PD-ABI-778

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO MALAWI

P.O. Box 30455
Lilongwe 3
Malawi

USAID

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August 27, 1993

Dr. Lukas Brader
Director General
International Institute of Tropical Agriculture
P.M.B. 5320
Ibadan, Nigeria

Subject: Grant No. 690-0270-G-00-3055-00

Dear Dr. Brader:

Pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, and the Federal Grant and Cooperative Agreement Act of 1977, the Agency for International Development (referred to hereinafter as "A.I.D." or "USAID") hereby grants to the International Institute of Tropical Agriculture (referred to hereinafter as "Grantee" or "IITA") the sum of two hundred fifty thousand dollars ($250,000) to support the project in Malawi as described in Attachment 1 (Schedule) and Attachment 2 (Program Description/Financial Plan) to the Grant.

The sum of $250,000, hereby obligated, represents the total funds required to implement the Grantee's activities from September 1, 1993 to May 31, 1994 in accordance with the terms and conditions of this letter and its attachments.

This Grant is effective and obligation is made as of the date of this letter, and shall apply to commitments made by the Grantee in furtherance of project objectives during the period beginning with the effective date and ending May 31, 1994.

This Grant is entered into with the Grantee on condition that the funds will be administered in accordance with the terms, conditions and provisions, as set forth in the Schedule (Attachment 1), Program Description/Financial Plan (Attachment 2), and Standard Provisions for Grants to Public International Organizations (Attachment 3), which have been agreed to by both organizations.

Please sign the original and three (3) copies of this letter to acknowledge your acceptance of the Grant and your concurrence in its provisions. Please return the original and two copies to USAID/Malawi, and retain one copy for your records.

Sincerely,

Cynthia F. Rozell
Mission Director

Accepted and Agreed:

International Institute for Tropical Agriculture

By: Marikis G. [illegible]

Title: Co-ordinator

Date: 8/27/93

Attachments:

1. Schedule
2. Program Description/Financial Plan
3. Standard Provisions

Fiscal Data:

Project: Regional Drought Relief and Recovery Project 690-0270
Appropriation: 72-113/41014
Budget Plan Code: GSS3-93-21613-IG12
Obligation/Earmark/Commitment Doc No: PA-690-0270-G-00-3055
Reservation Control No: G302700
Earmark Control No:
Amount: $250,000

FUNDS AVAILABLE
INITIAL DATE 8/26/93

Attachment 1

SCHEDULE

Grant No. 690-0270-G-00-3055-00

A. Purpose of the Grant

The purpose of this Grant is to increase and accelerate the production of improved cassava and sweet potato planting material in Malawi, and distribute the material to smallholder farmers. The project is described more fully in Attachment 2 of this Grant entitled "Program Description/Financial Plan".

B. Period of the Grant

The effective date of this Grant is indicated in the cover letter. The expiration of the Grant is May 31, 1994.

C. Amount of the Grant and Payment

1. A.I.D. hereby obligates the amount of $250,000 which represents the total funds required to implement the project.

2. Payment shall be made to the Grantee in accordance with the procedures set forth in Attachment 3 - Standard Provision No. 11 (Cost Reimbursement).

D. Financial Plan

The Financial Plan for implementation of the project is contained in Attachment 2. Revisions to the Financial Plan will be made in accordance with Mandatory Standard Provision No. 4 entitled "Revision of the Grant Budget."

E. Reporting and Evaluation

1. The following reports are required:

   a. brief monthly reports on project activities and accomplishments, and at the end of the project a comprehensive report; and

   b. financial reports as required by the Standard Provision No. 11.

2. One copy of all reports by the Grantee shall be submitted to the Project Officer, USAID/Malawi and to the Government of Malawi's Principal Secretary, Ministry of Agriculture.

3. Copies of all financial reports shall be submitted to the Controller's Office, USAID/Malawi.

F. Special Provisions

As this grant is to a Public International Organization, only those Standard Provisions which pertain to grants to Public International Organizations shall apply. The Standard Provisions which shall apply to this grant are contained in Attachment 3 entitled "Standard Provisions For Grants To Public International Organizations."

