

9311328/53

PD-AMM-838

ISW-29781

PROGRAM PROGRESS REPORT
Overseas Worksite Selection

Prepared for
Joint Research Committee Meeting

Washington D.C. July 1979

Prepared by
D. W. Robinson
Program Director
Small Ruminant CRSP

In the past, every effort has been made to keep the JRC fully briefed on the development of the Small Ruminant CRSP.

At the last presentation, the JRC without any abstentions or negative votes endorsed our overseas site development objectives and based on this expression of confidence a DRAFT Integrated Program Plan was prepared for the Board of Institutional Representatives (BIR). The Board met in Denver on May 9 and unanimously approved the Draft Integrated Program Plan. Based on this expression of confidence the ME presented to the BIR plans for site visitation by the Program Director to:

1. Initiate agreements with the overseas institutions
2. Prepare for scientist-to-scientist contacts so that collaborative research protocols could be developed
3. Discuss, in detail, the requirements of overseas institutions.

The first visit was planned to Brazil and at the very moment of departure the DSB informed the Program Director that:

1. Cable traffic with the Kenya Mission indicated that the Mission had unequivocally withdrawn its interest in the SR-CRSP and would not participate
2. That the draft Integrated Program Plan was unacceptable.

The purpose of this progress report is to:

1. Brief the JRC on the Program Director's proposals to deal with both of the above problems
2. Seek endorsement by the JRC of the proposed solutions.

WITHDRAWAL OF KENYA

Several matters of fact need to be stated regarding the withdrawal of Kenya.

1. There is no doubt that at the time the site visit teams (Burszloff, Nolan, Butchart) were in Kenya a strong interest in the SR-CRSP was expressed by:

- a) the Mission
- b) the Kenyan authorities
- c) the expatriot scientist in Kenya working with ILCA and FAO
- d) the Principal Investigators of the SR-CRSP.

ii. There is no doubt that at the PI planning meetings everyone had complete confidence that Kenya was an available site.

to proceed and this was granted at all levels. Travel schedules to Peru were completed for scientist-to-scientist contact.

Three weeks into the Peru planning, in June, a letter was received from USAID DSB from Mr. Tony Babb indicating Kenya was available as a primary site. Principal Investigators, recognizing, as they had in their original planning, that Africa is an important area for small ruminants and to the Agency generally, agreed to return to the original plan. However, funding of their work in the SR-CRSP inevitably was set back four to six weeks.

INADEQUACY OF INTEGRATED PROGRAM PLAN

The Management Entity generally and Program Director specifically, who have had to struggle with a program development model that other CRSP's have been mercifully spared, are abundantly aware of the deficiencies in the Integrated Program Plan. That is the reason it was labelled DRAFT. The necessity for considering such a plan a draft is self-evident by the events surrounding the withdrawal of Kenya.

A definitive program plan simply cannot be made in final form until:

- i. Overseas work locations are firmly in place.
- ii. Scientist-to-scientist contacts have established the experimental protocols.

To a large degree this is what the DSB has been stressing all along: it is defined in the Grant and neither the ME nor PI's finds difficulty with this point.

The Program Plan, given the model that the SR-CRSP has, must evolve in three phases:

Phase I. Presentation to the BIR of a Draft Integrated Program Plan for approval so the next steps can be taken.

Phase II. Refinement of the specific overseas site plans as ME is able to make firm administrative arrangements.

Phase III. Final Integrated Program Plan following scientist-to-scientist contact.

We have passed Phase I by the approval, in May, by the BIR of our Draft Plan.

We have passed Phase II for Brazil, Peru, and Morocco following administrative site visits to these countries. We will shortly pass Phase II for Kenya and Indonesia.

Phase III will be ready by the November meeting of the Technical Committee and prior to the December meeting of the JRC at which we hope to introduce to the JRC the External Evaluation Committee to receive one final program plan.

It is the Management Entity's view that following Phase II for each region, planning will be sufficiently advanced to permit first-year funding.

If the Phased development of the Program Plan is an acceptable modus operandi for the SR-CRSP, given its traumatic gestation and parturition, the ME would appreciate its endorsement by the JRC.

OVERSEAS WORKSITE MATRIX

The current Overseas Worksite Matrix is presented in Table 1. Commitments have been received from these countries for collaboration with the CRSP and negotiations for a specific Memorandum of Understanding between UCD and the Overseas locations are at an advanced stage. Administrative site visits to Brazil, Peru and Morocco have been completed already and Kenya will be visited later this month. By October it is anticipated that all the agreements will be in place.

iii. There is no doubt that the withdrawal was a decision of the USAID Mission. Undoubtedly this was for very good reasons which we wished to respect.

The Program Director learned of this decision while awaiting a flight to Brazil at Miami. A decision was made to visit Peru at the end of the Brazilian visit because:

i. Peru had received prime interest as a work site and for similar reasons to Kenya. Kenya was preferred, in part, because we wanted to be sensitive to the regional organization of Bureaus in AID.

ii. Peru, like Kenya, has:

- a) highlands
- b) dairy goats
- c) equatorial latitudes
- d) humid tropics
- e) arid range.

iii. Strong interest had been expressed by Peru for a program in the near future and this support was equally strong at all the levels of:

- a) USAID Regional Bureau in DC
- b) USAID Mission in Lima
- c) the Peruvian authorities.

There was enthusiasm at all levels for the SR-CRSP.

