



# Intsormil

TRIP REPORT

GABORONE, BOTSWANA

by

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PROGRAM DIRECTOR  
MAY 1-11, 1983

CONTRACT NO.: AID/DSAN/XII-G- 0149

☆ International  
Sorghum/Millet

☆ Collaborative Research  
Support Program  
(CRSP)

A Research Development Program of the Agency for International Development, Participating Land-Grant Universities, Host County Research Agencies and Private Donors.



Institute of Agriculture and Natural Resources  
University of Nebraska-Lincoln



INTSORMIL TRAVEL REPORT  
GABORONE, BOTSWANA

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PROGRAM DIRECTOR  
MAY 1-11, 1983

SUMMARY:

I visited USAID/Botswana and the Department of Agricultural Research, Ministry of Agriculture, Government of Botswana, to finalize arrangements for posting INTSORMIL staff members in Botswana. This objective was accomplished. An agreed Memorandum of Understanding and an accompanying Work Plan were drawn up and left for signature.

A proposed brief visit to REDSO/ESA, Nairobi was cancelled owing to aircraft malfunction. A telephone conference and exchange of cables moved forward discussions of possible INTSORMIL involvement in a Southern African Regional Sorghum/Millet project.

ITINERARY:

- May 1 - Lincoln to Chicago, New York and direct to Johannesburg, arriving 6:00 p.m. May 2.
- May 3 - Johannesburg to Gaborone, Botswana.
- May 3 - 8 In Botswana, at USAID, Ministry of Agriculture, and Research Station Sebele.
- May 8 - To Johannesburg. Flight to Nairobi aborted due to engine failure of aircraft.
- May 9 - In Johannesburg awaiting flight to U. S.
- May 10-11 Johannesburg - New York - Chicago - Kansas City - Lincoln.

CHIEF PERSONS MET:

USAID/Botswana

Mr. Paul Guedet - Mission Director  
Dr. Anita Mackie - Agricultural Development Officer.

Ministry of Agriculture, Botswana

Mr. Mbenge - Undersecretary, Ministry of Agriculture  
Mr. M. Mdzinga - Senior Economist

Department of Agricultural Research

Dr. Kristian Oland - Director  
Dr. D. Gollifer - Chief Arable Crops Officer  
Dr. M. Jones )  
Dr. D. Rees ) Dryland Farming Research  
Ms. M. Mortlock)

Department of Agricultural Research

Mr. O. Mmolawa )	Seed Multiplication
Mr. C. Bernhardt )	
Mr. Lucas Gakale	Research Officer
Mr. Louis Mazhani	Sorghum Research Officer

Others:

Mr. Art Hobbs - MIAC/KSU Farming Systems Team  
Mr. [redacted] - Integrated Farming Pilot Project, Lobatse

DETAILS - Bot

I arrived in Gaborone May 3 on an afternoon flight, was met by Dr. Mackie, and taken to the President Hotel. This hotel, in the center of Gaborone and two blocks from the USAID offices, proved to be very satisfactory accommodation.

On May 4, I first conferred with Dr. Mackie and Mr. Hobbs, briefly met the Mission Director, Mr. Guedet, then went to Dr. Oland's office at Sebele. There we had a general discussion on the needs for sorghum research in Botswana, and on the expected interaction between the Department of Agricultural Research, prospective INTSORMIL staff, and the MIAC/KSU Farming Systems project group.

An interesting aspect of the early part of these discussions was the presence of Mr. Kramer of AID/Washington/PPC, who was investigating the need for cereal crop research in Botswana. His initial point was that Botswana should not produce cereal crops, but import them! I believe that several forceful responses may have altered his opinions.

In the afternoon, I revised the draft Memorandum of Understanding to reflect points raised in earlier discussions, and read the draft proposal for regional research programs in Southern Africa (see further discussion below).

The morning of May 5 was again spent in discussions with USAID. Principal topics covered were the wording of the Memorandum, the general content of needed Work Plans, and the precise nature and level of logistical support to be provided by USAID. Later, I visited offices of the Ministry of Agriculture with Mr. Gollifer and Mr. Hobbs.

In the afternoon, I again visited the Ministry briefly, then went to the rotation plots of Lucas Gakale, where I discussed his findings. Since the effects of crop rotation are usually long-term, particularly in semi-arid environments, Lucas' results are yet somewhat indefinite. However, it is clear that continuation of this research is important. This is to be the principal task of the "junior agronomist" INTSORMIL proposes to assign to Botswana.

