

the CRSP investigators have an opportunity to collaborate. These institutions also provide the extension links which are pivotal to the implementation of CRSP findings. The current overseas and collaborating institutions are:

- Brazil: EMBRAPA
- Peru: INIPA
- Indonesia: AARD
- Kenya: MINISTRY OF AGRICULTURE
- Morocco: HASSAN II UNIVERSITY

SR-CRSP RESEARCH PROJECTS AND GOALS

The individual projects were designed to help alleviate some of the major problems which severely hinder small ruminant productivity in the LDC's.

<u>PROBLEM AREA</u>	<u>RESEARCH AREA</u>
Inadequate year-round feed supply	Nutrition and Feeding
Improper grazing practices	Range Management
Poor reproductive performance	Research on reproduction in the male and female
Non-selective breeding	Genetic improvement of local breeds and crossbreds
Disease-Parasitism	Animal Health
Sub-optimum utilization of available resources	Management
Cultural constraints and lack of capital	Socio-Economic Research
Lack of coordination and integration in improvement efforts	Systems Research

The long range goal of the SR-CRSP is to increase the efficiency of production of meat, milk, and fiber by sheep and goats in order to increase the food supply and raise the income of the smallholder. The program will expand the body of knowledge and increase the level of competence of US and LDC scientists to conduct research on small ruminants in smallholder production systems. This will facilitate the development and testing of appropriate technology and practices to improve small ruminant performance in developing countries.

SUMMARY OF ACCOMPLISHMENTS

Everyone associated with the CRSP both in the USA and overseas should take pride in the fact that in three years, the CRSP has accomplished so much. In summary:

- The five important units of the CRSP have all settled down to an excellent working relationship:
 - The Management Entity
 - The Technical Committee
 - The Board of Institutional Representatives
 - The External Evaluation Panel
 - The Overseas Counterparts

Their work has been thoroughly documented and distributed to all our constituencies.

- We have established Memoranda of Understanding or Initial Agreements with all five of our original target countries where work is now underway: Indonesia, Kenya, Morocco, Brazil and Peru. Excellent working relationships have been established with senior administrators and scientists in each country.
- More than two thirds of the approximately \$15,000,000 of USAID funds have been distributed to participating institutions via subgrants and contracts issued from the University of California at Davis acting as the Management Entity.
- US institutions have matched USAID funds at a rate over 60% according to an independent audit of all the participating institutions.
- Overseas governments have matched USAID funds at a rate of approximately 15% in total - a very significant contribution to the CRSP.
- We currently have an excellent training program underway (Appendix I). There are or have been over 70 overseas students under training as follows:
 - 9 PhD students in the USA
 - 26 MS students in the USA
 - 20 MS students supported in home country programs

-- 15 BS students supported in home country programs

In addition, US students, including 8 PhD candidates, have collected data overseas and five others have utilized overseas data for dissertations. A number of long-term overseas residents have collected data while stationed on-site. (Appendix II)

- Three US technicians have travelled overseas to provide specialized training in analytical procedures and facility development. Four overseas counterpart researchers have studied in the US in short term, intensive instruction in advanced techniques.
- We have been used, primarily, as a scientific resource for our overseas colleagues. In spite of the many comments made about numerous short term trips by US scientists (many of which were inevitable to set up programs), it is true to say that probably the greatest single need, identified by overseas colleagues, has been that of high level technical input from US Principal Investigators to help design long range plans for scientific research.
- We have sponsored over 50 trips to the USA of foreign counterparts for training. These have varied from travel to undertake degree work for short term training, and for technical and administrative purposes.
- We have completed the first comprehensive audit of the entire SR-CRSP by an independent auditor and the result was excellent. There were absolutely no problems resulting from the audit.
- The CRSP has been publicized through a fold-out flyer, a comprehensive paper, six newsletters, a six volume Integrated Program Plan, a five volume Annual Report with complete budget reporting, and a descriptive brochure, all available from the Management Entity Office in Davis.
- One of the most rewarding accomplishments of the CRSP has been the linkages we have been able to provide among institutions, projects and departments overseas. These have included joint work with institutions that have had little contact with each other for decades, until the CRSP came along.

- Teaching and research at US institutions has materially changed as a result of the SR-CRSP. New courses, improved facilities, short courses and campus wide interest have all been generated to a substantial degree. Moreover, the activities of the SR-CRSP have been made public at the national scientific meetings of scientists and producers alike so benefits accruing to the USA from this program can be quickly understood and implemented.
- The Management Entity Office has been an extremely busy place and functioned with a small staff and a relatively very small budget. It has been a clearing house for literally hundreds of inquiries, and the administrative costs of the ME Office itself have been less than 7% of the CRSP budget.
- The Management Entity has attempted to be not only fiscally accountable, but to be realistic in equating dollars awarded with performance. Five of the thirteen institutions have been targeted for budget cuts or termination by the ME based on either EEP recommendations or those of foreign counterparts. This has naturally led to conflict and stress at times--but also perhaps to a better SR-CRSP program in the long run because all have survived the resulting intense scrutiny of their modified program.
- Site development overseas has been very significant. CRSP resources have been used as seed money--the catalyst that has inspired substantial investment from local governments. Many lasting facilities are in place that would not have been had the SR-CRSP not collaborated with particular counterparts.
- Several seminars, workshops, and short courses have been undertaken overseas including three in Peru, one in Kenya, one in Indonesia and two in Brazil. CRSP scientists will also be much in evidence at the upcoming III International Goat Conference in Tucson, Arizona.
- CRSP scientists have already begun to publish their research findings. There have been over 40 papers presented at symposia, seminars and short courses, six papers at major scientific meetings and five papers are submitted for publication in scientific journals. In addition, some 26 internal publications have been developed.(Appendix III)

- Perhaps, most significantly, it has been particularly exciting to see that the SR-CRSP has focused on the needs of the smallholder or limited resource farmer. In Indonesia and Kenya, almost all the effort has been conducted in baseline survey work at the village level in every discipline, backed up by relevant research programs at regional research centers. In Peru almost all the work has concentrated in the Central and Southern High Sierra working with cooperatives formed after land reform or with ethnic groups in isolated villages; and in Brazil the new CRSP has dove-tailed well into EMBRAPA's newly established Sheep and Goat Research Center.

- It is already evident that the benefits to the United States sheep and goat industry are potentially enormous. Just one example is that US scientists have achieved direct "hands on" experience with the world's most prolific breeds of sheep (which all exist outside the US) and with animals characterized by resistance to disease and parasitism which could provide a fundamental understanding of the mechanisms involved and application in the US. Thus a program directed at the small practical producer in the LDC's may yet prove to have far reaching repercussions in our own industry in the USA.

- The SR-CRSP faces devastating financial constraints in the near future if USAID projected levels of funding through 1989 remain at 1978 levels. Matching funds from US institutions and overseas governments (which have been significant and account for almost 50% of the cost of the CRSP) will fall and the entire CRSP will be in jeopardy of collapse. (Appendix IV.)

For more specific details of individual program accomplishments, inquiries may be directed to the Principal Investigators themselves whose location is provided in the expanded description of the SR-CRSP given in the attached brochure. Further detail may be obtained from the Annual Reports.

PROBLEMS ENCOUNTERED BY THE SR-CRSP

It is hardly surprising that a brand new venture like a CRSP would encounter new problems and difficulties. To pretend they do not exist is to jeopardise their possible solution. The greatest difficulties encountered in managing CRSPs stem from the following.