International Institute of Tropical Agriculture

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EAST AND SOUTHERN AFRICA ROOT CROPS RESEARCH NETWORK (ESARRN)
Plaza House, P.O. Box 30258, Lilongwe, Malawi

Telephone: 783 082
Telex : 44466 UNDP MI or 43055 ROCKFND MI
Fax : 265-782835

19th August, 1993

Mr K Rockeman
USAID
P O Box 30455
Capital City
Lilongwe 3

Dear Mr Rockeman,

Subsequent to our discussion, attached is the revised proposal for the accelerated multiplication and distribution of improved cassava and sweet potato planting material. IITA through the network is seeking support for the sum of two hundred and fifty thousand dollars (US$250,000) for 1 year to expand this activity.

Thanks very much for your kind consideration and we look forward to your continued guidance and support.

Wishing you the very best.

Sincerely yours,

M N ALVAREZ

cc: Dr J P Eckebil

Dr R Asiedu

ACCELERATED MULTIPLICATION AND DISTRIBUTION OF IMPROVED CASSAVA AND SWEET POTATO PLANTING MATERIAL AS A DROUGHT RECOVERY MEASURE IN MALAWI

EXECUTIVE SUMMARY

Cassava and sweet potatoes are traditionally important food security crops for small holder farmers in Malawi. The proven ability of cassava and sweet potatoes to produce substantial amounts (15-20 metric tons) of food/hectare with minimal inputs under poor soil fertility and moisture conditions give them an important role in preventing famine. The Government of Malawi is actively encouraging smallholder farmers to intensify production of these two crops to help alleviate the food and nutrition crisis caused by the devastating drought affecting the region. As a result, the demand for cassava and sweet potato planting material has increased dramatically during the 1992-93 season and is expected to continue in the coming production seasons. However, Malawi's present system of producing planting material is unable to provide the quantities needed to meet the growing demand.

Significant progress has been made in cassava and sweet potato multiplication and distribution by the International Institute of Tropical Agriculture through a $201,780 famine mitigation grant by USDA/OICD. Over 80% of the 20 proposed primary multiplication sites have been planted with cassava (75% of total area) and sweet potatoes (25% of total area). Planting materials from these sites are however still being used to expand multiplication in other sites with the result that farmers' demands for these improved materials are still not being met. Preliminary impact assessment results showed that over 70% of farmers still use local varieties. Most of the farmers planting local varieties have indicated a willingness to be involved in cassava and sweet potato multiplication activities.

The IITA cassava and sweet potato project has also strengthened linkage between the National Root Crops Multiplication System (NRCMS) and non-governmental organizations involved in root crop technology transfer at farm level. Short term training courses were provided to NGOs in collaboration with IITA/ESARRN. The overall effect is that cassava and sweet potato multiplication and distribution activities have intensified, but demand gaps still exist.

This proposal by IITA seeks funding from the United States Agency for International Development (USAID) for a sustainable program to increase capacity and accelerate the production of cassava and sweet potato planting material in Malawi and to distribute the material to smallholder farmers to help mitigate the impact of

drought induced food shortages. This support will expand the multiplication efforts already underway through international organizations such as FAO, UNICEF and NGOs to produce a significant expansion of the cultivated area planted in these two crops.

The International Institute of Tropical Agriculture, through its East and Southern Africa Rootcrops Research Network offices in Malawi, will manage the overall effort in the establishment of multiplication sites. It will provide training, technical advice and support to cooperating organizations, extension agents, NGOs, farmers, etc.

This proposal seeks a total of $250,000 from USAID/Malawi to multiply improved varieties of cassava and sweet potatoes at 20 primary and 50 secondary multiplication sites, distribute sufficient planting materials for resource poor farmers to plant a total of 5,500 more hectares (0.05 ha/farmer) of sweet potatoes and 3,000 more hectares (0.01 ha/farmer) of improved cassava varieties. Part of the funds will be used to train extension agents on modern techniques of cassava and sweet potato propagation, multiplication, and distribution. The project will be implemented in collaboration with Malawi National Root Crops Improvement Program cooperating with international organizations, extension agents, and NGOs to establish and manage the multiplication sites and assist in distribution to farmers.

