

9310600-2
 PD-AAA-215-131

931060001502
 and 931060001701

Unclassified
 CLASSIFICATION
PROJECT EVALUATION SUMMARY (PES) -- PART I

Report Symbol U-447

1. PROJECT TITLE Development of Efficient Mineral Supplementation Regimes for Grazing Ruminants in the Tropics			2. PROJECT NUMBER 931-0600	3. MISSION/AID/W OFFICE DS/AGR/L
5. KEY PROJECT IMPLEMENTATION DATES			4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY)	
A. First PRO-AG or Equivalent FY <u>74</u>	B. Final Obligation Expected FY <u>78</u>	C. Final Input Delivery FY <u>81</u>	<input type="checkbox"/> REGULAR EVALUATION <input checked="" type="checkbox"/> Special Team Evaluation 6. ESTIMATED PROJECT FUNDING 10/31/80 A. Total \$ <u>898,972</u> B. U.S. \$ <u>898,972</u>	
			7. PERIOD COVERED BY EVALUATION From (month/yr.) <u>November 1977</u> To (month/yr.) <u>June 1979</u> Date of Evaluation Review <u>June 1979</u>	

B. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues, cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
1. The review team recommended that the project should be extended for another two years because of the significant achievements and the need to ensure continuity and extension of the methods developed. Consequently, the Livestock Division should prepare a PID and project paper for the continuation and/or revision of the present project. These documents should include an expansion of the programs in the LDC's in Africa and Southeast Asia and the gradual transfer of responsibilities and technology to established institutions in Latin America.	J.W. Oxley Proj. Manager	December 1980
2. Project manager should conduct on-site review of project activities in Southeast Asia during the last year of the project.	J.W. Oxley Proj. Manager	September 1980
3. During the last year of the project, an increased emphasis should be given by the contractor to extending the methodology successfully developed in Latin America to selected LDC's in Africa and Southeast Asia.	L.R. McDowell J.B. Conrad Univ. of Florida	November 1980
4. An annual or terminal report (if project is not extended), covering the period June 1979 to November 1980 will be submitted to AID by the contractor.	L.R. McDowell J.B. Conrad Univ. of Florida	December 1980
5. An regular evaluation covering the period since the team evaluation (June 1979) will be completed at the end of the 6th year (November 1980).	J.W. Oxley Proj. Manager	January 1981

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

<input checked="" type="checkbox"/> Project Paper	<input checked="" type="checkbox"/> Implementation Plan e.g., CPI Network	<input checked="" type="checkbox"/> Other (Specify) <u>Extension</u>
<input checked="" type="checkbox"/> Financial Plan	<input checked="" type="checkbox"/> PIO/T	<input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C	
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P	

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A.	<input type="checkbox"/> Continue Project Without Change
B.	<input checked="" type="checkbox"/> Change Project Design and/or <input checked="" type="checkbox"/> Change Implementation Plan
C.	<input type="checkbox"/> Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and titles)

James W. Oxley, Chief *JWO*
 DSB/AGR/L, Proj. Manager

Mary Mozynski *MM*
 Program Officer, DSB/AGR

John R. Wilson
 Deputy Director, DSB/AGR

12. Mission/AID/W Office Director Approval

Signature *Tony Babb*

Typed Name Tony Babb

Date 11/23/79

(Continuation of #8-A,B, & C)

6. A regular evaluation covering the period since the team evaluation (July 1979) will be completed at the end of the year (November, 1980).

J.W. Oxley January, 1981
Program Manager

7. The contractor and project manager should seek support from the organizations cooperating in the development of the International Network Feed Information Centers and FAO to establish a Secretariat.

L.E. Harris July, 1981
Utah State Univ.

J.W. Oxley
Proj. Manager

8. From four to six graduate students per year from the LDC's should be trained under the project.

L.E. Harris Nov., 1983
Utah State Univ.