I also discussed the (British-funded) Dryland Research Project with two senior scientists and a junior assistant. This project heavily emphasizes soil structure, tillage practices, and moisture conservation. Unfortunately, the project is scheduled for termination in 1984.

Later, in the evening, I completed drafting of the Work Plan to accompany the Memorandum. Also, I reviewed a long cable received from USAID/Zimbabwe, regarding plans for the proposed Southern African (SADCC) Regional Research project on sorghum and millet.

On May 6, I turned over to USAID drafts of the proposed Work Plan and a cable to AID/Washington reacting to the Zimbabwe cable. I then visited the Seed Unit at Sebele, where it was apparent that the installation had been mis-designed and needed major modifications for effective functioning. Mr. Mmolawa, head of the Seed Unit, and his adviser, Mr. Bernhardt, were well aware of the installations shortcomings, and expressed their hope that a planned new unit would be properly designed and installed.

Later in the morning, I had a discussion with Dr. Oland in which he expressed his complete agreement with INTSORMIL's plans for operations in Botswana. Prior to my visit, some concerns had been expressed about this, but I found that Dr. Oland showed full confidence in INTSORMIL's ability to staff the positions and conduct effective research.

I also briefly discussed with Dr. Oland the proposed SADCC regional program. As one of the chief planners for this program, Dr. Oland is well informed and gave me valuable background information.

In the afternoon, I met with Dr. Mackie and then with her and Mr. Guedet, the USAID Mission Director. After clarifying a number of points, we reached full agreement on the text of the Memorandum (final draft attached) and the general content of the Work Plan. Mr. Guedet promised to sign for the Mission and to obtain necessary signatures of Government of Botswana officials as soon as possible. He emphasized the urgency of staffing the positions in time to have planting crops begin in the next cropping season (staff to be in place by September 1983).

I had planned to visit REDSO/Nairobi to discuss the SADCC regional program. My travel from Botswana to Johannesburg on May 8 was uneventful, but the scheduled BA flight to Nairobi was aborted due to engine failure and delayed 24 hours. This made fulfilling my appointment in Nairobi impossible, so I took the first available flight directly back to New York and Lincoln.

#### SADCC REGIONAL PROGRAM.

Very little information on this proposed program was known to INTSORMIL before this visit to Botswana. We had known that the Heads of State of the nine SADCC countries had asked ICRISAT in 1980 to set up a regional research center in Southern Africa, and that the response, after considerable study, was that more than one center was needed. We had learned that plans were going forward to establish a regional center for sorghum and millets in Zimbabwe, reportedly with funding from USAID/Zimbabwe.

Discussions with USAID/Botswana and Dr. Oland, followed by receipt of a cable from USAID/Zimbabwe and a long telephone conversation with Mr. Pfeister (Regional Officer stationed in Harare) revealed the situation to be more complex and INTSORMIL to be involved.

Briefly, the current status is:

1. USAID/Zimbabwe, REDSO/ESA and AID/W agree that A.I.D. funding of a sorghum/millet center in Southern Africa is a desirable use of regional funds.
2. All A.I.D. entities would like to use FY 83 money (lapsing September 30, 1983) to begin operations.
3. ICRISAT has taken the lead in preparing a proposal for setting up this center.

The staffing level visualized is on the order of 6 senior professionals plus support elements. A heavy training component is involved. Total budget is estimated at \$2.5 to \$3.25 million per year. The location tentatively chosen is Kadoma, Zimbabwe, where there is an existing cotton research station.

4. Many problems have arisen in the planning operation. The solution to some of these is thought to lie in including INTSORMIL in a significant operational role. This would include staffing one or more senior positions and coordinating all long-term training. All A.I.D. agencies and ICRISAT have agreed to this basic concept. INTSORMIL is willing to undertake the work, under suitable terms and conditions.

5. The INTSORMIL Technical Committee has approved our participation in further planning. Headquarters personnel will meet with AID/W on June 8 and with ICRISAT (in Hyderabad) June 20-23. From these meetings, it is hoped that a joint ICRISAT-INTSORMIL plan, likely to be approved by A.I.D., will develop.

Enclosures: Final Draft, Memorandum of Understanding, INTSORMIL/Botswana/USAID-Gaborone Job Descriptions, proposed INTSORMIL positions in Botswana.

FINAL DRAFT

MEMORANDUM OF UNDERSTANDING

The Sorghum Millet Collaborative Research  
Support Program (INTSORMIL)

and

The Government of Botswana (GOB)

and

USAID/Botswana

With Regard to the Establishment of  
Collaborative Research Relationship

I. The Sorghum/Millet Collaborative Research Support Program (INTSORMIL CRSP)

The INTSORMIL CRSP operates by approval of the U.S. Government under the provisions of Grant AID/DSAN/XII-G-0149 to the University of Nebraska, designated as the INTSORMIL CRSP Management Entity.