The first suggestion that Kenya may withdraw came in early May during Dr. Oxley's visit to Kenya. Dr. Oxley reported these misgivings to the May JRC meeting. In the 10 days between the May JRC and Program Director's visit to Latin America and during the following three weeks several attempts were made to bring Kenya in line--each time the response was negative. Specifically:

Two cables from the Kenya Mission were negative.

A phone call to Nairobi by Dr. Ewbank, the Kenya Agriculture Officer received negative reaction.

Finally, Program Director, Dr. Kiehl (of BIFAD) and Dr. Lassiter (of the Board) spoke with Dr. Rowan, Mission Director, from Kenya in DC on June 6 and again were assured that Kenya was not to be a primary site. The Administrative site visit was cancelled.

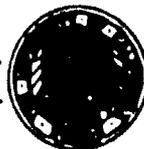
Following these events over a period of some five weeks, a decision was made to ask the Technical Committee and Board if Peru should replace Kenya. A unanimous decision to that effect was received and nine (9) of 17 Principal Investigators were asked to re-write their programs. Peru Mission to the Latin America Regional Bureau was contacted for permission

Proposed Research Locations for Small Ruminants CRSP

Project	Institution	LATIN AMERICA		ASIA	NEAR EAST	AFRICA
		Peru - Brazil		Indonesia	Morocco	Kenya
Range	Texas Tech Utah	X			X	
Forages	Ohio	X				X
By Products	North Carolina		X	X		
Health	California Colorado Washington	X	X	X	X	X
Breeding	California Montana Texas A & M	X	X	X	X	X
Management	Tuskegee Winrock		X			X
Reproduction	Utah California Polytech	X		X	X	X
Economics	Winrock	X		X	X	X
Sociology	Missouri	X		X	X	X
Systems	Texas A & M	X		X	X	X

UNIVERSITY OF CALIFORNIA, DAVIS

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

OFFICE OF INTERNATIONAL PROGRAMS
MURKIN HALL, ROOM 27
FREDRIC W. HILL, COORDINATOR

DAVIS, CALIFORNIA 95616

Call to Joint

TECHNICAL COMMITTEE/BOARD OF INSTITUTIONAL REPRESENTATIVES MEETING

DATES: November 11, 12, 13, 14

ARRIVAL: Sunday afternoon

OPENING: No-host dinner at 7:30 pm, Sunday
Review of SR-CRSP to Date

VENUE: All activities will be at:

Holiday Inn, College Station, TX
Telephone 713/693-1736

Rooms reserved in block but you must confirm your own reservation
Single, double, or quadruple rooms available
Mention "Title XII Conference"

AGENDA: Detailed agenda will be mailed later

Note: TC Meeting: 11, 12, 13, 14
BIR Meeting: 11, 12, 13.

LATIN AMERICA - SR-CRSP. PERU

PERU

Introduction

A recent report by USAID states that 345, 000 families of the High Sierra are part of "comunidades campesinas" or indigenous communities. Further, about 75% of all Sierra agricultural land is owned by these "comunidades." Only about 2% of their land is cultivated; leaving 98% of their land holdings to be suitable only for pasture, if indeed it can be used at all. Most community holdings are located at elevations above 3,600 meters (12,000 ft), extending up to 5,300 meters or the permanent glacier line. Frost, hail, or snowfall imperil cultivated crops at these elevations. The Indians grow corn, quinoa, potatoes, and a few other crops on their lower elevation holdings, but are definitely dependent on their livestock for food as well as cash income. Jobs in the mines or other activities are available for a limited few.

The small ruminant population in Peru includes about 13 million sheep, 2 million alpacas, nearly 2 million goats and perhaps 1/2 million llamas. Sheep make an indispensable contribution to the economy of 2,200 indigenous "comunidades" or Indian Communities of the High Sierra region, as well as for private landholders and "Social Interest" Agricultural Societies. Increasingly, this contribution is from sales of lamb, as well as from the traditional wool market. Alpacas contribute with meat, hides and fiber; llamas with draft and a poor grade fiber; and goats with meat and cheese.

The "Puna" or High Sierra natural grazing land - The usual estimate of the extent of Peru's "Puna" is about 24 million hectares. Soil quality is

generally good. At lower elevation valleys (around 4,000 meters) nearly level areas are available for pasture improvement. In these areas, white clover and other legumes can be introduced with little liming; perennial and annual ryegrasses thrive, with fertilization and irrigation. Precipitation levels are favorable, but an extended dry season (May-October) coincident with the coldest months causes a serious seasonal reduction in pasture growth. Irrigation is feasible for the lower, flatter land.

The "Sociedad Agrícola de Interés Social" (SAIS) were created under Agrarian Reform about a decade ago. The former large haciendas of the Sierra were expropriated, the owners being paid in bonds which could be converted only by reinvestment in Peru. The land was not subdivided; in fact, in many cases small or medium-sized adjacent farms were brought together under a single management.

The new owners of these farms are the neighboring indigenous communities. Each associated community is represented on the governing board of the SAIS. The direct employees of the SAIS are members of a cooperative, which also is represented on the governing board. The board can hire or fire the farm managers and otherwise influence management policy.

The SAIS Tupac Amaru is illustrative of the SAIS organization and ownership. Sixteen surrounding Indian communities and the internal employee's cooperative form the SAIS. The business itself has seven farm units, totalling close to 175,000 ha. The carrying capacity of the range land is about 1 sheep unit per hectare; among the grazed species are Yestucas, Poas, Stipas, Muhlebergia, and many others in association.