9. Attention should be given to developing examples of model feeding systems utilizing data from the LDC's.

L.E. Harris Nov., 1983
Utah State Univ.

PROJECT EVALUATION SUMMARY (PES) - PART II

#13 - Summary

The contractor initiated and developed an effective project for the determination of the mineral status of grazing ruminants and in demonstrating the value of mineral supplements for improving live-stock production in Latin America. The project leaders have been successful in involving these LDC's in operational procedures and technical support so that host country agencies are now responsible for substantial portions of the program. The contractor also assisted in the sponsorship of scientific meetings, the publication of technical reports and laboratory manuals in several languages. Most recent activities include the initiation of mineral research programs in several LDC's of Asia and Africa.

The contractor recorded commendable achievement in project objectives but the one year remaining on the contract is insufficient to satisfactorily complete all of the projected goals for Latin America and to allow for expansion into Africa and Southeast Asia. Therefore, the present program should be sponsored by A.I.D. for 3 to 5 years longer, which will require new arrangements after October, 1980.

#14 - Evaluation Methodology

The initial project started in 1974 and was extended for three years in December 1977. The extended PP requires a detailed evaluation of the project by a review team "during the second year of the contract extension." This evaluation occurred in June, 1979 by a team of three well qualified animal nutritionists, an AID official (livestock specialist), the project manager (livestock scientist) and representatives of the contracting agency (University of Florida). One of the nutritionists was a member of a Latin American LDC and some of the team members had previous experience with this project.

The contractor presented an Annual Report booklet (267 pages) which included summaries of studies underway and completed, lists of LDC cooperators, budget statements and proposals for future activities. Contract team personnel made presentations and answered inquiries of evaluation team members. The team evaluation report is attached.

#15 - External Factor

The last comprehensive project review (November 1976) recommended an expansion of activities into Asia and Africa but increased budgets to cover this expansion were not provided. The contractor has been

able to make progress in this area by reducing assistance to programs underway in Latin America as host agencies assumed increased responsibilities. These administrative transfers must proceed in an orderly manner to ensure continuation of programs and cannot be precisely scheduled due to variations in conditions, etc.

It is probable that most of the cooperating LDC's will continue to require a small degree of assistance for extended periods. For example: the major mineral deficiencies in Latin America appear to be phosphorus, copper and cobalt and many of the program-developed laboratories can reliably determine the phosphorus, copper and other essential mineral contents of samples. However, accurate cobalt determinations require costly equipment which is scarce so assistance with this analyses, as well as several other trace minerals, must be provided.

#16 - Inputs

The contractor has continued to emphasize the development of simplified methods for the assessment of mineral status and needs of grazing livestock in the LDCs. Correlations for Fe, Mn, Na and Zn in Soil-Plant-Animal relationships have been disappointing. Liver samples from the more productive animals, toward the end of the wet seasons, were the most reliable in demonstrating the status of certain trace minerals.

The establishment of analytical laboratories in LDC's has required manpower training and material inputs. Although goals are to develop mineral research projects and facilities which the LDC agencies will gradually take over, some funding may continue to be needed for assisting with more difficult assays such as for selenium and cobalt which require very expensive equipment. In some of the LDC's, the project is still very immature because, "equipment is not yet adequate, technicians are not yet completely trained and financial commitments for independent support of mineral research are not fully developed."

#17 - Outputs

The host countries benefit by obtaining information on specific areas of their country where mineral deficiencies and/or toxicities exist. Demonstrations on private ranches are proving the economic benefits of mineral supplementation. The LDC institutions must be capable of continuing these programs after the University of Florida technical assistance is terminated.