1. Background Preparation for Title XII

- At the time the CRSP was given to the Management Entity, there was absolutely no overseas planning in place. The CRSP team had to wait one year and undertake this task itself.
- The overseas planning was done in full collaboration with USAID who had a representative on each team that visited Asia, Africa, Latin America and the Near East.
- USAID missions overseas were almost completely unaware of what Title XII was supposed to be or do. Reaction varied from cautious optimism to outright hostility, generally reflecting the same attitudes in Washington DC.

2. Changing Personnel in USAID Posts

- The CRSP now has its fifth Project Officer in 3 years in Washington.
- The Mission Director in every country we work with has changed since the inception of the CRSP and so have many of the staff.
- Of the 21 people we interacted with in USAID to place the CRSP overseas and draft the contract, only one of these people is still at the same post.
- On the CRSP side, there has been a change in only 2 of 17 PIs and 3 of 13 Board members.

3. Changing Moods of USAID Missions

Not only have staff changes taken place but the whole attitude of USAID missions has gone through cycles that have made work difficult.

- Indonesia and Peru represent highly professional missions that have been greatly helpful. One of the programs has been successful (Peru) and the other has had difficulties (Indonesia) but the missions have remained faithfully helpful. Both represent missions in which few staff changes have taken place.
- In Kenya, the mood changed from welcome to unwelcome in the initial stages. After a decision to proceed with the CRSP in Kenya was taken, the mood changed from helpful to something less.
- In Morocco, the mood was obstructive at first and led to a 3 year delay in implementation. Staff changes took place and suddenly Morocco has become the most helpful of all missions and the program is running apace.

4. Changes in Overseas Governments and Organizations

Every single country in which we work has gone through a major governmental reorganization.

- Kenya - After a national election, a brand new Ministry, the Ministry of Livestock Development (MLD), was formed. The CRSP signed its MOU with the Ministry of Agriculture but had to change partners in mid-stream.
- Indonesia - The AARD completely reorganized its Animal Husbandry structure. LPP, our collaborating institute, was incorporated into the BPT with a 3 institute consortium and all our counterparts were lost to new administrative duties.
- Peru - INIA, with whom we signed the MOU was changed to INIPA, assuming new and wider responsibilities. It changed offices and the CRSP lost its physical headquarters at INIA.
- Brazil - The Sheep and Goat Research Laboratory moved its location into a new site and a new Director of the laboratory has just been appointed.

5. The Financial Crisis within USAID

- USAID has been on a "continuing resolution" for so long that it has found it hard to meet its fiscal obligations and long term financial planning.
- The University is now more than \$4 million behind in money supposed to be obligated by USAID according to the originally envisaged 2 year funding horizon.
- Critical correspondence regarding the SR-CRSP's financial plight continues to be unanswerable due to USAID's financial crisis.

6. Lack of a Cost Benefit Analysis of the SR-CRSP

- The SR-CRSP has an External Evaluation Panel of world class experts who have thoroughly and continually reviewed the CRSP at considerable cost. They have never been consulted by AID, JRC or BIFAD.
- None of the above groups have ever considered a cost benefit analysis of the CRSP in comparison, say, with bilateral AID contracts, contributions to International Centers etc. Such an analysis may well reveal CRSPs to be the most effective and cost benefit worthy forms of research support ever devised.

7. The Multi-Management Problem

Perhaps the greatest single difficulty is the "fingers in the pie" syndrome whereby everyone perceives they have the right to manage CRSPs. The Missions feel they should dictate, USAID in Washington feels it should, overseas counterparts feel they should, some collaborating institutions feel they should, and not surprisingly, the Management Entity with whom the contract is signed feels it should! To a degree, all have a valid claim. However, when everyone presses their claim simultaneously, the University experiences a departure from the smooth administration to which it has become accustomed.

At some point, if USAID wishes to maintain the attention and interest of US universities in CRSP management, it will have to "let go of the reins", and allow well established, trustworthy institutions which have plenty of checks and balances built into their own bureaucracies, the freedom to manage these programs properly. Otherwise, the universities will simply lose interest.

In the case of the University of California at Davis, the following facts prevail.

- In spite of our well recognized international reputation, we have never applied competitively for any grant from USAID or other international agencies. Our reputation rests exclusively on the quality of our campus and programs, which have been established for decades.
- Nevertheless, we have been offered and agreed to undertake well over \$50 million worth of current contracts with USAID. These include the management of the first CRSP and the first Host Country Contract under Title XII.
- In spite of this pioneering work in international programs on behalf of USAID, which to some degree caught us administratively unprepared, the campus has not received a strengthening grant, even after three consecutive applications. This grant would have substantially improved our CRSP management capabilities.

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APPENDIX I

SMALL RUMINANT CRSP TRAINING PROGRAM

The Small Ruminant CRSP has just completed its third year of operation. One of the SR-CRSP's main goals has been to train research scientists capable of implementing the long range research programs being set up around the world in consultation with some of the best senior scientists in the US (the Principal Investigators). The training has taken several forms:

- Degree training of foreign students in US institutions
- Degree training of foreign students in their own universities
- Degree training of US students in overseas countries
- Non-degree specialized training of foreign students in the US

A summary of the training supported by the SR-CRSP is presented below.

A strenuous effort has been made to dovetail the SR-CRSP into other training programs in the overseas programs to save precious resources of the CRSP. Some of the trainees working on SR-CRSP campuses, participating in sheep and goat research and destined to return to SR-CRSP activities, have been financed by such agencies as FAO (Kenya), USAID scholarships (Kenya and Indonesia), World Bank (Indonesia and Kenya), Minnesota (Morocco), EMBRAPA (Brazil) and INIPA (Peru). Most, however, have been supported directly by the SR-CRSP. Given the slow start up of the SR-CRSP in which a year to eighteen months were lost before overseas country operations began, the Management Entity and the External Evaluation Panel feel that Principal Investigators in US participating institutions have done an outstanding job in developing the training of researchers for the future. The record will bear comparison with any other USAID sponsored program.

TRAINING - OVERSEAS STUDENTS IN DEGREE PROGRAMS IN US

Brazil

- | | |
|--------------------|---|
| Joao S. de Queiroz | PhD Range Management
Utah State University
In Brazil 1980 |
| Marisa Neumaier | MS Rural Sociology
University of Missouri 1981-83
EMBRAPA Support |

Indonesia

- | | |
|-------------------|---|
| Kedi Suradisastra | MS Rural Sociology
University of Missouri 1981-83 |
| Budi Haryanto | MS Animal Nutrition
North Carolina State University 1981-82
Partial support by World Bank |

Sorta Silitonga

MS Animal Nutrition
University of Minnesota 1981-82
Partial support by NCSU CRSP

Agus Muljadi Natasukarya

MS Production Economics
Texas A&M University 1981-82
Supported by Winrock International

Kenya

Collette Suda

Training in Sociology
University of Missouri 1981
Departed CRSP 1/1/82

Johnson Bari

MS - Veterinary Microbiology
Washington State University 1981-83

Stanley Mbwiria

MS Veterinary Physiology
Washington State University 1981-83

Abdillahi Aboud

MS Rural Sociology
Ohio State University 1981-83
Thesis Research Supported by U. of Missouri
CRSP