The "Junin" breed of sheep was developed at this farm. Throughout the Sierra in general, the Corriedale is the preferred breed, although it is the "Criollo" that is present in largest numbers. The SAIS Tupac Amaru now places Junin rams in the flocks of its associated comunidades, which are still maintained and managed on community-owned pastures outside the SAIS-owned land. The Junin breed is valued for its wool quality, bringing a premium price. Average fleece weights on the SAIS are 8 lb; the best animals yield 11-12 pounds. Criollo sheep in general are estimated to yield about 3 lb.

The SAIS obtains 2/3 of its cash income from lamb sales, and 1/3 from wool. The lambs are marketed in Tarma or Lima. A relatively recent technological innovation is the grass-fattening of lambs on artificial pastures at lower elevations of the SAIS (below 4,200 meters). Weanling lambs (or older) are placed on ryegrass-white clover pastures, fertilized and irrigated, at about 20 kg, and grazed until they reach an average 30 kg, which is accomplished within about 60 days with daily gains of 150 gm or better.

The Problem

Small ruminants, alpacas, llamas, and the vicuna are all important animals in the economy of the small farmer in Peru. Sheep are an integral part of the economy in the highlands, providing a source of meat and wool. The alpaca, especially, and, to some extent, the llama also form an important component of the livelihood of defined ethnic groups in the highlands. The vicuna is a species currently in need of protection.

There are innumerable researchable problems in Peru toward which the country began some years ago an active training program. Staff at La Molina Agricultural University and San Marcos University have been well trained, many of them in US and European programs. However, the past ten years has been a difficult period of desperately diminishing resources for the universities generally and their research programs in particular, in which even the option to collaborate was not available. Recently the government has reversed this situation and has welcomed expanded programs from overseas donors including USAID. One of the features of the expanding USAID programs has been a request from the Government of Peru to revitalize the research capabilities of agriculture. As a result of this new policy three new developments have occurred:

1. The formation of a national organization to coordinate all the research activities of the government and to integrate foreign inputs. This organization, INIA, is just in its first year of development and is looking for support.
2. The contract between INIA and USAID to undertake a baseline study in agricultural research needs. The contract for this study has already been given to North Carolina State University which will have a team in Peru through July 1979.

3. The availability of the Small Ruminant CRSP funded under Title XII at a time which is extremely opportune for Peru. The Government of Peru has been well briefed on the advent of Title XII and consequently they were, through Dr. Xavier Gazzo of INIA, eager for help from the CRSP.

The basic problem currently is the need to revitalize the existing faculty, initiate training for MS and PhD students (to ensure a continuing supply of researchers), and to collaborate actively in the myriad of research projects that are needed in Peru and which are defined below.

Antecedents

In December 1978 the Latin America Bureau of AID approved Peru, a "graduate" country within AID designations, as a potential site for overseas activities of the Small Ruminant CRSP. The Latin America site visit team proceeded with travel and extensive contacts in Peru during January 1979 and returned a strongly positive recommendation for consideration of Peru as a work site. The Technical Committee concurred in this recommendation during its third meeting, in Davis, February 1979, and the Board of Institutional Representatives accepted the Technical Committee's recommendation in May 1979. The Program Director immediately traveled to Peru, with INIA and AID approval, for the purpose of discussing the details of an administrative arrangement between INIA and the University of California, and to finalize the selection of scientific components of the program. The present document culminates the collective planning process of the January-May 1979 period and incorporates the forward plans of INIA as presented and discussed with CRSP visitors in May.

Inputs

Institutions

1. INIA, Instituto Nacional Investigaciones Agraria
2. Other Peruvian agencies via INIA
LA MOLINA - Lima with field stations
IVITA - at San Marcos with field stations throughout Peru
- primarily a diagnostic responsibility
3. United States institutions:
Montana State University
Texas Tech University
Colorado State University
Utah State University
University of Missouri (training center)
Winrock International
Texas A&M
Ohio State University

Project Leaders

1. INIA
Dr. Xavier Gazzo
2. LA MOLINA
Guillermo Parodi Veri
Arturo Flores Martinez
Manuel Capio Pino
Enrique Nolte

3. IVITA

Carlos Guerrero	Parasitologia
Wilfredo Calderon	Animal Production
Ricardo Valdivia R.	Nutrition
Julio Sumar	Reproduction, cameloids
Eddo Caletti P.	Microbiology
Alberto Sato S.	Director, IVITA
Oswaldo Del Valle	Nutrition
Jorge A. Jelasco	Animal Breeding
Nelson Clavo	Nutrition
Hugo A. Samame	Microbiology
Cesar Novoa	Reproduction

4. United States University Principal Investigators

D.F. Burzlaff	Texas Tech	Range
R.W. VanKeuren	Ohio State	Forages
C.V. Kimberling	Colorado State	Health
R.L. Blackwell	Montana State	Breeding

Program Organization

The overall leadership and direction of the joint INIA:SR-CRSP program will be under Dr. Xavier Gazzo, President of INIA, and Dr. David W. Robinson, Program Director, SR-CRSP. An administrative agreement allowing effective operation of the CRSP activities in Peru will be negotiated between the two institutions.