Demonstrations have shown that weight gains can be doubled and calving percentages increased from 50% to 75% by correct mineral supplementation. "Preliminary information indicates a return of

at least double the investment in correcting mineral deficiencies." Project items for evaluation are as follows:

<u>OUTPUT TARGET</u>	<u>PROGRESS</u>
Identification of mineral problems	Excellent for selected regions.
Demonstrations of supplement value	Good in some ranch situations.
Recognition of problems by LDCs	Excellent project acceptance by LDCs.
Project personnel training	Good because many trained by Univ. of Florida.
Development of LDCs laboratories	Fair because considerable assistance, still needed.
Application of information	Excellent usage in demonstrations and reports.
Scientific reports and meetings	Excellent at local, national and international levels.

#18 - Purpose

The purpose of the project is to provide adequate mineral intake for ruminants grazing tropical pastures through the development of efficient mineral supplementation regimes. The review team found that a research system has been developed which has been unusually effective in receiving LDC support. The report states, "much has been accomplished with a relatively small investment of U.S. funds because of the cooperative support from each of the 16 countries involved." It appears that the EOPS conditions will still be accurate when final purposes are achieved. However, the present project termination date must be extended so that some research laboratories in operation can become better established to continue this important program and new units can be placed in operation.

The major short fall in linkages between outputs and purpose was to be a lack of sufficient time to reach the projected goals. Inter-project linkages (host to donor and contractor to LDC's) are very evident and positive.

#19 - Goal/Subgoal

To achieve the purpose of the project, the contractor established goals on the following assumptions: (1) Accurate reconnaissance of

conditions and recruitment of qualified personnel in LDC's, (2) Precise observations on mineral status of livestock and the implementation of dramatic experimental results, and (3) Dissemination of findings, sponsorship of professional meetings and recommendations for effective mineral supplementation. Success has been realized because all activities were done in full cooperation with LDC personnel and institutions within the respective countries. This overall approach effectively influenced the goal of developing research units in each LDC that should be capable of taking over all of the obligations as the contractor terminates his assistance. A key to the progress, toward the goal, is evident in the first developmental stage-during reconnaissance, only interested personnel at institutions capable of sponsoring mineral research programs received the attention of the contractor.

#20 - Beneficiaries

The two direct beneficiaries of this project are the owners of grazing ruminants, that respond to mineral supplementation, and the scientists of the LDC agencies who receive valuable training and laboratory equipment for application to future research programs. In the first situation, the livestock owner will experience improved production, via growth and reproduction rates increases. The second class of beneficiary - the more qualified scientist - should demand better financial arrangements and higher positions than his colleagues.

The livestock owner who's animals are the most deficient in mineral intake will realize larger returns per dollar involved in mineral supplements than owners who's animals have marginal deficiencies. Therefore, emphasis has been on the most dramatic situations for promotional purposes. In the more severe situations, weight gains have been doubled and birth rates were increased from 50% to 75% with mineral supplementation. Economic returns were estimated at a return of two for every one unit spent on minerals.

Other beneficiaries should be buyers of animal products because increased production should help to curb inflation in the market. Increased salable products should allow farm families more money for essential goods. Manufacturers of mineral supplements and suppliers could also derive some financial gains.

#21 - Unplanned Effects

The establishment of technical methods have shown that attention to commercial mineral mixtures can be of economical importance to livestock owners in the LDC's. For example: project activities

found that five (5) different companies in an LDC were distributing supplements which were substantially lower in phosphorus than guaranteed on the labels. In one case, the actual amount of phosphorus in the supplement was almost zero.

Other unplanned and undesired effects could be misunderstandings on the use of mineral supplements. A livestock owner may realize that minerals are important but misuse the products so that they can be ineffective and even harmful to his stock. Contract activities found one rancher adding great quantities of salt to his salt trace mineral mixture so that the intake of trace minerals was minimal. In other cases, ranchers have been purchasing unneeded supplemental materials.

Preliminary information from an LDC project, suggested the possibility of seasonal mineral supplementation as a more efficient method. This needs further investigation.