James N. Kibuchi

MS Animal Management
Tuskegee Institute 1981-82
Supported by Winrock-Production Systems

Judith W. Kimotho

MS Animal Science (Nutrition)
Cal Poly University, Pomona
Partially Supported by USDA

James Mathenge

MS Animal Breeding
Texas A&M University-Systems 1980-81

William Mshuyi

MS Animal Science (Reproduction)
Cal Poly University, Pomona
Partially Supported by USDA

Zachariah Gathuka

MS Animal Breeding
Texas A&M University-Systems 1980-82
Partially supported by FAO

William Odenya

MS Animal Science
University of California, Davis 1980-82
Partially supported by FAO

Alfeyo Okeyo-Mwai

MS Animal Science
University of California, Davis 1981-83

Edward Rege MS Animal Science
University of California, Davis 1981-83
Partially supported by World Bank

Daniel K.H. Rotich MS Animal Science (Management)
Cal Poly University, Pomona

Peru

M. Enrique Nolte PhD Animal Science
Ohio State University, 1981-

Ramiro Farfan MS Range Management
Texas Tech University 1980-82
Partially supported by LASPAU

Enrique Flores MS Range Management
Utah State University 1980-82
Partially supported by LASPAU

Lidia Jimenez MS Sociology
University of Missouri 1981-83

Domingo Martinez Castilla MS Production Economics
University of Missouri 1981-82
Supported by Winrock-Economics

Corinne Bertha Valdivia MS Agricultural Policy
University of Missouri 1981-83
Supported by Winrock-Economics

H. William Vivanco MS Reproduction
Cal Poly Pomona 1981-83

Luis Coronado MS Animal Science
Texas A&M University 1980-82

Miscellaneous

Mammo Beshah PhD Sociology
University of Missouri
Partial Support by Missouri-Sociology

Geanlucca Brenni PhD Animal Breeding
(Switzerland) Texas A&M University 1980-81

Omar Garcia PhD Animal Genetics
(Venezuelan) University of California, Davis 1981
Partial support California-Breeding

Gonzalo Gonzales (Urug.ayan)	MS Animal Genetics University of California, Davis 1980- UCD-Breeding Partial Support
Girma Hawariatt (Ethiopian)	PhD Animal Breeding Texas A&M University 1980-81
Jean-Marie Lubinbuhl (Switzerland)	MS and PhD Animal Nutrition North Carolina State University
Godfrey Mandari (Tanzanian)	MS Animal Science (Reproduction) Cal Poly University, Pomona Partially Supported by USDA
Roberto Neira (Chilean)	PhD Animal Genetics University of California, Davis 1980 Partial support California-Breeding
Avi Perevolotsky (Israeli)	PhD Anthropology University of California, Davis Dissertation Research Supported by U. of Missouri-Sociology

TRAINING OF OVERSEAS DEGREE CANDIDATES OVERSEAS WITH CRSP SUPPORT

Brazil

Francisco de Assis-Arruda	MS Federal University of Ceara, Brazil North Carolina State University-Forages
Nestor Gutierrez (Colombian)	PhD Agricultural Economics Purdue University Winrock-Economics
Roberto Mesquita	MS Range Science Utah State University-Range
Jose de Souza	MS Marketing (Completed 1981) Federal University of Ceara, Brazil Winrock-Economics
Odorico de Costa	MS Marketing (Completed 1981) Federal University of Ceara, Brazil Winrock-Economics
Valderi Vieira da Silva	MS Production Systems Federal University of Ceara Winrock-Economics
Fatima Moura Fe	MS Animal Science Federal University of Ceara, Brazil Winrock-Economics

Indonesia

Sugianto

MS Production Economics
Institut Pertanian Bogor, Indonesia
Winrock-Economics

M. Setiadi

MS Animal Science
IPB University Bogor, Indonesia
Univ. of California, Davis-Animal Breeding

Kenya

Morgan Job
(Trinidad-Tobago)

PhD Agricultural Economics
Purdue University
Winrock-Economics

Peru

Juan Bueno S.

MS Animal Breeding
National Agrarian University, Lima, Peru
Montana-Animal Breeding

Luiz Juan Bueno

Ing. Agr.
National Agrarian University, Lima Peru
Texas Tech-Range Management

Diana Chavez

Ing. Agr. Thesis Research
National Agrarian University, Lima, Peru
Montana-Animal Breeding

Jorge Gamarra

Ing. Agr.
National Agrarian University, Lima Peru
Texas Tech-Range Management

Carlos Guittierrez

DVM, San Marcos University, Lima Peru
Texas Tech-Range Management

Ivan Larez

Ing. Agr.
National Agrarian University, Lima Peru
Texas Tech-Range Management

Marina Rios

DVM San Marcos University, Lima Peru
Texas Tech-Range Management 1980-81
MS Animal Health
Colorado-Animal Health 1981-82

Juan Rogue

MS Animal Breeding
National Agrarian University, Lima Peru
Montana-Animal Breeding

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Nelly Vasquez	Ing Agr. National Agrarian University, Lima Peru Texas Tech-Range Management
Humberto Rodriquez	MS, National Agrarian Univ. Lima Peru Montana State University-Animal Breeding Completed 1981
Gladys Huapaya	MS, National Agrarian Univ. Lima Peru Montana State University-Animal Breeding
Prospero Cabrera	MS, National Agrarian Univ. Lima Peru Montana State University-Animal Breeding
Victor Lopez	Ing. Agr., National Agrarian Univ. Lima Peru Montana State University-Animal Breeding Completed 1981
Gladys Garay	Ing. Agr., National Agrarian Univ. Lima Peru Montana State University-Animal Breeding Completed 1981
Gorki Llerena	MS, Economics & Marketing (Completed 1981) National Agrarian Univ., Lima Peru Winrock Economics
Martha Cruces	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Roxana Diaz	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Jose Gols	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Juan Machuca	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Luis Peralta	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Jesus Ruiton	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Alberto Soto	MS Animal Health San Marcos University, Lima, Peru Colorado-Animal Health

Ruben Valarde	Ing. Agr. Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
Teodora Quispealaya	MS Agricultural Economics National Agrarian University, Lima Peru Winrock-Economics
*Alfredo Callahuanco	MS Marketing National Agrarian University, Lima Peru Winrock-Economics
*Percy Vilca	MS Marketing National Agrarian University, Lima Peru Winrock-Economics
*Isabel Luque	Licencature, Marketing National Agrarian University, Lima Peru Winrock-Economics

*Discontinued August 1981

TRAINING OF US DEGREE CANDIDATES OVERSEAS

Brazil

Nancy East, DVM	M. Preventative Medicine University of California, Davis National Goat Research Center, Brazil Univ. of California-Animal Health
Linda Howell Hardisty	PhD Range Science, Brush Management and Ecology Utah State University, Logan Utah-Range Management
James A. Pfister	PhD Animal Nutrition, Utah State Univ. National Goat Research Center, Brazil Utah State University-Range Management

Kenya

Michael Sands	PhD Animal Science, Cornell University Ministry of Livestock Development, Kenya Winrock International-Production Systems
Danna Lee Mortimer	MS Animal Health, Washington State University Ministry of Livestock Development, Kenya Washington State-Animal Health
Amanda Noble	MS Rural Sociology, University of Missouri Ministry of Livestock Development, Kenya University of Missouri-Sociology