It is expected that the SR-CRSP will locate a full-time country coordinator in Lima to work closely with Dr. Xavier Gazzo, IVITA, and LA MOLINA in the day-to-day affairs of the SR-CRSP. The country coordinator will be an experienced scientist and administrator and among his various responsibilities he will provide leadership in the regional extension of the CRSP.

Initially, the contacts and planning for US Principal Investigator assigned to Peru will be coordinated by Dr. Johnson and Dr. Blaine McGowan. This is expected to be transferred to one of the Peru participants when the program is established.

US: Peru sub-program in 1979/80

US activities

June/July 1979 Management Entity to report on site visit (ME)

- Conduct literature survey reviews on:
 - o economics of small ruminant production (W1)^a
 - o ecology of rangelands in Peru (TT)
 - o sociology factors in small ruminant production (M1)
 - o organize reference data bank--sociological (M1)
 - o breeding, genetics, management (Mo)
 - o dairy goat review with annotated bibliography (W1)^a
 - o tropical forages for small ruminants (Oh)
 - o parasitism & genotype interactions (Oh)
 - o by-products referenced to computer data bank (Oh)
- Staff recruitment:
 - o advanced US graduates & staff (Ws) (M1) (TT)
 - o project officers, where necessary for LDC's (M1)
- Development of support facilities:
 - o working questionnaires for sociology, marketing, management (W1)^a (M1)
 - o computer data process for economic analysis (W1)^a
 - o methods & strategy for parasite studies (Oh)
 - o development of dairy goat research & training facility (Ca)^b
 - o establishment of directory of current dairy goat research (W1)^a
 - o development of dynamic mathematical models (Tx)^a
 - o development of survey instrument for PI collaborative use (Ws)
 - o development with other PI's of standardized methods of measuring production parameters (TT)
 - o computerized programs for breed data analysis (Mo)

- Continued research in operation now:
 - o validation of production systems model (Tx)^g
 - o comparative analysis of breed productivity (Mo)
 - o association between internal parasitism & nutrition (Oh)
 - o selection of parasite resistant sheep (Oh)
 - o studies on methods of storage & conservation (Oh)
 - o in vitro assay of by products & crop residues (Oh)
 - o evaluation of nutrient requirements of dairy goats (W1)^m
 - o studies on phenotypic variation in health, growth, fertility of lactating dairy goats (W1)^m
 - o computerized performance recording (W1)^m
 - o genetic evaluation of DH&A records (Ca)^b
 - o studies on lambing interval (Ca)^b
 - o comparative analysis by breed of productivity (Mo)
 - o breeding & genetic studies on range sheep (Mo)
- October - Commence training of US & overseas students (all PI's)
- Submission to ME of second year budget requests (all PI's)
- January 1980 Submission to ME of interim reports (all PI's)
- May - Submission to ME of first year reports
- ME to report to AID, JRC, BIR, EEC, BIFAD

Overseas activities in 1979 in Peru

- June 1979 - Management Entity visit-administrative agreement (ME)
- August - Site visit to establish experimental protocols (all PI's)
- Commence documentation of pertinent:
 - o sociological, market, consumption, economic factors (W1)^g (M1)
 - o forage availability, yield, use, storability (Of.)

- o small ruminant diseases (Wa)
- Commence development of facilities for:
 - o animal breeding & selected genotypes (Mo)
 - o in vitro assay procedures (Oh)
 - o experimental flocks (Ca)^b
 - o study of improved dairy goat production & management (Wi)^m
- Commence staff development in:
 - o professional & para-professional staff (Tx) (Wi) (Wa) (TT)
 - o interdisciplinary trained teams (Wi)^e

January 1980

- Commence research projects on:
 - o genetic evaluation of indigenous sheep (Mo)
 - o identification of production system constraints (Tx)^s
 - o market surveys & consumption patterns (Wi)^e
 - o sociological data collection (Mi)
 - o intake & digestibility studies with sheep (Oh)
 - o preparation of fistulated sheep (Oh)
 - o genetic testing of producer herds (Ca)^b
- Commence training program with:
 - o selection of students for training in US (all PI's)

April

- In-country by:
 - o workshops for in-country staff & students (Wi)^s
 - o seminars for all in-country collaborators (Mi)
 - o visits to third countries with expertise (Ca)^b
 - o testing procedures for training at all levels (Wi)^m

Important elements of collaboration within the CRSP

Considerable interdependence in terms of facilities and operational procedures has been demonstrated by the Texas Tech and other projects which will be collaborating on standardizing the parameters for measuring growth, biomass, botanical and chemical assays, and estimates of intake. PI's of these institutions have spent time and travel monies in planning collaborative activities by visitation, telephone and written correspondence, and the opportunity to caucus at least twice at meetings of the Technical Committee.

Regional applicability of the Peru sub-program

The Peru sub-program is considered to have wide regional applicability to such areas as Bolivia, Colombia, Ecuador, Guatemala, Pakistan, Nepal, Afghanistan, Uganda and Kenya.

NEAR EAST - SR-CRSP. MOROCCO

MOROCCO

Introduction

Morocco has been given high priority as a primary overseas work site. It presents a variety of ecological systems--coastal Mediterranean, highlands, the semi-arid regions representative of vast areas of Africa and Asia (and not unlike parts of the US). Animal production systems also vary from transhumance to smallholder with meat from sheep and goats being the primary focus.

Sheep and goat populations are currently estimated at 16 and 7 million, respectively. Numbers have grown sharply in the past 25 years and are still increasing.