BACKGROUND

Smallholder farmers in Malawi depend upon root crops, especially cassava and sweet potato, as a dietary supplement and a major source of energy and nutritional requirements. Cassava is second only to maize as a source of dietary carbohydrates.

The production characteristics which make cassava and sweet potato particularly valuable with respect to family food security in Malawi are that:

1. They are tolerant to marginal soil conditions, such as low fertility and high acidity.

2. They tolerate environmental stress, such as drought and insect pest, and recover rapidly when moisture is available.

3. Cassava and sweet potato are relatively high yielding compared to other staple crops and provide an excellent source of carbohydrates.

4. Cassava can be harvested anywhere from 6 to 36 months after planting, and sweet potato anywhere from 3.5 to 8 months after planting. Both crops remain well preserved underground within these time periods, and can be harvested

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as needed. They therefore constitute a relatively permanent source of food for resource poor farm families.

The agricultural sector in Malawi provides a livelihood for nearly 90% of the population, most of whom are subsistence oriented. In the best of times access to adequate food supplies for much of the population represents a major challenge. However, the 1991-92 drought made the normal situation much worse, requiring special efforts if Malawi's rural people are to emerge with a relatively stable source of food.

The Government of Malawi (GOM) is currently emphasizing the production of root crops as a means of addressing the food shortage caused by the current drought, as reflected in the following policy statement:

> "Root and tuber crops are important, especially as a source of food and cash. Even in areas where maize is the staple food, root and tuber crops are an important food supplement. They are particularly important as food security crops in seasons of drought, and survive relatively well in marginal soil."

In view of the importance of root and tuber crops, the GOM's stated objective is to increase production in areas where root crops are a staple food and encourage farmers to grow them as security and cash crops. Farmers are being advised to grow root and tuber crops on a regular basis rather than resorting to growing them during times of drought.

CURRENT STATUS OF ROOT CROPS MULTIPLICATION IN MALAWI

Root crops and cassava in particular are now regarded as essential crops for improving food security. From a cassava and sweet potato survey conducted in Malawi, more than 22% of the villages surveyed ranked the crops as either the first or second most important crops prior to the drought year.

A preliminary post drought survey of farmers in Lilongwe Agricultural Development Division (LADD) revealed that more than 70% of farmers grew cassava and sweet potato for both food and cash. In terms of hectarage under cultivation, the area cultivated by both crops jointly is second only to maize. (Table 1).

Table 1

Average area under cultivation of maize crops grown by farmers in LADD

	AREA/FARMER UNDER CULTIVATION (ha)	
CROPS	LOCAL	IMPROVED
Sweet Potato	.24	.23
Cassava	.44	-
Maize	.72	.65
Other*	.54	.51

* Others include tobacco, pulses, vegetables.

Based on results from on-farm testing for sweet potato for the past three years in several locations, there is enough conviction among the farmers about the productivity of improved varieties. (Table 2).

Table 2

Performance of sweet potato varieties in on-farm trials in Lilongwe ADD.

VARIETY	MEAN YIELD (t/ha)
Kenya	11.5
TIS 3017	10.8
TIS 2534	8.5
LRS 407	5.3
Local	4.1

While farmers are convinced about the productivity of improved varieties, the availability of planting material remains a leading constraint. Reasons for limited cultivated area is shown below.

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Table 3

Limiting factors for cultivating cassava and sweet potato

	% Of Farmers	
Reasons	Sweet Potato	Cassava
Lack of planting material	47	43
Insufficient land	27	19
Both land and planting material limited	12	10
Pests and diseases	-	5
Others*	14	24

* Others include labor, poor yield, market problem and theft.

Base information in the study area showed that many farmers grew sweet potato and cassava (Table 4).

Table 4

Total number of farm families and percentage of farmers growing sweet potato and cassava in the study area*

EPA	NUMBER OF FARM FAMILIES	PERCENTAGE GROWING	
		SWEET POTATO	CASSAVA
NAMITETE	5,680	27	11
BUNDA	16,367	37	56
DEDZA	1,132	38	44

* Source: Data from EPA offices in study area.