Morocco

Neil Artz PhD Range Management, Utah State University
Hassan II University, Morocco
Utah State University-Range Management

Peru

Keith Jamtgaard MS Rural Sociology, University of Missouri
University of Cuzco, Peru
University of Missouri-Sociology

Constance McCorkle PhD Anthropology, Stanford University
Univ. of Cuzco, Peru
University of Missouri-Sociology

Brad Wilcox MS Range Management, Texas Tech Univ.
National Agrarian University, Lima, Peru
Texas Tech-Range Management

John Ellis, DVM PhD Pathology, Colorado State University
San Marcos University, Lima Peru

TRAINING OF US STUDENTS IN US

Jerry Baker PhD Animal Breeding, Texas A&M
Kenyan Data
Texas A&M-Systems

Lynn E. Brown MS and PhD Animal Nutrition
North Carolina State University
Goat & Sheep Utilization of Crop Residues
NCSU-Nutrition

Helaine Burstein PhD Animal Nutrition
North Carolina State University
Metabolic Parameters Related to Pregnancy and
Lactation in the Goat
NCSU-Nutrition

Pamela Jo Howard MS Marketing, University of Florida
Goat Milk Marketing
Winrock-Economics

Laurel Lasslo PhD Animal Genetics,
University of California, Davis
Sheep Records
Univ. of California-Animal Breeding

TRAINING OF OVERSEAS VISITORS TO US - NON-DEGREE

Indonesia

Subandriyo Univ. of California, Davis-Animal Breeding
Sheep research experience, 2 months

Andi Djajanegara North Carolina State Univ. and Cornell
Nutrition Laboratory experience, 1 month

Kenya

Dr. David Kimenye Univ. of California, Davis-Animal Breeding
Study leave from Univ. of Nairobi, 3 months
Partial support Univ. of Calif. Education
Abroad

Rose Naliaka CRSP Management Entity
Management experience, 1 month

Peru

Dr. Jorge Velasco Montana State University-Breeding
Updating and Professional Meeting, 1 month

Dr. Juvenal Casaverde University of Missouri-Sociology
Research data processing, 2 months

Dr. Dora Huaman Colorado State University-Animal Health
Bacteriology experience, 1 month

Dean Eddo Caletti Colorado State University-Animal Health
Virology experience at Colorado and
National Animal Disease Center, 1 month

MISCELLANEOUS

Ten Overseas students:

Cal Poly Pomona and Utah State Univ.
A six week short course on small ruminants

Jacob Fadeyi
Nasser Zahir Nasser
Andi Djajanegara
El Sayed Mansour
Ali Juma
Godfrey Mandari
David Miller
Vansy A. Brown
Johanthan O. Hemmings
Setshwane Kgetse

Nigeria
Oman
Indonesia
Egypt
Tanzania
Tanzania
Jamaica
Jamaica
Jamaica
Botswana

TRAINING OVERSEAS FOR OVERSEAS STUDENTS AND FACULTY WITH CRSP SUPPORT
NON-DEGREE

Reproduction Short Course	Sobral, Brazil Cal Poly, Utah Reproduction 18 professionals, 2 weeks
Forage-Vegetation Sampling	Sobral, Brazil Utah State Univ.-Range Management 16 professionals, 2 days
Sheep Production Short Course	Bogor, Indonesia Univ. of Calif., Davis-Animal Breeding Univ. of Mo.-Sociology North Carolina State Univ.-Nutrition Winrock-Economics 23 professionals, 2 weeks
Veterinary Lab Techniques	Kabete, Kenya Washington State University-Animal Health Microbiology and physiology laboratory 6 weeks
Pathology and Immunology Lab	Lima, Peru Colorado State University-Animal Health 5 technicians, 1-2 weeks
Reproduction Short Course	Lima, Peru Cal Poly-Utah Reproduction 27 professionals, 1 week
Animal Breeding Short Course	Lima, Peru. Montana State University-Animal Breeding Collaborating faculty from National Agrarian University, IVITA, Utah-Reproduction, Winrock- Economics, INIPA, and SAIS Tupac Amaru 65 professionals and students; 5 days
On the Job Training	Kenya-Maseno Vet Farm Winrock-Production Systems Elijah Mokaya 9/81-11/81 Nafasi Aseyo 9/81-11/81 Marioth Nderito 7/81-11/81 Moses Mathuva 5/81-11/81 Muhamed Salim 10/81-11/81 Kenneth Otieno 11/1-11/30/81

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SUPPORT FOR OVERSEAS PROFESSIONALS TO ATTEND PROFESSIONAL MEETINGS OVERSEAS.

Peru

Manuel Carpio	Latin American Society of Animal Production Dominican Republic October, 1981 Montana-Animal Breeding
Ramiro Farfan	Fourth Int'l Conf. on S. American Cameloides Punta Arenas, Chile November, 1981 Texas Tech-Range
Arturo Florez	Int'l Society of Range Management Calgary, Alberta, Canada February, 1982 Texas Tech-Range
Maximo Gamorrok	Latin American Society of Animal Production Dominican Republic October, 1981 Peru Projects
Antonio Ramirez	Fourth Int'l Conf. on S. American Cameloides Punta Arenas, Chile November, 1981 Colorado-Health

SUPPORT FOR ADMINISTRATIVE VISITS TO THE US

Brazil

J.M. Pompeu Memoria	June 1980 Conference, Washington, DC
Ederlon Oliveira	Feb. 1981 Brazil Meeting, Denver, CO and visits to UCD, NCSU, TAMU, Tuskegee, Utah and Winrock
Elino Alves de Moraes	April 1981 Technical Committee, Davis, CA
Raymundo Fonseca	April 1981 Technical Committee, Davis, CA
Odon Santana	April 1981 Technical Committee, Davis, CA

Indonesia

M. Panjaitan	November 1979 Technical Committee, College Station, Texas.
M. Panjaitan	April 1981 Technical Committee, Davis, CA

Kenya

Samuel Chema	April 1981 Technical Committee, Davis, CA and visits to WSU, TAMU, U.Mo, Ohio
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Morocco

Fuoad Gessous August 1980 ASAS Meeting, Tucson, AZ

Peru

Carlos Valverde June 1980 BIFAD Seminar

Guillermo Parodi July 1980 Vice-Rector National Agrarian Univ.
(UNA)

Manuel Carpio Aug 1980 Chairperson Zootecnia, UNA
Attended ASAS, Cornell U., visited Montana and
Texas Tech

Carlos Valverde April 1981 Technical Committee, Davis, CA

RESEARCH AND PROGRAM PLANNING TRAVEL TO THE US

Brazil

Aurino Simplicio August 1980 ASAS Meetings

Elsio de Figueiredo March 1980 Texas A&M

Kenya

Z. Owiro November 1979 Meeting with Technical Committee
and Board, Texas A&M

A.B. Carles October 1980 Conference at Texas A&M

Peru

Jorge Flores Jan. 1980 Pastoralism Conference
at University of Missouri

Arturo Florez August 1980 ASAS Meeting, Cornell University.
Visited Montana and Texas Tech

Domingo Martinez Jan. 1980 Pastoralism Conference
at University of Missouri

Ricardo Valdivia March 1981 Visited Participating Universities

Alberto Sato March 1981 Visited Participating Universities

Jorge Velasco July 1981 ASAS Meeting and visited Montana,
North Carolina, and Texas A&M