#22 - Lessons Learned

The University of Florida contract personnel have been so successful with this project that their methods warrant consideration. "Leadership by the University of Florida has played a vital role in stimulating cooperation among government, university and industrial personnel --." Another statement of the evaluation team covers several factors; "The University of Florida team members are well-qualified professionals, have extensive on-site experience, have a record of good judgement, and would be expected to provide real assistance to those countries that are willing to cooperate in helping themselves." The smoothness of operations within the program can attest to the dedication and sincerity of the contractor and the understandings and respect developed between donor and host country representatives. An example of this associationship is that it is agreed that, "data generated within each country is the property of this country."

#23 - Special Comments on Remarks

It has been obvious that the contractor should not terminate his support of most of the developing research units at the end of this contract (1980) because they are not ready to assume complete responsibility. Each of the 16 LDC's are in different stages of mineral research programs so transfer of management should proceed in a way which will ensure continuation of activities and not dependent upon an arbitrary schedule. Therefore, the continuation, revision, renewal, etc. of this program beyond 1980 deserves careful consideration.

Another aspect for contract actions, after FY 1980, is that this proven contractor could efficiently develop and expand a similar

program in LDCs of Africa and Asia. Thus, the same personnel and expertise would be used to shift from established units in the LDC's of Latin America to developing units in the LDC's of Africa and Asia.

Attachments:

1. Report of Project Evaluation Team
2. Annual Report Prepared by Contractor
3. Budget statements for previous year
4. Budget proposal for remaining contract year

I. PROJECT TITLE: Mineral Studies with Grazing Ruminants in Tropical and Semi-Tropical Regions.

II. PROJECT DESCRIPTION: The project was initiated in 1974 to determine deficiencies and/or excesses of minerals which affect grazing ruminants in Latin America. In 1977, the project was evaluated and extended for three more years to include additional areas in Latin America and a few sites in Africa and Southeast Asia. The study has identified mineral intake problems and encouraged the development, promotion and utilization of economical mineral supplements to improve fertility rates, birth rates and growth rates. Season, soil, region, stage of production and age of animal are some of the factors affecting the mineral requirements of grazing ruminants on the experimental sites. Research results are demonstrating that it is possible for a livestock producer to realize up to two dollars return for every dollar spent on mineral supplementation.

III. IMPLEMENTING ORGANIZATIONS AND KEY PERSONNEL:

A. Implementing Institution:

Name: University of Florida

Location: Gainesville, Florida

Investigators: L.R. McDowell Co-Director

J.H. Conrad Co-Director

B. Examples of Cooperators in LDC's:

Bolivia

Instituto Boliviano de tecnologia-LaPaz and Cochabamba Centro de Investigacion Agricola Tropical/Facultad Veterinaria y Zootecnia-Santa Cruz

Brazil

Universidade Federal de Santa Maria-Rio Grande de Sul
EMBRAPA - Campo Grande, Mato Grosso

Columbia

ICA/Tibaitata - Bogota

VECOL Company - Bogota

Costa Rica

Facultad de Agronomia/Univ de Costa Rica - San Jose
Depto de Zootecnia/CATIE - Turrialba, Cartago

Ecuador

Depto de Nutricion/INIAP - Quito
Estacion Exp. de Pichilingue-Quevedo

El Salvador

Ministerio de Agriculturay Ganderia-San Salvador
Universidad de El Salvador-San Salvador

Guatemala

Division de Ciencias Agricolas y de Alimentos-Guatemala

Haiti

Ministry of Agriculture-Port au Prince

Indonesia

Fakultas Peternakan/Gadjah Mada Univ-Yogyakarta
Fakultas Peternakan/Jalan Gunung Gede-Bogar

Malawi

Bunda College of Agriculture-Lilongwe

Malaysia

Universiti Pertanian Malaysia-Serdang, Selangor

Peru

Univ. Nacional Mayor de San Marcos-Lima
Univ. Nacional Agraria-Lima
Univ. Nacional Pedro Ruiz Gallo-Lambayeque