Several sheep "breeds" are recognized including Timahdite, Beni Guil, Sardi, Beni H'sen, and D'man. Too little information, apparently, exists on characterizing the breeds of goats. They are generally designated as "black" or "white" native goats.

Approximately 30% of Morocco's red meat demand is met by sheep but, more importantly, the price for all meats is largely determined by prevailing sheep meat prices.

The Problem

The sheep industry is one of the most important agricultural sectors in Morocco and is well integrated into the land use and crop production systems. The industry rests upon five distinct types of sheep about which very little is known except that they possess some extremely valuable traits such as high fecundity non-seasonal breeding.

The basic problem the SR-CRSP can help to solve is the well recognized lack of research into the problems of sheep production. Scientists at Hassan II University represent the primary researchers in Morocco. They are a young, very active, and extremely bright group of scientists with an excellent grasp on the researchable problems. However, due to the need for more agricultural graduates HASSAN II has rightly concentrated on development of a fine undergraduate curriculum. This is now taking in 600 students per year for training to BS level in all of the agricultural and veterinary sciences. Almost the entire effort of other bilateral and multilateral aid projects has concentrated on the undergraduate curriculum at HASSAN II University in Rabat. There is no question that HASSAN II has been effective and correct in placing its priorities where it has. However, two specific problem areas created by this have been:

1. Limited opportunity for faculty upgrading overseas with research capability in mind so that indigenous problems can be solved by Moroccans. Only two of the faculty at HASSAN II are currently approaching doctorate qualifications.

2. Very little time for objective research except for that which can

be done by undergraduates in preparation of their "Memoria" for the BS.

HASSAN II could be directly and specifically helped by the SR-CRSP in both faculty development and by the direct support of research into the problems of the sheep industry which are greatly needed. The faculty have a keen sense of the need for increasing the research effort along with the teaching curriculum and have identified problem areas in nutrition, health, management, reproduction, breeding, and sociology.

Antecedents

In December 1978 the Near East Bureau of AID approved Morocco as a potential site for the overseas activities of the Small Ruminant CRSP. The Near East site visit team left in February 1979 and returned with a positive recommendation for Morocco. The Technical Committee concurred during its meeting in Dever on April 3 and the Board of Institutional Representatives concurred in May 1979. The Joint Research Committee also concurred in its May 1979 meeting. The Program Director travelled to Morocco in June 1979 with the approval of USAID Washington, USAID Morocco, and HASSAN II University for the purpose of discussing the details of an administrative arrangement between HASSAN II and the University of California and to finalize the selection of the scientific components of the program. The present document culminates the collective planning process of the January-June period and incorporates the plans of HASSAN II as presented and discussed with the SR-CRSP in June.

Inputs

Institutions

1. HASSAN II University
2. Other Moroccan agencies via HASSAN II.
 - DRA - Rabat with several outlying field stations
 - E&F - Rabat with two field stations
 - d'ELEVAGE - Rabat with outlying field stations
3. United States institutions:
 - Montana State University
 - Utah State University
 - Washington State University
 - North Carolina State University
 - Texas A&M University
 - California Polytechnic State University
 - University of Missouri
 - Winrock International Livestock Research & Training Center

Project Leaders

1. HASSAN II University
 - Bourfia, Breeding and Genetics
 - Briouga, Medicine and Surgery
 - Hammoudi, Rural Sociology
 - Lahlow-Kassi, Reproduction
 - Geussous, Animal Nutrition
 - Eddebbarih, Management
 - Fassi-Fehri, Microbiology
 - Benlamlah, Animal Physiology
 - Zinefilali, Animal Pharmacology
 - Dakkak, Parasitology-Helminths
 - Ouhalli, Parasitology-Protozoans
 - Berkat, Range Science

2. DRA, Direction de Recherche Agronomique

Bensalah, Milk and Meat Production
Ainfi, Forages and Byproducts
Ben Zaouia, Health
Cherkani, Forages and Byproducts
Rais, Forages and Byproducts

3. E&F, Eaux et Forets

Boubia, Ecology

4. d'Elevage

Hamid, Range Management
Ahmed, Meat Production
Bahiga, Parasitology
Talib, Range, Byproducts
Safferdine, Vet Science

5. United States University Principal Investigators

J. Malechek
W.G. Huber
R.L. Blackwell
W.C. Foote
E.A. Nelson
H.A. Fitzhugh
M.F. Nolan
T.C. Cartwright

Utah State
Washington State
Montana State
Utah State
Cal Poly, Pomona
Winrock International
University of Missouri
Texas A&M

Range
Health
Breeding
Reproduction
Reproduction
Economics
Sociology
Systems

Program Organization

The overall leadership and direction of the joint HASSAN II:SR-CRSP program will be under Dr. Bekkali, President of HASSAN II and Dr. David W. Robinson, Program Director, Small Ruminant CRSP. An administrative agreement allowing effective operation of the CRSP activities in Morocco is now being negotiated between the two entities.

It is expected that the SR-CRSP will locate a full-time country coordinator in Rabat to work closely with Dr. Bekkali and Mr. Firdawcy in the day-to-day coordination of SR-CRSP activities. The country coordinator will be an experienced scientist and administrator and among his various responsibilities will be regional extension of the SR-CRSP throughout Morocco. For planning and coordination among US scientists, Dr. Malechek will assume leadership.