Miscellaneous

Norman Graham

March-May 1981 Assisted with formulation of
Sheep Model at Texas A&M University

ANTICIPATED COUNTERPART ATTENDENCE AT BIFAD

Science and Technology Meetings AID

Technical Committee Meetings and Third International Goat Conference
January 1982

Brazil	Dr. Luiz Carlos L. Friere, National Goat Center--EMBRAPA
Indonesia	Dr. M. Sabrani, LPP, Bogor, Indonesia
Morocco	Dr. Lahlou Kassi, Hassan II University, Rabat, Morocco
Kenya	Dr. Samuel Chema, Ministry of Livestock Development, Nairobi, Kenya
Peru	Dr. Carlos Valverde, INIPA, Lima, Peru

APPENDIX II

LONG TERM OVERSEAS PARTICIPANTS BY DEGREE AND COUNTRY

Brazil

G. Primov	PhD	Sociology
T. Robb	PhD	Forages
C. Zometa	PhD	Management
N. Guttierrez	PhD Candidate	Economics
D. Hansen	DVM	Animal Health
C. Daley	DVM	Animal Health
N. East	DVM	Animal Health
R. Kirmse	MS	Range Management
T. Miller	BA/BS	Site Coordinator & Bus. Administration/Plant Science

Indonesia

H. Knipscheer	PhD	Economics
J. Levine	PhD	Breeding
N. Thomas	PhD	Site Coordinator & Forages
S. Mink	MS	Economics

Kenya

D. Brown	PhD	Management
S. Russo	PhD	Forages
F. Ruvuna	PhD	Systems
H. Blackburn	PhD Candidate	Systems
M. Job	PhD Candidate	Economics
M. Sands	PhD Candidate	Management
J. Bell	MD	Animal Health
P. Sayer	DVM	Animal Health
Y. Berger	MS	Site Coordinator & Animal Breeding
R. Matthewman	MS	Economics
D. Mortimer	MS	Economics
A. Noble	MS	Sociology
T. Quick	MS	Forages

Morocco

N. Artz	PhD Candidate	Range Management
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Peru

E. Lotterman	PhD	Economics
C. McCorkle	PhD	Sociology
A. Schlundt	PhD	Range Management
G. Sides	PhD	Reproduction

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G. Primov	PhD	Sociology
T. West	PhD	Sociology
K. Jamtgaard	PhD Candidate	Sociology
B. Quijandria	PhD Candidate	Site Coordinator & Animal Breeding
A. Perevolotsky	PhD Candidate	Anthropology
J. Ellis	DVM	Animal Health
T. Capps	MS	Economics
R. Cochran	MS	Forages
B. Wilcox	MS	Range Management

APPENDIX III

PUBLICATIONS

Publications--formal and informal--and verbal presentations by SR-CRSP related or supported personnel.

Refereed Journal Articles (Accepted or In Print)

- Campbell, R.R., M.F. Nolan and John F. Galliher. 1981. Reflections of Title XII Collaborative Research: The Case of Sociology in the Small Ruminant CRSP. (Presented at 5th World Congress for Rural Sociology, Mexico City) *The Rural Sociologist* I (1) 2-10. U.Mo.-Sociology
- DeBoer, A. J. 1981. Socioeconomic Aspects of Dairying in Developing Countries. *J. Dairy Sci.* 64 (12):2453-2462. Winrock-Economics
- Gilles, Jere L. and Keith Jamtgaard, 1981. Overgrazing in Pastoral Areas - The Commons Reconsidered. *Sociologia Ruralis* XXI (2): 129-141. To be reprinted in "Nomadic Peoples". U.Mo.-Sociology
- Gilles, J. L. and K. Jamtgaard. 1982. Common Pastures: An Advantage or Constraint? *Rangelands*. In Press. U. Mo.-Sociology
- Gutierrez, N. F., A. J. DeBoer and E. Ospina. 1981. An Econometric Model of the Columbian Beef Sector: 1950-1970. *Canadian J. Agr. Econ.* 29(3): (In Press). Winrock-Economics
- Kennedy, B.W., C.M. Finley, E.J. Pollak and G.E. Bradford. 1981. Joint Effects of Parity, Age and Season of Kidding on Milk and Fat Yields in Dairy Goats. *J. Dairy Sci.* 64:1707-1712. UCD-Breeding
- Shelton, Maurice. 1980. Goats: Influence of Various Exteroceptive Factors on Initiation of Estrus and Ovulation. *Int'l. Goat & Sheep Res.* 1:156. TAMU-Breeding
- Shelton, M. and Elsie A. P. Figueiredo. 1982. Types of Sheep and Goats in Northeast Brazil. *Int'l. Goat & Sheep Res.* (In Press). TAMU-Breeding & CNPC
- Tengerdy, R. P. , D. L. Meyer, L. H. Lauerman, D. C. Lueker, and C. P. Nockels. 1981. Vitamin E enhances immunity to Clostridium perfringens, type D, in sheep. In Press, *Veterinary Immunol. Immunopathol.* Colorado-Health
- Wescott, R. and B. Leamaster. 1981. Efficacy of Ivermectin Against Naturally and Experimentally Induced Nematodiasis in Sheep. *Am. J. Vet. Res.* In Press. Washington-Health

Publications Submitted

- Alderson, A., A. Naranjo, G.E. Bradford, D.D. Kress, P.J. Burfening and R.L. Blackwell. 1981. A Comparison of Four Imported Breeds of Sheep and the Native Criolla in Colombia. Int'l Goat and Sheep Res. (Submitted).
Montana & UCD-Breeding
- Calhoun, M.C., B.C. Baldwin, Jr. and Maurice Shelton. Comparison of Dry Matter Intake and Digestibility and Some Blood Constituents of Sheep and Goats. TAMU-Breeding
- Edwards, R. L., D. D. Crenwelge, J. W. Savell, M. Shelton and G. C. Smith. 1982. Cutability and Palatability of Rambouillet, Blackface-crossbred and Karakul lambs. Int'l. Goat & Sheep Res. (Submitted) TAMU-Breeding
- Ellis, J. A. and J. C. DeMartini. Causes of Morbidity and Mortality in Smallholder Flocks in Peru, with Special Emphasis on Respiratory Diseases. Colorado-Health
- Fiscus, S. A., J. C. DeMartini and L. D. Pearson. Mitogen-induced blastogenesis of peripheral blood and efferent lymph lymphocytes from normal sheep. Colorado-Health
- Lawson, Janet and Maurice Shelton. 1982. Observations on Breeding Season Variations and Early Weaning of Spanish Does. Int'l. Goat & Sheep Res. (Submitted). TAMU-Breeding
- Malechek, J. C. and F. D. Provenza. 1982. Nutrition of the Range Goat. World Animal Review (In Press). Utah-Range
- Riley, R.R., M. Shelton, J.W. Savell and G.C. Smith. 1982. Age, Sex, Breed and Species Differences in Carcass and Dress-off Item Yields of Sheep and Goats. J. An. Sci. (Submitted). TAMU-Breeding

