PROJECT PROFILE

Sector:	Agriculture
Sub-sector:	Crop
Code:	AG 09 (F)
Title:	Post Harvest Systems Research
Implementing Agency:	NARO
Location:	KARI
Total Plan Exp:	US$ 1.08m
Funds Secured:	US$ 1.08m
Funding Gap:	Nil
Start Date:	2001
Completion Date:	2005

Background

Studies recently carried out in different districts of the country clearly reveal high physical and quality food losses throughout the post-harvest chain right from physiological maturity to consumption, either by the household itself or by other consumption groups.

The risk for field infestation of insects is highest at moisture contents around 25%. In most parts of Uganda, climatic conditions favour insect development throughout the year. The main crops suffering from insect damage are maize, sorghum, rice and most pulses. Severe storage losses at farmer levels have been observed by a number of workers. Recent surveys have confirmed that the major causes of storage losses are insect pests.

The most recent invasion has been by the Larger Grain Borer (LGB), Prostephanus truncatus, which hitherto not known to occur in Uganda but in Tanzania, Kenya, Burundi, Rwanda, Malawi, Zambia and Democratic Republic of Congo.

With regard to product development and value addition, sectoral studies have revealed that the food industry in the country is still at its embryonic stage of development. It is characterized by inadequate supply and poor quality raw materials, high post-harvest losses, high production costs, low rates of capacity utilization, infrastructure bottlenecks, weak marketing and distribution systems, lack of research back-up and undeveloped consumer tastes for processed food.

Generally the poor state of the economy and the weak domestic demand has resulted in the country having a relatively small, non-competitive commercial food trading and processing sector.

Objectives

- To reduce post-harvest losses of the major grains at all levels in the target areas due to pests, from the current 10-15% to less than 5%.
- To reduce post-harvest losses of grains in the marketing chain and assure quality for market and consumption.
- Strengthen the capacity and capability of research, training and phyatosanitary and plant inspection services.
- Assure regional and international grain trade through monitoring and containment of the dreaded Larger Grain Borer (LGB).
- To establish and disseminate information on the current status and socio-economic impact of microbial and chemical contamination for selected agricultural produce and products.
- To determine, document and disseminate information on the chemical composition and functional properties of priority cereals, legumes, roots, tubers and fruits.
- To develop and commercialize new food products from priority cereals, legumes, roots, tubers and fruits.

Expected Outputs

- On project termination. post-harvest systems would be in place with sufficient capacity. manpower and technology innovation aimed at reducing post-harvest losses.
- An initial series of extension packages on improved pest management techniques for the main crops will have been developed and disseminated to farmers in three pilot areas.
- Post-harvest Programme and Makerere University will be supported to improve capability to continuously organize applied research and training activities aimed at improving post-harvest practices of the smallholder farmers. traders and other related institutions.
- Capability of the Programme and Makerere to conduct regular in-service training to stake-holders in storage pest management and to produce regular documentation. will have been strengthened
- Capacity of the Plant protection and quarantine services to offer all necessary phytosanitary services will be strengthened.
- Current status and socio-economic impact of microbial and chemical contamination for agricultural produce and products established and disseminated.
- Chemical composition and functional properties of priority cereals. legumes. roots. tubers and fruits determined. documented and disseminated.
- New products from priority cereals. legumes. roots. tubers and fruits developed. adapted and commercialized.

Technical Description

The PMA is essentially designed to address the constraints and opportunities faced by majority of subsistence farmers who are among the poorest of the rural population.

Phytosanitary operations are currently undertaken by the Plant Quarantine Unit of MAAIF located at KARI. and with networks in at least 28 border entry points. The unit is assisted by. and works in close collaboration with the Post-harvest Programme on Phytosanitary issues related to storage pests and LGB. Post-harvest losses for the various crops in Uganda are still unacceptably high: ranging from 15% to as high as 40% and losses occur at all stages in the post harvest sector right from harvest to consumption.

In order to minimize post harvest losses. the project will establish contacts and co-operate with several national institutions that are presently working in fields related to grain and grain post-harvest. In particular. the quarantine services. Makerere University. WFP. ICRC. UNBS. URA. URC. UCA etc.

With regard to food product development and value addition. some of the most serious identified constraints are:

- Dependence on labour-intensive low technology and low capital methods of production
- Low prices and exploitation of the primary producers
- Lack of information particularly regarding prices and markets. which would reduce exploitation and improve profits.

It is well recognized that the area of food processing and marketing falls under the private sector domain. However. with the undeveloped private sector. interest in food processing has to be triggered by public investment in food development and value addition research. Therefore. there is urgent need to develop new food products from selected commodities. giving due regard to quality and safety of the products. in order to create sustainable markets for the farmers' produce.

Performance Indicators

- Efficacy of at least 15 biorationals (plant based insecticides) determined.
- Efficacy of some physical and cultural pest management techniques determined.
- Promising technologies multiplied and promoted in all pilot areas through further on-farm trials, demonstrations and through extension and NGO activities.
- Commercial pest management operators and traders trained on proper pest management and storage hygiene.
- All produce inspectors trained on inspection, sampling, phytosanitary and quarantine procedures.
- Surveillance conducted in all LGB high-risk areas in the country.
- Improved national capability for preventing the entry of LGB, and readiness in controlling LGB in case of an outbreak.
- The project will intensify studies on biorationals for possible use against LGB at farmer level.
- The project will seek collaboration with all regional and international networks and agencies
- Historical trends in consumption and utilization of selected commodities will be studied and future demand prospects will be projected
- Prevailing status of the quality of selected agricultural produce and products in terms of microbial and chemical contamination will be determined

Feasibility Study

The major areas identified for research were (i) development and promotion of improved technologies for management of storage pests for cereals, legumes, roots and tubers and (ii) enhancement of the quality and shelf life of fruits, vegetables, roots and tubers. Components of post harvest and value addition research supported by external donors have been presented to and agreed upon by the donors and NARO.

Financing

The project is jointly financed by GoU and EU. The GoU provision for the FY 2002/03 is US$ 0.0154m While EU contribution for FY 2002/03 is US$ 0.1389m

Plan of operation

The post harvest work will be carried out at Kawanda Agricultural Research institute and the Product development and value addition work will be done by the Food Science Research institute. Both institutes will work in close collaboration with the Makerere University research departments and with the private sector.