US: Morocco sub-program 1979/80

US activities

- June 1979 - Management Entity to report on site visit (ME)
- Conduct literature survey reviews on:
 - o economics of small ruminant production (Wi)^e
 - o ecology of rangelands in Morocco (Ut)^f
 - o breeding, genetics, management (Mo)
 - o sociological factors in smallholder production (Mi)
 - o organize reference data bank--sociological (Mi)
 - o organize reference data bank--reproduction (Ut)^p
 - Staff recruitment:
 - o advanced US graduate staff (Mi)
 - o project officers, where necessary for LDC's (Ut)^f (Mi)
 - Development of support facilities:
 - o laboratory facilities to support range research (Ut)
 - o storage & transport facilities for semen (Ut)^p (CP)
 - o develop dynamic mathematical model (Tx)^e
 - o computerized programs for breed data analysis (Mo)
 - o working questionnaires for sociology, marketing, management (Wi)^e (Mi)
 - o computer data process for economic analysis (Wi)^e
 - Continued research in operation now:
 - o plant:animal relationships in range (Ut)^f
 - o measurement of male & female reproductive efficiency (Ut)^p
 - o progeny testing of superior males (CP)
 - o validation of production systems models (Tx)^w
 - o breeding & genetic studies on range sheep (Mo)
 - o comparative analysis by breed of productivity (Mo)

- 9
- October 1979** Commence training of overseas & US students (all PI's)
- Submission to ME of second year budget request (all PI's)
- January 1980** Submission to ME of interim reports (all PI's)
- May**
- Submission to ME of first year report
 - ME to report to AID, JRC, BIR, EEC, BIFAD

Overseas activities in 1979/80 in Morocco

- June 1979** - Management Entity visit-administrative agreements (ME)
- August**
- Site visit to establish experimental protocols (all PI's)
 - Commence documentation of pertinent:
 - o soil, biotic, climatic factors (Ut)^r
 - o sociological, market, consumption, economic factors (Wi)^o (Mi)
 - o male (CP) and female (Ut)^r reproductive traits
 - Commence development of facilities for:
 - o range, nutrition, & laboratory research (Ut)^r
 - o animal breeding & selected genotypes (Mo) (Ut)^p
 - Commence staff development in:
 - o interdisciplinary trained teams (Wi)^o (Mi)
 - o professional & para-professional staff (Wi, Tx)
- January 1980** Commence research projects in:
- o detailed ecological assessment of range (Ut)^r
 - o sampling of male & female sheep & goats for endocrine profiles (CP)(Ut)^p
 - o selection of genotypes for reproduction studies (Ut)^p
 - o detailed work on plant:animal relationships (Ut)^r
 - o genetic evaluation of indigenous sheep (Mo)
 - o identification of production system constraints (Tx)^o

- o market surveys, consumption patterns (Wi)^e
- o sociological data collection (Mi)
- o preparation of fistulated animals (Ut)^r
- Commence training program with:
 - o selection of students for training in US (all PI's)
- April - In-country training by:
 - o workshops for in-country staff & students (Wi)^e (Ut)^r
 - o seminars for all in-country collaborators (Mi)

Important elements of collaboration within CRSP

The following projects demonstrate considerable inter-dependence in terms of facilities and operational procedures:

- o Development of range research facilities and laboratories Utah (range), Montana, Utah (reproduction), Cal Poly also Washington State when it joins the program
- o Development of social and economic survey data Winrock, Missouri, Texas A&M

Each of these institutions has spent time and money in developing the maximum collaboration. Montana and Utah will share the salary cost of an on-site person; Winrock and Missouri have spent considerable time and effort in developing a joint approach to survey data collection. Texas has formally addressed all CRSP members about its special needs for the systems analysis program.

Regional applicability of the Moroccan sub-program

The Moroccan sub-program is considered to have wide regional applicability in Francophone Africa and several other areas. Countries likely to find direct applicability of research findings: Algeria, Libyria, Tunisia, Egypt, Jordan, Mali, Chad, Niger, Ethiopia, Sudan, Upper Volta, Cyprus, Malta.

LATIN AMERICA - SR-CRSP. BRAZIL and PERU

BRAZIL

Introduction

The northeastern area of Brazil has been given high priority as a primary overseas work site. Emphasis will be placed upon meat production from goats and hair sheep. Hide production is generally of secondary importance as a revenue source. Milk is important as a commodity consumed on the farm. The ecosystem to be covered by the CRSP is tropical, semi-arid with native brush and small tree vegetation (catings).

The semi-arid or Cerrao region of the northeast encompasses about one million Km² of land area and an estimated 12 million people. The entire northeast has 37 million people of whom 6 million live in the coastal capitals and another 18 million live in the humid, coastal, rural areas. Development of goat production is seen by the government as a means of improving nutrition and income levels for the rural people and alleviating the problem of migration to cities by improving the economic viability of rural life.

The catinga vegetation is mostly brush and small trees with limited growth of native grasses and legumes. Rainfall ranges from 400 to 1200 mm. annually, 700-800 mm. falling in an average year, all between late December and June. July through December is totally dry. Moving inland from the coast, rainfall lessens. The temperature regimen is approximately: October-December highs 35°C, lows 28°C; May-June highs 26°C, lows 22°C; the other months are intermediate.

The region has 9 million goats and 6 million sheep (mostly hair sheep) used mainly for meat and sale of hides but also for family consumption of milk. There are some cattle, generally confined to the wetter regions closer to the coast. Travelling toward the interior, the proportion of goats increases in comparison to other livestock. More than one-third of the goats are in Bahia State (northern zone); Piauí, Ceará, Pernambuco, and Paraíba States have more than one million head.