Theses

PhD

- Garcia-Betancourt, O.J. 1981. Genetic Analysis of a Crossbreeding Experiment Using Improved Dairy Goat Breeds and Native Goats in a Dry Tropical Environment. PhD dissertation. University of California, Davis. UCD-Breeding
- DaSilva, Jose H. 1981. The Effects of Age of Regrowth, Daylength and Ambient Air Temperature on the Growth and Quality of Three Forage Species. PhD Thesis. North Carolina State University. XI plus 197 pages NCSU-Forages
- McCorkle, Constance. 1981. Animal Management and the Agro-Pastoral Dialectic with Implications for Development. PhD Dissertation. Stanford University. U. Mo.-Sociology

MS

- Ashley, A. 1980. Evaluation of Sweet Potato Vines and Leaves as an Energy Source for Small Ruminants. MS Thesis. Tuskegee Institute. Tuskegee-Management
- Brasfield, John C. 1980. A Comparison of Voluntary Intake and Digestibility in Sheep Breeds and Crosses Fed Diets Varying in Composition and Quality. MS Thesis. North Carolina State University. 51 pages. NCSU-Forages
- Brown, Lynn E., 1981. Goats and Sheep: A Comparison of Intake, Digestibility, and Other Metabolic/Digestive Parameters When Fed Wheat Straw Rations. MS Thesis, North Carolina State University. 86 pp. NCSU-Forages
- De Moraes Eloy da Costa, Odorico. 1981. Oferta de Exportacao de Peles de Caprinos e Ovinos (Export Supply of Sheep and Goat Skins). MS Thesis, Dept. of Agricultural Economics, Federal University of Ceara, Fortaleza, Brazil. Winrock-Economics
- De Souza, Jose. 1981. A Simultaneous Equation Model of Sheep and Goat Sale and Inventory Response in Ceara State, Brazil: 1950-1970. MS Thesis. Dept. of Ag. Economics, Federal University of Ceara, Fortaleza, Brazil. Winrock-Economics
- DeSouza Neto, Jose. 1981. Analise Econometrico da Oferta de Caprinos e Ovinos no Ceara, Brazil (An Econometric Analysis of Sheep and Goat Supply in Ceara State, Brazil). MS Thesis, Department of Agricultural Economics, Federal University of Ceara, Fortaleza, Brazil. Winrock-Economics
- Drobnis, E. Z., 1981. Processing Frozen Goat Semen. MS Thesis. California State Polytechnic University, Pomona. Cal Poly-Reproduction
- Elliot, A.W. 1980. The Effects of Supplementing Grass Hay with a Concentrate Containing Dried Cattle Manure. MS Thesis. Tuskegee Institute. Tuskegee-Management
- Hansen, H. H. 1981. Goat Diets in an Upland Hardwood Ecosystem. MS Thesis. University of Florida. Winrock-Management
- Howell, L. 1981. Review of Tropical and Subtropical Brush Management Techniques with Special Reference to Northeastern Brazil. MS Thesis (Plan B). Utah State University. Utah-Range
- Jamtgaard, Keith. 1981. Communal Pasture Management in Southern Peru. MS Thesis. University of Missouri. U.Mo.-Sociology
- Llerena, Ghorki. 1981. Analisis Economico de la Produccion y Comercializacion de la Fibra de Alpaca (Economic Analysis of the Commercial Production of Alpaca Fiber). MS Thesis, Department of Economics and Planning, National Agrarian University, La Molina, Lima, Peru. Winrock-Economics
- Mathenge, James M. 1981. Growth Curve Analysis of Rambouillet Ewes. MS Thesis. Texas A&M University. TAMU-Systems

- Mathenge, James M. 1981. Growth Curve Analysis of Rambouillet Ewes. MS Thesis. Texas A&M University. TAMU-Systems
- Myers, R. P. 1982. Perinatal Mortality in Lambs on a Southeastern Wyoming Ranch. MS Thesis. Colorado State University. Colorado-Health
- Noble, Amanda. 1981. Women's Goat Cooperatives in Western Kenya. MS Thesis. University of Missouri. U.Mo.-Sociology
- Rodriguez, Humberto L. 1981. Parametros Geniticos y Fenotipicos en Ovinos. MS Thesis. Universidad Nacional Agraria, La Molina, Peru. Montana-Breeding
- Warren, Lee. 1981. Diets of Various Breeds of Sheep and Goats Grazing in Common on Selected Plant Communities in West Texas. MS Thesis. Texas A&M University. TAMU-Breeding

Abstracts

- Arruda, F. A. U., E. R. Oliveira, N. N. Barros, W. L. Johnson, and A. R. Azevedo. 1981. Restolho de cultura do milho para ovinos da raza Santa Ines mantidos em confinamento (Maize crop residue for Santa Ines sheep in confinement). Anais, Congresso de Zootecnia, Goiania, GO, Brasil. NCSU-Forages & CNPC
- Brown, D. L. and D. E. Hogue. Effects of Monensin Sodium on Lactating French Alpine Does. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Winrock-Management
- Brown, L. E., and W.L. Johnson. Indigestible Cell Wall Components as Intake-limiting Factors for Screened Manure Solids or Wheat Straw Rations Fed to Holstein Steers. Abstract 582, ASAS 1980. NCSU-Forages
- Brown, L. E. and W. L. Johnson. Products of Digestion and Metabolism in Goats and Sheep Fed Varying Levels of Wheat Straw. Proc. III Int'l. Conf. on Goat Prod. & Disease. Tucson, AZ. 1982. NCSU-Forages
- Brown, L.E., and W.L. Johnson. Intake and Digestibility of Wheat Straw Rations Fed to Goats and Sheep. Abstract 634, ASAS 1981. NCSU-Forages
- Burfening, P.J., M. Carpio, D.D. Kress, and R.L. Blackwell. Reproductive Performance of Improved Sheep in the Central Highlands of Peru. Abstract 128, ASAS. 1981. Montana-Breeding
- Cartwright, T. C. and G. M. Smith. Systems Analysis of Goat Production. Proc. III Int'l. Conf. on Goat Prod. & Dis. Tucson, AZ. 1982. TAMU-Systems
- Collins, J. A., J. M. Rakes, N. Kasireddy, C. H. Mannasmith, and J.A. Yazman. Bacteria? and Somatic Cell Evaluation of a Grade-A Goat Milk Herd in Arkansas. J. Dairy Sci. 63 (Suppl. 1): 40, 1980. Winrock-Management
- Correa-Gumbe, J.E. and Nancy Stott. The Effects of Monensin on Food Intake, Feed Conversion and Carcass Traits of Male Goats. Abstract 643, ASAS 1981. Tuskegee-Management

DaSilva, J.H.S., and W.L. Johnson. Composition and Digestibility of Cool and Warm Season Forage Species, Related to Maturity, Environment and Plant Anatomy. Abstract 365, ASAS 1981. NCSU-Forages

DaSilva, J.H.S., and W.L. Johnson. Maturity and Environmental Effects on Morphology and Anatomical Structure of Cool and Warm Season Forage Species. Abstract 366, ASAS 1981. NCSU-Forages

DeBoer, A. J., M. Job and G. Maudu. The Relative Profitability of Meat Goats, Angora Goats, Sheep, and Cattle in Four Agro-economic Zones of Kenya. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Winrock-Economics

Dentine, M. R. and B. T. McDaniel. Potential Genetic Gain in US Dairy Goats. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. NCSU-Forages

Djajanegara, A., N. Thomas and W. L. Johnson. Patterns in Goat and Sheep Production in Java. Proc. III Int'l. Conf. on Goat Prod. & Dis. Tucson, Az. 1982. NCSU-Forages