The INTSORMIL CRSP is under the direction of the Management Entity with the guidance of an Administrative Council, Board of Directors, Technical Committee and an External Review Panel.

The INTSORMIL CRSP is an integrated and coordinated program of research projects in specific aspects of sorghum/millet production and utilization. These research projects are carried out by scientists from cooperating U.S. Institutions and scientists from Host Country institutions working together in a collaborative mode. The participating scientists are equal collaborators and the rights for publication of INTSORMIL CRSP research findings should be so viewed. All publications must acknowledge support from USAID and include the grant number. All publications should be attributed to the authors, stating that opinions expressed or recommendations made do not represent official position or policy of A.I.D. Materials developed as a result of collaborative research shall be made freely available, on request, to other INTSORMIL workers and to the agricultural research systems of collaborating countries.

A. Goal

The goal of INTSORMIL is to improve human nutrition through Sorghum/Millet research and technology development. To accomplish this, training of host country scientists and strengthening host country research facilities and procedures are given high priority.

B. Procedure for Establishment of the Research Relationship

With mutual understanding of Intsormil and its goal, a collaborative research relationship is to be developed as follows:

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1. Based on discussions and site visits on Sorghum/Millet production and utilization constraints in Botswana and research needed to relieve the constraints, a Plan of Work for Botswana has been developed. This Plan of Work has been reviewed and revised by the potential collaborators. Through discussions and review, this formal collaborative research agreement has been reached.

2. The collaborative research agreement will include a) this Memorandum of Understanding between the INTSORMIL CRSP Management Entity and Government of Botswana and USAID/Botswana representatives, b) a current Plan of Work designed to implement research and other sorghum/millet activities between participating INTSORMIL and Government of Botswana Institutions.

3. Other Plans of Work may be developed as needed and appropriate under this Memorandum of Understanding.

4. After receipt and acceptance of these documents by the INTSORMIL Management Entity, the Government of Botswana, Kansas State University and USAID/Botswana, the Plan of Work can be funded and implemented.

## II. Administration of Collaborative Research Projects.

### A. General

Senior INTSORMIL Research Scientists working in Botswana will be under the same management rules and regulations as are other professional staff with the Botswana Technology Improvement Project (Project 633-0221); for which Kansas State University is the lead institution, and will be entitled to the same provisions and services.

Junior scientists will be attached to the Department of Agricultural Research, Ministry of Agriculture, Government of Botswana. Item 5 below specifies privileges and services to be provided accordingly.

### B. Funding

1. INTSORMIL CRSP research and participant training activities carried out under the Plan of Work will be funded by the INTSORMIL CRSP, USAID through the Botswana Agricultural Technology Improvement Project (Project 633-0221) and the Government of Botswana. The Management Entity of INTSORMIL, the University of Nebraska, is responsible to A.I.D for all fiscal matters and research progress. Participating U. S. Institutions are responsible for planning research expenditures and progress with individual projects.

2. The Government of Botswana will provide office and laboratory space, land, and other research support costs related to the sorghum/millet research. All project equipment and commodities sent to Botswana will be received without customs or duty.

3. INTSORMIL will provide for scientist salary and fringe benefits and will provide transportation of the scientists, their dependents and related personal items to Gaborone, Botswana. INTSORMIL will provide funds for purchase of vehicles to be used by its scientists for local transportation within Botswana. INTSORMIL will provide technical assistance to the project as requested and as funds allow.

4. The AID/Botswana Mission will provide housing, supplemental furniture, education allowances, medical services, utilities and other normal allowances and entitlements that are available to AID contract employees. On completion of the assignment, AID will provide travel and transportation costs for the employee and dependents, including shipping of UAL, AIR, AFD, PAV to the employee's point of origin.

5. Junior Scientists funded by INTSORMIL will be provided housing, support and local transportation by the Department of Agricultural Research, Government of Botswana, on a scale normal to research officers of similar rank and duties.

C. Duration

1. This Memorandum of Understanding or Plan(s) or Work for project(s) covered by this document shall continue until terminated by:

- a. Notification of termination of the INTSORMIL CRSP by AID/Washington.
- b. Acceptance by the INTSORMIL Board of Directors of a request to terminate by the Government of Botswana.
- c. Acceptance by the INTSORMIL Board of Directors of a recommendation to terminate by the INTSORMIL CRSP Management Entity.