A 1991 survey showed that the survey area had only about 3% of farmers growing improved sweet potato varieties and only 1 variety, "Kenya", was reported by farmers. This preliminary survey shows that almost 29% of farmers are now growing improved varieties of sweet potato and the varieties reported were: Kenya, LRS 407, and TIS 3017. (Table 5). This is a confirmation that the technology is spreading and is being adapted.

Table 5

Distribution of sweet potato grown according to variety

Variety	% of growers
Local	71
Improved*	29

* Improved varieties reported were Kenya, LRS 407, and TIS 3017

The rapid increase in the spread of sweet potato varieties and the slow pace of cassava is because of the slow multiplication rate of the crop. However, the demand for improved cassava planting material is high. More than 75% of farmers in the survey area request for cassava planting material compared to 69% requesting for sweet potato. This shows that most of the target farmers are aware of the improved cassava and sweet potato planting materials. This awareness along with GOM's encouragement for diversification has created demand for planting material. Under the present circumstances of growing demand and the limited multiplication system in place, availability of planting material is in short supply. No adequate system currently exists for producing the amount of planting material needed for extensive dissemination. Research-extension linkages are not strong enough to support the transfer of root crops technology to farmers, a situation also constrained by funding availability and manpower shortages.

Training courses have been conducted to broaden the knowledge of extension agents of NGOs in root and tuber crops to prepare them to promote the adoption of root crops technologies. Farmer field days and training workshops on nursery establishment and management have also been organized to transfer the technology for rapid multiplication of planting material.

Primary multiplication sites are already established with at the agricultural research stations in Chitedze, Bvumbwe, Chitala, and Mkondezi with support from OFDA, FAO, the GOM, and IITA/ESARRN,. All these sites continue to be sources of material for further multiplication. However, production from these sites still fall short of current demands. Planting material is being distributed only on a limited scale to farmers, NGOs, UNICEF, and the Chinese Vegetable Projects for further multiplication (secondary sites) and distribution to farmers.

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THE CHALLENGE

The present collaborative efforts of ESARRN, MNRCIP, extension agents and NGOs are not enough to reach the goals set by the GOM in its emergency plan. This plan calls for the rapid multiplication and distribution of cassava and sweet potato planting material to thousands of smallholder farmers to mitigate the effects of food shortages caused by the current drought. It also calls for actions to facilitate crop diversification and to enhance food security and food self-sufficiency at the household level. Priority actions have been identified as:

1. Training farmers and extension workers in root crops production and post-harvest technologies.

2. Multiplying and distributing improved cassava and sweet potato varieties to farmers.

3. Expanding on-farm trials and pilot extension efforts to demonstrate the value of improved varieties, and to serve as a primary means to promote and disseminate the varieties.

This proposal focuses on the expansion of accelerated multiplication and distribution of improved cassava and sweet potato planting material as one of the critical elements in meeting the needs of smallholder farmers during the 1993/94 crop season in Malawi.

PROJECT STATEMENT

This project will expand the current multiplication and distribution scheme for root and tuber crops, strengthen the linkage with NGOs, and broaden the capacity of the system to produce planting material. This will permit expanded areas of root crops to be planted and contribute to the household food security, thus assisting Malawians to recover from the effects of the drought.

OBJECTIVES

The overall objective of the project is to expand Malawi's cassava and sweet potato production through: (1) accelerating multiplication, distribution, and adoption of improved cassava and sweet potato varieties which have already been tested in Malawi; and (2) providing technical and training support to organizations cooperating with IITA in the multiplication and distribution scheme. This will help improve the contribution of root crops to household food security.

Specifically, the project will:

1. Assist cooperators in the establishment of permanent sustainable multiplication sites in each of the major root crop production areas;

2. Provide training, technical support and advice to cooperators (primarily extension agents and NGOs) managing multiplication sites;

3. Multiply improved cassava and sweet potato varieties at 20 primary and 50 secondary multiplication sites throughout the country;

4. Provide financial and technical support to cooperators in the distribution of planting material to an estimated 300,000 smallholder farmers.

5. Produce sufficient cassava and sweet potato planting material to plant an estimated 5,500 hectares of sweet potato and 3,000 hectares of cassava during two subsequent crop years.