Philippines

Univ. of the Philippines-Los Banos
Ansa Cattle and Crop Farm-Manila

Thailand

Dept. of Animal Sci./Kasetsart Univ-Bangkok
Chiangmai Univ. - Chiangmai

Uruguay

Rubino Veterinary Research Centre-Montevideo
Catedra de Nutricion Animal - Montevideo

Venezuela

Facultad de Veterinaria/Univ de Zulia-Marcaibo
Univ. Central de Venezuela-Maracay

C- Contacts in LDC's for Programs: over 150 persons

D- Program Implementation: The success of this project has been based on clear understanding, an honest "selling job" with low key pressure and cooperative contributions by the host and donor institutional representatives. Implementation was on the basis of contacts between scientists on a one to one basis. The contractor located animal nutritionists interested in mineral research and supplied them with information on mineral research possibilities and progress reported by other scientists. Next, personal contact included learning of limiting factors in the host scientist's research program and determining how AID could contribute to the solution of the problem. The final step was assisting host country scientists in the development of mineral research programs which could be completed under their conditions and then getting the results of these studies to the producers for utilization. It is estimated that the ratio of contributions by host institutions compared to AID/contractor inputs are between 15 and 20 to 1, which indicates a high degree of acceptance and cooperation by participating host countries.

IV. PROJECT FUNDING AND AID INPUT:

A. Funding:

Currently approved Life-of-Project: \$900,000 from 11-1-75 to 11-1-80

Contributions by Others: \$691,884 average per year (1978)
Professional and non-professional staff time, laboratory equipment and supplies, field test trials, and other related inputs by 9 country collaborators, estimated at \$76,876 per year per host country.

B. AID Management

Technical Expertise Required: Livestock Nutrition Specialist
Technical Management Time Required Per Year: 24 days
Travel Time Required Per Year in: USA: 5 days and LDC's 15 days

V. PRESENT STATUS AND PLANNED ACTIONS FOR 1980-1981

A. Funding under Current Approval:

Project currently funded to: 11-1-80

FY 80 funds scheduled: \$150,000

FY 81 funds proposed : \$100,000

B. Next Planned Approval and Related Funding

See VI below

C. Evaluation:

Last Indepth Evaluation: June 1979

Next Indepth Evaluation: Depends on project extension

VI. IMPORTANT PROJECT CONSIDERATIONS:

Procedures have been developed and proven effective for the accurate determination of the mineral status of ruminant livestock population in host countries. This information has been utilized to recommend proper mineral supplements for correcting deficiency and/or toxicity problems (phosphorus, copper and cobalt have been of major concern). Additional mineral studies are underway in 12 host countries to strengthen the effectiveness of demonstrations on the value of minerals for increasing livestock production. The contractor has been responsible for improvement in the capabilities of host country laboratories so that one or more of these units in each country are currently conducting the major mineral analyses (exceptions are cobalt, molybdenum and selenium). The LDC's are improving these basic laboratory units as well as their extension services for the detection of mineral imbalances and the implementation of the use of beneficial mineral supplements. As laboratory and extension personnel become more proficient and require less technical assistance, the contractor expands into other specific areas of host countries needing attention. The overall funding by LDC governments is on the increase (see section IV). Progress has occurred from the joint sponsorship by AID+host country+foundation for scientific meetings, research reports, training programs and the development of procedural manuals for laboratory and field technicians.

Information compiled to date and that to be obtained in projected activities will be of value to other AID supported programs. The International Network of Feed Information Centers (INFIC) will easily place these materials in their data bank of world wide feedstuff compositions. This effort is part of the AID funded Utah State University project titled "Improved Feed Nutrition Information". The Small Ruminant CRSP project is in early stages of development so it's leaders in the nutrition segment will certainly need to utilize some of the basic information obtained to date. Future activities should prove complimentary to these two aforementioned programs as well as to development of possible future international projects including all species of livestock and poultry. Hence, strong consideration must be given to a proposal for the continuation of these activities, either as a project extension or revision etc, after the 1980 expiration date.