Other agricultural commodities include cotton, beans, corn, rice, and casava. Main commodities providing rural income are cotton, corn, goats, cattle, and goat hides. EMBRAPA is interested in research that looks at the entire farming system in the northeast; thus, goats are seen within the context of all agricultural activities of a particular farmer.

Northeast Brazil is one of the most underdeveloped areas of the world. The Brazilian government is currently undertaking longterm programs to raise the standard of living for both rural and urban sectors of the region. Efforts to increase the productivity of small ruminants, through an integrated program of research, extension, credit, and market development, will aid the rural people by increasing cash incomes and better nutrition, at the same time bringing more meat into the market places of crowded cities.

The invitation extended by EMBRAPA for the Small Ruminants program to collaborate with goat and sheep researchers in the semi-arid Northeast represents a unique opportunity to study an important ecosystem while offering the potential for great improvements to the productivity of the population of 15 million small ruminants in the area. The results expected to emerge from this collaborative effort will have widespread application outside Brazil including several semi-arid regions throughout the Caribbean and South America and other major semi-arid zones in Africa, the Near and Middle East, and South Asia.

The collaborating institutions initially will be EMBRAPA's National Research Centers for Goats and Hair Sheep (Sobral, Ceara) and for the Semi-Arid Tropics (Petrolina, Pernambuco), along with certain state entities whose small ruminants research activities are coordinated through EMBRAPA and nine United States universities. An administrative agreement between EMBRAPA and the University of California, Davis, is expected to permit the flow of financial and human resources into the collaborative program.

The major outputs of the collaborative effort will be increased knowledge about the small ruminants/semi-arid brushland ecosystem of Northeast Brazil, and by extension about other similar areas of the world, and an improved institutional capacity to effectively conduct research in this ecosystem. The new knowledge will be documented in program reports, scientific papers, student dissertations, and popular bulletins and articles in both English and Portuguese. The improved research capacity will be manifest in the form of trained and experienced research personnel and improved research facilities, both for laboratory and field work.

The Problem

The 1977-78 Annual Report of EMBRAPA's National Goat, Hair Sheep Research Center in Sobral, Ceara, clearly described the situation in Northeast Brazil. Goats and hair sheep are raised primarily as a subsistence activity of low-income families in the most backward and impoverished areas of the region. At the same time a good market potential for goat and lamb exists in the major population centers, along with the potential for increasing the brisk export trade in goat hides.

The principle production problems have been diagnosed as falling within the broad categories of nutrition, health, management, reproduction, and genetic improvement. Certain socio-economic impediments to increased productivity have also been recognized, particularly within the areas of credit, technical assistance, land and water utilization policies, transportation, and the subsistence labor syndrome.

EMBRAPA has recognized that existing improved technology for sheep and goat husbandry, mostly developed in the temperate regions of Europe, North America, Australia and New Zealand, cannot be transferred directly to the Brazilian Northeast. New technology appropriate for and adapted to the unique semi-arid tropical environment must be developed in situ. At the same time EMBRAPA, being a new organization, is in the unique position of being able to initiate a new research program with the benefit of the best worldwide experience in research organization and planning. EMBRAPA's leadership has chosen to form multi-disciplinary teams to focus on the whole production system.

EMBRAPA'S scientists, on the average, are a very talented young group but relatively inexperienced. During this formative stage of their individual careers they could benefit greatly from a productive, long-term collaborative partnership with senior scientists in overseas institutions.

Antecedents

In December 1978 the Latin America Bureau of AID approved Brazil, a "graduate" country within AID designations, as a potential site for overseas activities of the Small Ruminants CRSP. The Latin America site visit team proceeded with travel and extensive contacts in Northeast Brazil during January 1979 and returned a strongly positive recommendation for consideration of Brazil as a primary overseas worksite. The Technical Committee concurred in this recommendation during its third meeting, in Davis, February 1979, and the Board of Institutional Representatives accepted the Technical Committee's recommendation in May 1979. The Program Director and the Chairman of the Technical Committee immediately traveled to Brazil, with EMBRAPA and AID approval, for the purpose of discussing the details of an administrative arrangement between EMBRAPA and the University of California, and to finalize the selection of scientific components of the program. The present document culminates the collective planning process of the January-May 1979 period and incorporates the forward plans of EMBRAPA as presented and discussed with the CRSP visitors in May.

Carlos Alberto Fagonde Costa	Parasitology
Ederlon Ribeiro de Oliveira	Nutrition
Elsio Antonio P. de Figueiredo	Breeding
Expedito Aguiar Lopes	Range Management
Francisco de Assis Vasconcelos Arruda	Bioclimatology
Francisco de Assis Melo Lima	Breeding
(Studying for M.S.-Belo Horizonte)	
Jocely da Silva Portella	Management
Jose Ferreira Nunes	Reproduction
Luiz Vieira Vale	Pastures
Roberto Cesar Magalhaes Mesquita	Pastures
Jose Ubiraci Alves	Technology Transfer
Helenira Helery M. Vasconcelos	Soils
2. National Semi-Arid Tropical Research Center - EMBRAPA	
Manoel Abilio de Queiros	Chefe Adj. Tecnico
Geraldo M. Calegar	Chefe Adj. Administrativo - Agr. Economics
Luiz Mauricio Salviano	Nutrition; Leader, PROPASTO (NorthEast Pastures Program)
Severino Gonzaga de Alburquerque	Native Pasture Management; Coordinator, Catinga Systems Project
Martiniano Cavalcante de Oliveira	Native Pasture Management
Celia Maria M. de S. Silva	Genetics; Native Pasture Evaluation
Jorge Ribaski	Catinga Management
Luiz Corsino Freire	Agr. Economics