COLLABORATING INSTITUTIONS

The multiplication and distribution scheme has attracted the interest of several NGOs. ESARRN currently collaborates on root crops activities with the Christian Service Committee, the National Resources College, the University of Malawi, women's groups, primary schools, and farmers. The Baptist Mission in Malawi and the Adventist Development and Relief Agency (ADRA) have all joined in the scheme. (Table 7). The varieties being multiplied is shown in Table 8.

Table 7

Collaborating Non-Governmental Organizations Involved in the NRMDS of Malawi

Organization	Location	Type of Activity
Adventist Development and Relief Agency (ADRA)	Blantyre	Nursery Establishment and Distribution
Baptist Mission in Malawi	Ntcheu	Nursery Establishment and Distribution
Christian Service Community	All Regions	Nursery Establishment and Distribution
Save the Children Fund	Central	Distribution
UNICEF	Central	Nursery Establishment and Distribution
FAO	Northern & Central Regions	Technical Experts Vehicles Nursery Establishment
Several Farmers Groups	All Regions	Nursery Establishment and Distribution
World Vision Inter.	All Regions	Nursery Establishment
Evangelical Alliance for Relief and Devt.	Central Region	Nursery Establishment

These Non-Governmental Agencies have played a critical and active role in assuring village-level participation in the National Root Crops Multiplication System. NGOs have put the system in contact with small farmers, rural women and other local communities and organizations. NMRDS provides training and other inputs to get interested NGOs started. Some NGOs involved have provided all the necessary inputs for their operation.

METHODOLOGY

A team of trained personnel in the MOA system based in Chitedze Research Station and other research and farm sites will work in

collaboration with extension agents, NGOs and farmers to execute the project. Cooperating NGO staff, extension workers, and farmers will be trained in the techniques of rapid multiplication, management, packaging, and distribution of propagules. ESARRN will provide technical backstopping for this activity, and establish a collaborative relationship with cooperating NGOs, particularly those with agricultural projects operating in the targeted areas, to continue operating the multiplication sites after the end of this project.

Nurseries will be established at the primary sites to produce clean and healthy planting material for further multiplication at secondary sites. The secondary sites will be established and operated in collaboration with NGOs, farmers, and extension personnel.

The average size of the primary sites will be approximately 1 hectare. Each primary site will be capable of producing sufficient planting material to establish 3-4 secondary sites averaging 8 hectares in size. In total the project plans to establish 50 secondary sites. These secondary sites will in turn produce sufficient material to plant 5,500 hectares to sweet potatoes, and 3,000 hectares to cassava. This will be sufficient for planting .05 ha sweet potato gardens, and .01 ha cassava gardens for a total of 300,000 smallholder farmer plots. Once established this system will be able to provide a continuous year-round supply of healthy planting material to other farmers.

Since fresh sweet potato and cassava cuttings can deteriorate rapidly with poor handling procedures, the project will train cooperators on proper handling methods for storage, packaging, transportation, and distribution of the cuttings to ensure that farmers receive high-quality, viable planting material. Planting material will be distributed using systems established by the NGOs with assistance from IITA.

PROJECT ADMINISTRATION

IITA already has a Memorandum of Understanding with the Government of Malawi and through its ESARRN office in Malawi, will administer and execute the project in collaboration with MNRCIP.

Day-to-day operational and financial management of the project will be the responsibility of ESARRN staff in consultation with the national program. IITA scientists working within ESARRN will be responsible for the technical management of the project. IITA will submit to USAID/Malawi quarterly financial statements and project implementation update reports.

ESARRN is also committed to provide backstop support for the project. Vehicles, computer equipment, and manpower will be made available for the execution of this project. IITA will also

provide short-term technical expertise at the request of ESARRN to respond to technical problems encountered during implementation.

IMPACT

The system for multiplying and distributing healthy cassava and sweet potato planting material in Malawi is currently underdeveloped. This project will: (1) increase that capacity with collaborating NGOs, extension personnel, and private farmers to multiply and distribute planting material; (2) disseminate high yielding, pest resistant, drought tolerant cassava and sweet potato varieties to smallholder farmers to mitigate the food shortages caused by drought; and, (3) ensure that cooperators will have the capacity to continue operation of both primary and secondary multiplication sites after the end of this effort.