Drobnis, E. Z., E. A. Nelson and T. Y. Lin. The Effect of Freezing Rate on Motility and GOT Release of Frozen Goat Spermatozoa. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Cal Poly-Reproduction

Drobnis, E. Z., E. A. Nelson and M. J. Burrill. Effect of Several Processing Variables on Motility and Glutamic Oxalacetic Transaminase Levels for Frozen Goat Semen. I Diluent. II Washing. III Glycerol level. Proc. W. ASAS. Vol 31:170-175. 1980. Cal Poly-Reproduction

Farfan, R. Stocking Rates of Alpacas from Fertilized and Unfertilized Native Range. Proc. IV Int'l. Conf. on S. American Cameloides. Punta Arenas, Chile. Nov. 1981. (In Press). Texas Tech-Range

Figueiredo, E. A. P., M. Shelton, and K. P. Pant. Goat Skins. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ 1982. TAMU-Breeding & CNPC

Finley, C.M., G.E. Bradford, B.W. Kennedy and F.D. Murrill. Use of DHIA Production Records for Dairy Goat Sire Evaluation. Proc. III Int'l. Conf. on Goat Prod. & Dis. Tucson, AZ 1982. UCD-Breeding

Finley, C.M., E.J. Pollak, B.W. Kennedy and G.E. Bradford. Influences of Parity and Seasonal Breeding Pattern on Age Adjustment Factors for Dairy Goats. American Dairy Science Association 75th Annual Meeting, Blacksburg Virginia. J. Dairy Sci. 63:112, Suppl. 1 (Abstract) 1980. UCD-Breeding

Florez, A. and E. Malpartida. Overgrazing of Native Rangeland by Vicuna in the Pampa Galeras National Reserve, Peru. International Society for Range Management. Abstract. Calgary, Alb. 1982. (In Press) Texas Tech-Range

Gannaway, M. A. and F. C. Bryant. Vegetation Response to Simulated Short Duration Grazing at Different Sheep Stocking Rates. Highlights, Nox. Brush & Weed Control Prog., (Abstract) Texas Tech. Univ. Pul. 12. (In Press).
Texas Tech-Range

Garcia, O, J. Bravo, B. Kennedy and E. Garcia. Crossbreeding of Imported and Native Goats in a Dry Tropical Environment II. Production and Reproduction. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982.
UCD-Breeding

Garcia, O., E. Garcia, B. Kennedy and J. Bravo. Crossbreeding of Imported and Native Goats in a Dry Tropical Environment I. Survival and Growth of Kids. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ 1982. UCD-Breeding

Gebrelul, S. W., D. H. Matthews and W. C. Foote. Lamb Performance From Targhee and Targhee-cross Ewes. ASAS Abstract 30. 1980. Utah-Reproduction

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Utah-Reproduction

Gutierrez, N. F., A. J. DeBoer and V. Vieira. Capital Formation and Farm Incomes for a Sample of Sheep and Goat Producers in Northeast Brazil. Proc. III Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Winrock-Economics

Hansen, H. H., and R. D. Child. Goat Diets on an Upland Hardwood Ecosystem. ASAS. Abstract 325. 1980. Winrock-Management

Haryanto, B., W. L. Johnson and N Thomas. Intake Preferences for Cassava, Sweet Potato, Banana and Napier Grass Forages by Indonesian Sheep and Goats. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982.
NCSU-Forages & LPP

Hinshelwood, M. M., E. A. Nelson, M. J. Burrill and E. Z. Drobnis. Effects of Diluent, Washing and Equilibration Time on Progressive Motility and Glutamic Oxalacetic Transaminase Levels for Frozen Ram Semen. Proc. WASAS. 31:181-184. 1980. Cal Poly-Reproduction

Hoopes, P. J., S. P. Snyder, and S. A. Fiscus. Serologic Evaluation of Ovine Progressive Pneumonia in Bighorn Sheep Using Microimmunodiffusion Test. Wildlife Dis. Assoc. Conf. Aug. 1981. Abstract 53. Colorado-Health

Huapaya, Gladys F. and Manuel Carpio P. Tasa de Incremento de Peso Vivo del Nacimiento al Destete y Esquila en Ovinos Junin. Proc. Asociation Peruana de Produccion Animal. Ayacucho, Peru. July 1981. Montana-Breeding & UNA

Hunter, S., E. Z. Drobnis, E. A. Nelson and M. J. Burrill. Effects of Diluent, Washing and Equilibration Time on Progressive Motility and Glutamic Oxalacetic Transaminase Levels for Goat Semen. IV Washing solution. Proc. WASAS. 31:178-181. 1980. Cal Poly-Reproduction

Hunter, S., L. L. Garcia, E. A. Nelson, E. Z. Drobnis, and T. Y. Lin. Training and Collection of Male Goats Using the Artificial Vagina. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Cal Poly-Reproduction

- Johnson, W. L., N. Barros, E. R. Oliveira and B. Haryanto. Relative Acceptability of Napier Grass and Maize Crop Residues by Brazilian SRD Goats. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. NCSU-Forages
- Kennedy, B.W., C.M. Finley and G.E. Bradford. Genetic Relationships Between Reproduction and Milk. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. UCD-Breeding
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- Mueller, D.L., D.F. Balph and J.C. Malechek. Experimental Determination of Food Preference in Spanish Goats. Abstract 11, ASAS 1981. Utah-Range
- Muhuyi, W., E. Z. Drobnis, E. A. Nelson and T. Y. Lin. Season, Breed and Age Influences on Production and Freezability of Dairy Goat Semen. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Cal Poly-Reproduction
- Narjisse, H. and J.C. Malechek. Acceptability of Big Sagebrush (Artemisia Tridentata) to Experienced and Native Sheep and Goats as Affected by Season and Monoterpenoid Level. Proc. Int'l Soc. Range Mgt., Calgary, Alberta. (Abstract) 1982. Utah-Range
- Norman, M. D., J. M. Redfern, J. A. Yazman, A. J. DeBoer and W. A. Halbrook. Production of Dairy Goat Milk on Small Farms in Arkansas and Missouri. Proc. III Int'l. Conf. on Goat Prod. & Dis. Tucson, AZ. 1982. Winrock-Economics
- Pitts, J. S. and F. C. Bryant. Cattle and Vegetation Response to Short Duration and Continuous Grazing in Texas. Proc. Int'l. Soc. Range Mgt., Calgary, Alberta. 1982. (In Press). Texas Tech-Range
- Provenza, F.D., and J.C. Malechek. Effects of Tannins on Dietary Selection of Blackbrush by Range Goats. Abstract 383, ASAS 1981. Utah-Range
- Rakes, J. A., J. A. Collins, F. B. Johnson, J. A. Yazman, and C. H. Mannasmith. The Effect of Stage of Lactation and Breed on Production and Composition of Goat Milk Produced in Arkansas. J. Dairy Sci. 63 (Suppl. 1): 112. 1980. Winrock-Management
- Ramirez, A., L. H. Lauerman, D. Huaman, and A. Vargas. Preliminary Induction of Clostridium perfringens, Type A Enterotoxemia in Alpaca (Lama pacos). Proc. IV Int'l. Conf. on S. American Cameloides, Punta Arenas, Chile. 1981. Colorado-Health & IVITA