Clementino Marios Batista de Faria	Soil Fertility
Carlos Alberto V. Oliveira	Statistics
Arnobio Anselmo de Magalhaes	Soil and Water Management
Jose De Souza Silva	Diffusion of Technology
Aldroville Ferreira Lima	Cropping Systems
Terezinha Nogueira Padilha	Animal Production

3. United States University Principal Investigators

D. F. Burzlaff	Texas Tech	Range
W. L. Johnson	N. C. State	Nutrition
Blaine McGowan	U. California	Health
Maurice Shelton	Texas A & M	Breeding
Doris Olivera	Tuskegee	Management
Warren Foote	Utah	Reproduction
E. A. Nelson	Cal. Polytech.	Reproduction
John DeBoer	Winrock	Economics
Michael Nolan	Missouri	Sociology
T. C. Cartwright	Texas A & M	Systems

Program Organization

The overall leadership and direction of the joint EMBRAPA-CRSP program will be under Dr. Eliseu de Andrade Alves, President of EMBRAPA, and Dr. David W. Robinson, Program Director, Small Ruminants CRSP. An administrative agreement allowing effective operation of CRSP activities in Brazil is now being negotiated between the two entities.

It is expected that the CRSP will locate a full-time country coordinator in Sobral, to work closely with Mr. Elyno Alves de Moraes, Chief of the National Goat Center, in the day-to-day coordination of CRSP activities. The country coordinator will be an experienced scientist and administrator.

Among his various responsibilities, he will be looked to for leadership in regional extension of Small Ruminants CRSP activities throughout Latin America (semi-arid technology applicability areas).

Initially, the contacts and planning for U.S. Principal Investigators assigned to Brazil are being coordinated by Dr. W. L. Johnson of North Carolina State University and Dr. Blain McGowan of the University of California. The leadership or coordination among U.S. Principal Investigators is expected to be rotational.

Specific Activities in the U.S. and Overseas in 1979/80

U.S. activities

- June 1979
- Management Entity to report on site visit (ME)
 - Conduct literature surveys and reviews on:
 - economics of small ruminant production (WI)^e
 - sociological factors in smallholder production (MI)
 - tropical forages for small ruminants (Oh)
 - organize reference bank - sociological data (MI)
 - parasitism and genotype interactions (Oh)
 - review of lymphadenitis and causes of kid mortality (Ca)^h
 - Staff recruitment:
 - advanced U.S graduate staff and project officers (MI)
 - Development of support facilities:
 - develop dynamic mathematical models (Tx)^s
 - working questionnaires for sociology, marketing, management (WI)^e (MI)
 - computer data process for economic analysis (WI)^e
 - establishment of dairy goat research and training facility (Ca)^h
 - methods and strategy for parasite studies (Oh)

- Continued research in operation now:
 - validation of production systems models (Tx)^a
 - association between internal parasitism and nutrition (Oh)
 - selection of parasite resistant sheep (Oh)
 - establishment of hair sheep, fat tailed sheep, meat goats (Tx)^b
 - studies on grazing competition between breeds (Tx)^b
 - diagnosis of kid losses in large goat operations (Ca)^h
 - long-term studies on corynebacterium pseudotuberculosis (Ca)^h
- October - Commence training of U.S. and overseas students (all PI's)
- Submission to ME of second year budget requests (all PI's)
- January 1980 Submission to ME of interim progress reports (all PI's)
- May - Submission to ME of first year report
- ME to report to AID, JRC, BIR, EEC, BIFAD

Overseas activities in 1979 in Brazil

- June 1979 - ME visit-administrative agreements (ME)
- August - Site visits to establish experimental protocols (all PI's)
- Commence documentation of pertinent:
 - sociological, market, consumption, economic factors (W1)^c (M1)
 - forage availability, use, storage (Oh)
- Commence development of facilities for:
 - in vitro assay procedures (Oh)

- experimental protocols for genetic improvement of local sheep and goats (Tx)^b
- Commence staff development in:
 - interdisciplinary trained teams (Wi)^g (Mi)
- October - Commence research projects on:
 - survey of tropically adapted sheep (Tx)^b
 - survey of prevalent diseases and assign priorities (Ca)^h
 - identification of production system constraints (Tx)^g
 - market surveys and consumption patterns (Wi)^g
 - sociological data collection (Mi)
 - preparation of fistulated sheep (Oh)
- January 1980 Commence training program with:
 - selection of students for training (all PI's)
 - In-country training by:
 - workshops for in-country staff and students (Wi)^g
 - seminars for all in-country collaborators (Mi)

Important elements of collaboration within the CRSP

The following projects demonstrate considerable interdependence in terms of facilities and operation procedures.

- Development of social and economic survey data
Winrock, Missouri, Texas A & M
- Parasitism in adapted and non-adapted sheep
Ohio, California
- Flocks for study by both the genetic and health programs at Texas A & M, California

These institutions through consultation have developed a collaborative approach which calls for the sharing of flocks, equipment, personnel in the conduct of their research.