These hardy and nutritious crops, in addition to being excellent sources of carbohydrates, can help prevent Vitamin A deficiency and xerophthalmia. Smallholders, the principal growers of cassava and sweet potato, will benefit from replacing low yielding, susceptible local varieties with high-yielding, resistant varieties of cassava and sweet potato, whose increased yield per hectare will improve household food supplied for drought affected farm families.

SCHEDULE OF PROJECT ACTIVITIES

Seventy-five percent (75%) of each multiplication plot (primary and secondary) will be planted to cassava and the rest devoted to sweet potato. The initial propagules for establishing the primary multiplication will be obtained from the existing sites. Two to three node cuttings will be made and nursed during the first month in nurseries established at each primary site and used in subsequent planting. During the period of establishment, locations will be used as training venues for other cooperators, extension agents, NGOs, and farmers in efforts to solicit their interest and increase awareness of the value of cassava and sweet potato as food security crops. Secondary multiplication sites will be sustained by the cooperator with the assistance of IITA, with the strategy for project administration varying according to the crop. However, all cooperators will receive orientation on multiplication techniques, maintenance, and handling methods for packaging, transportation, and distribution at appropriate periods.

The following provides the breakdown of activities scheduled for cassava and sweet potato, respectively, during project implementation.

A:	ACTIVITY: CASSAVA	Project Month
.	Orientation at Chitedze Research Station	1
	Production and nursing of 20,000 to three node plantlets (rapid multiplication technique) at each primary site.	1 - 2
.	Establishment of primary multipli cation sites. Planting at 20,000 plants per ha (pph)	2 - 6
.	Site maintenance and training cooperators	2 - 6
.	Identification of secondary multiplication sites	1 - 3
.	Field preparation of secondary sites	2 - 6
.	Ratoon plants in primary multiplication sites to prepare enough mini-cuttings (3-4 nodes) to plant secondary sites. Approximately 40 mini-cuttings to be obtained from each ratooned stem	7 - 9
.	If necessary, nurse minicuttings before transplanting into secondary sites. Use of clear polyethylene bags for pre-sprouting without soil is most ideal because of ease of transportation to secondary sites. 1,848,000 mini cuttings needed for 64,200 stems to plant all secondary sites at 10,000 pph	
.	Distribute 850,800 stem-cuttings to farmers. Material enough to plant 85.0 ha	7 - 9
.	Site maintenance and training of cooperators at secondary sites	6 - 8
.	Ratoon and distribute all cuttings to farmers. Enough to plant 3,000 ha.	8 - 9

From this schedule a total of at least 3,000 ha will be planted by farmers since ratooned plants normally produce more than 1 stem per plant on regrowth. The larger spacing provided in the secondary site allows for vigorous growth and branching of the cassava crop.

Presently the system can produce enough planting material at the locations on the map to plant the expansion programs planned (see appendix).

B:	ACTIVITY: SWEET POTATO	Project Month
.	Orientation at Chitedze Research Station	1
.	Production and nursing 10,200 two node plantlets at each primary site	1 - 4
.	Establish primary multiplication sites Planting at 30,000 pph at any initial planting	1 - 2
.	After two month growth, ratoon primary. multiplication plots and produce cuttings. Multiplication ratio is 1:10	2 - 5
.	Establish parts of secondary sites with cuttings and allow plants in all established sites to grow for 2 months	2 - 5
.	At end of 4th month, ratoon all multiplication plots. Use 1,335,000 cuttings to complete planting the secondary sites and distribute rest of cuttings to farmers	4 - 9
.	At end of 6th month, ratoon all multiplication plots and distribute to farmers.	6 - 9

A total of about 75 million cuttings will be produced using a conservative multiplication ration of 1:5 after every two month of ratooning the plots during the project period. This would be enough to plant 2,500 ha. However this estimate for distribution refers only to primary material distributed from the multiplication sites. No account is made for subsequent distribution among farmers, which is generally higher. The multiplicative factor is expected to more than triple once the recipients become aware of the value of the improved varieties.