Ramirez, A., H. Ludena and M. Acosta. Mortality in Alpaca of the Central Agricultural Area of La Raya - Puno during 7 years. Proc. IV Int'l. Conf. on S. American Cameloides, Punta Arenas, Chile 1981. Colorado-Health and IVITA

Rodriguez, Humberto L. y M. Carpio P. Parametros Geneticos y Fenotipicos en Ovinos. Proc. Asociacion Peruana de Produccion Animal. Ayacucho, Peru 1981. Montana-Breeding & UNA

Sabrani, M., A. Muljadi and A. J. DeBoer. Small Ruminant Production on Small Farms in West Java, Indonesia: Preliminary Results of a Baseline Survey of Upland and Lowland Farming Systems. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Winrock-Economics

Sands, M. W., H. A. Fitzhugh, M. Job, J. Kekovole, P. N. Gachuki, and R. E. McDowell. Potential for Dual Purpose Goats on Small Farms in Kenya. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. Winrock-Management

Schlundt, A. F. Distribution and Movements of Free-ranging Alpaca. Proc. IV Int'l. Conf. on S. American Cameloides. Punta Arenas, Chile. 1981. Texas Tech-Range & IVITA

Schlundt, A.F., C.S. Gutierrez, and F.C. Bryant. Dry Season Use of Forage Species in Southern Peru by Sheep, Llama and Alpaca. International Soc. for Range Management. Abstracts. Calgary, Alb. 1982. Texas Tech-Range

Shelton, Maurice. Methods of Pregnancy Diagnosis in Angora and Dry Meat-type Goats. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. TAMU-Breeding

Shelton, M. and J. Lawson. Effect of Season on Reproductive Activity of Meat-type Goats in Texas. Proc. III Int'l. Conf. on Goat Prod. & Dis., Tucson, AZ. 1982. TAMU-Breeding

Snyder, S. P. and J. C. DeMartini. Co-existence of Pulmonary Adenomatosis and Progressive Pneumonia in Sheep in Peru. 32nd. Mtg. Am. Coll. of Vet. Path. 1981. Colorado-Health

Subandriyo, P. Sitorus, J. M. Levine and G. E. Bradford. 1981. A Preliminary Report on Performance of Javanese Thin-tailed Sheep under Experiment Station Conditions. Lembaga Penelitian Pengembangan Reports. UCD-Breeding

Subandriyo, P. Sitorus, D. Sudarham, J. M. Levine, and G. E. Bradford. 1981. Performance of Javanese Fat-tailed Ewes and their Crossbred Progeny at the Garalian Multiplication Center. Lembaga Penelitian Pengembangan Reports. UCD-Breeding

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APPENDIX IV

SUMMARY
SMALL RUMINANT CRSP BUDGET MANAGEMENT
Prepared by Management Entity, November 1981

1. USAID FUNDS

Year	Research	Management*			
1978-79	164,021 ¹	191,699 ¹	=	355,720	
1979-80	1,575,255 ¹	396,952 ¹	=	1,972,207	
1980-81	3,829,329 ⁴	468,429 ²	=	4,297,758	
1981-82	4,082,976 ³	515,429 ²	=	4,598,405	
1982-83	<u>3,786,024⁵</u>	<u>566,929²</u>	=	<u>4,352,953</u>	5,058,245 ¹³
				15,577,043 ⁶	

* Management Costs include:

Cost of Technical Committee
Cost of Board of Institutional Reps
Cost of External Evaluation Panel
Cost of Foreign Counterparts Admin.
Cost of the Annual Audits
Cost of Management Entity office

2. MATCHING BY US INSTITUTIONS

Year	USAID	Matching			
1978-79	355,720	199,333 ⁷	=	555,053	
1979-80	1,972,207	1,084,363 ⁷	=	3,056,570	
1980-81	4,297,758	1,209,612 ⁷	=	5,507,370	
1981-82	4,598,405	1,130,174 ⁷	=	5,728,579	
1982-83	<u>4,352,953</u>	<u>2,176,476⁸</u>	=	<u>6,529,429</u>	
	15,577,043	5,799,958		21,377,700	= 37%

3. OVERSEAS + ADDITIONAL US FUNDS + USAID + MATCHING

Year	USAID/Matching	Overseas			
1978-79	555,053	-0-			
1979-80	3,056,570	400,000 ⁹			
1980-81	5,507,370	725,000 ¹⁰			
1981-82	5,728,579	875,000 ¹¹			
1982-83	<u>6,529,429</u>	<u>1,875,000¹²</u>			
	21,377,700	3,875,000			= 18%

Summary of First Five Years

Total cost of the SR-CRSP	= 25,252,700	100%
USAID Contribution via Grant G-0049	= 15,577,043	62%
US Institutions Matching Contribution	= 5,799,958	23%
Overseas Institutions Contribution plus additional Mission or Bureau contribution.	= 3,875,000	15%

4. ESTIMATED FUNDING LEVELS BY USAID REQUIRED TO MAINTAIN THE CURRENT LEVEL OF SR-CRSP ACTIVITY WILL BE AS FOLLOWS FOR SUCCEEDING YEARS:

	Year	Available ?	Required	Deficit
Year 5	1982-83	4,352,953	5,058,245	- 705,292
Year 6	1983-84	3,100,000	5,564,406	-2,464,406
Year 7	1984-85	3,100,000	6,120,509	-3,020,509
Year 8	1985-86	3,100,000	6,732,560	-3,632,560
Year 9	1986-87	3,100,000	7,356,316	-4,256,316
Year 10	1987-88	3,100,000	8,091,948	-4,991,948

SUPERSCRIPTS

1. Actual figures from ledgers
2. Projection from Robinson to Darwin July 1980
3. Allocation from Board June 1981 Minutes and carryover (i.e: \$ 2,774,999 + 100,000 + 200,000 + 942,977 + 4,017,976)
4. Grand total of program years one and two less first two fiscal years, and less carryover from Table 1. Robinson to Board (i.e: 2,678,255 + 3,833,327) - (164,021 + 1,575,255 + 942,977) = 3,829,329.
5. Grand total of Grant, less all other figures in Table (i.e: 15,577,043 - (164,021 + 1,575,255 + 3,829,329 + 4,082,976 + 191,699 + 396,952 + 468,429 + 515,429 + 566,929 = 3,786,024)
6. The total of Grant No. DSAN/XII/G-0049.
7. Values from Robinson to Board (June 1981), Table 2.
8. Calculated as 50% of final year.
9. Based upon 164,000 Indonesia and 240,000 Brazil.
10. Based upon additional 35,000 from Near East Bureau(NEB), Peru 50,000, Kenya 240,000
11. Based upon additional 50,000 Peru, 50,000 Morocco, 50,000 NEB.
12. Based upon additional 1,000,000 for Prolific Sheep Project from NEB.
13. Based upon 10% inflation, there will be a budget deficit of 705,292 in year 5. This arises because USAID, after promising to augment for unforeseen costs at the beginning of the grant (such as BIR, TC, EEP, audit), never did augment the grant.
14. The estimated needs for year 6 based upon 10% inflation on the real 1982-83 figure of \$5,058,245 will be \$5,564,406. Currently, USAID anticipates awarding "up to \$3.1 million" or only 56% of needs.

SR-CRSP BUDGET DEFICIT FORECAST