2. Either participating U.S. Institutions or the Government of Botswana may request the INTSORMIL CRSP Management Entity to consider adjustments in their collaborative arrangements.

3. The INTSORMIL CRSP is a continuing project funded annually. Its current overall funding level (1983-84) totals \$3.5 million for all projects and activities.

III. Approvals.

Having read this Memorandum of Understanding, the persons below have signed and shown their affiliation. By so doing they have indicated concurrence with the collaborative Sorghum/Millet research relationships outlined therein.

Signature: \_\_\_\_\_ Date \_\_\_\_\_

Title: Program Director  
FOR THE INTSORMIL MANAGEMENT ENTITY

Signature: \_\_\_\_\_ Date \_\_\_\_\_

Title: \_\_\_\_\_  
FOR THE GOVERNMENT OF BOTSWANA

Signature: \_\_\_\_\_ Date \_\_\_\_\_

Title: \_\_\_\_\_  
FOR USAID/BOTSWANA

JOB DESCRIPTION FOR CEREAL AGRONOMIST - DEPARTMENT  
OF AGRICULTURAL RESEARCH

Duty Station Sebele or Mahalapye (if housing and facilities are available).

Background

The Agriculture Technology Improvement Project ATIP (633 - 0221) includes the position of Cereal Agronomist (Annex II D p. 10) to strengthen the Department of Agricultural Research and support the projects through relevant research findings.

DUTIES

The officer will undertake time of planting/variety trials with millet and sorghum as the test crops in Eastern Botswana. The trials will initially be planted at research stations and ultimately sites will be developed on farmers fields in collaboration with FSR projects.

The sorghum and millet varieties used will be those released from the Seed Multiplication Unit plus the better performers in the Crop Screening trials conducted by the Department of Agricultural Research. As material is made available from the ICRISAT/SADCC/millet/sorghum breeding programme to be based in Zimbabwe it will be incorporated into the experimental programme.

The test varieties should be exposed to as wide a variety of conditions as practically possible. These will include soil type, and site cropping history, with the treatments of plant population (two to three rather widely spaced population) in factorial combination with variety, management practice and fertilizer level (+/-P<sup>1</sup>).

The cereal agronomist will be expected to closely monitor the test sites and help the sorghum breeding and crop Screening officers, identify those plant attributes contributing to the varietal specific responses observed.

Assistance will be given by the soil fertility, plant protection and agronomic disciplines within the Department of Agricultural Research, on - the design and location of trials, and on experimental procedure.

QUALIFICATIONS

The officer should have a Ph.D. degree in Agronomy (cereals) or closely related disciplines and substantial overseas experience in developing countries.

OF AGRICULTURAL RESEARCH

Duty Station Sebele

Background Mr. L. Gakale (Agricultural Research Officer) has initiated a series of crop rotation trials at Sebele and Goodhope research stations; the primary objectives of which are as follows:

- i) Determine the yield response of sorghum following cow-peas or groundnuts compared to continuous sorghum with and without fertilizer nitrogen.
- ii) To monitor seasonal soil mineral nitrogen (mainly post harvest and preplanting) and to try to relate this to crop response.
- iii) To try to determine the minimum fertilizer rate-legume combination that will give the optimum yield of the cereal crop.
- iv) To measure the plant N - uptake (cereal) during the life of the crop - vegetative flowering and physiological maturity stages.
- v) To determine the yield advantages or otherwise of inter-crops versus monocrops.

Mr. Gakale is scheduled to leave for the U.S.A. during mid 1983 to complete his Ph.D studies on the above theme at the University of Nebraska. It is imperative that the rotational work initiated by Mr. Gakale continues during his absence as it is only after 4 - 5 years that clear trends in such a study can be detected; and the study should ideally be continued for at least up to 10 years.

It is therefore recommended that the Department of Agricultural Research recruits an agronomist under the auspices of INTSORMIL to continue this important rotational work.

Duties The officer will continue the four experiments at Sebele and Goodhope as initiated by Mr. Gakale and take all the necessary measurements of plant growth and yield and of soil N and plant -N uptake during the life of the cereal crop. In addition the officer may be requested to conduct crop rotation trials on selected sites in South East Botswana, in farmers fields, in collaboration with FSR projects.

Justification:

The information obtained from long term studies on crop rotations will be of great value to the Farming systems Projects in Botswana (AIP, FSAIP, ADN, IFPP) who will test the findings before general recommendations can be released to the Department of Agricultural Field Services, for extension to farmers.

Qualifications: The officer should have at least an M.Sc. in Agronomy/plant nutrition with some overseas experience in developing countries.