BACK TO OFFICE REPORT (VS 8240)

IMPROVING THE LIVELIHOODS OF PERI-URBAN VEGETABLE GROWERS THROUGH MARKET PROMOTION OF FRESH AND PROCESSED INDIGENOUS VEGETABLES

B 0110

Visit to Zimbabwe from 1st to 11th April 2001

By Rudy Schippers and J Orchard

Background

This project began on 15 Nov 1999 with a series of surveys in the cities of Harare, Mutare and Bulawayo and their surrounding areas, aimed at identifying the main constraints and opportunities for producers, traders and consumers of both fresh and processed indigenous vegetables. The workshop held in Harare in December 2000 decided that follow-up activities should concentrate in two areas, Mutare and Bulawayo. The main crops would be spider plant, jute and cowpea whilst some attention would be paid to the cucurbits that are mainly found near Bulawayo, e.g. calabash gourds, cooking melons and kiwano.

Visit objectives

The main objectives of this visit were:

1. Collection of germplasm for the key species
2. Check requirement for seed cleaning equipment
3. Initiate a basic breeding programme for spiderplants
4. Check the project accounts
5. Purchase of equipment
6. Verification of *Corchorus* species

Germplasm collections

Despite the major problems encountered as a result of non-delivery of diesel to most petrol stations during the last four weeks, some fuel could be obtained to make a journey to the Mutare region and to Save Valley experimental station. Seed samples were obtained from three different species of jute (*Corchorus* spp.), some spider plants and also seeds from cooking melons and *Cucumis anguria.* The journey to Bulawayo was made by plane where Mrs Wilkins was so kind to allow her private car to be used for seed collection. A few samples were made of the calabash gourds, which are used as a vegetable although most fruits were still immature and well developed seeds were therefore not available. Mrs Wilkins agreed to make further collections for HRC of all the target species.
A decision was made that these collections will be the last ones made for this project since time is running out to be able to utilise them effectively before November 2002.

Seed Cleaning equipment

The price for seed cleaning equipment from Messrs Franken in Holland has gone up by about 10% when compared with their original quote, for which there was no budget. Therefore, a decision was made to change the order to an air column seed cleaner and vibratory seed sizer from Filtec in South Africa for a price which was well within the budget available. This machinery will be supplied together with 10 sieves to accommodate the range of small seeds. The equipment will be shipped by mid April and a request has been made for duty free status from the Ministry of Lands and Agriculture. It is hoped that customs formalities will not take too much time so that the equipment could be used for the present season.

Other equipment
The Brother HL-1250 printer that was sent to the project about one year ago developed some problems and maintenance was found to be difficult in Zimbabwe. It was returned to the U.K. and a decision was made to replace it with a locally purchased HP 840 colour printer which could be serviced locally if required. HRC also mentioned to have a problem with their old photocopier and would like to purchase a new one. Quotations will be asked for and a suggestion was made to share its expenses between the three NRI-led projects. This will need to be investigated further.

Breeding Programme
The spider plant, *Cleome gynandra,* is by far the most important indigenous vegetable in Zimbabwe, which is why most attention will be given to this species. Mr Fabeon Chigumira noticed some plants with rudimentary stamens and concluded that these could be most useful as –male sterile- mother plants in a breeding programme. An effort will be made to maintain these plants by means of vegetative propagation.

Various collections of spider plants were planted at Save Valley experimental station, which did very well under the relatively hot conditions of that area. Plants were up to 1.00 m tall and flowered profusely. Spider plants are normally cross-pollinated but can be self pollinated and in an effort to keep the lines pure, Mr Chigumira bagged some flower heads to prevent "contamination" by pollen from neighbouring plants. Unfortunately, the hot and humid micro-climate inside these bags caused an abortion of most young fruits and in some cases stimulated the development of moulds. This effort will therefore be abandoned.

Instead, it is suggested to bag only those buds which are about to open and wait till next morning to hand-pollinate the by then open flowers. Before opening the bag one should collect the pollen from the same plant by tapping the pair of tweezers by which the flower is held. Ideally the orange pollen should be collected onto a smooth dark surface (e.g. a solid piece of black plastic) so that it is more clearly visible. This pollen should then be brought to the stigma of the selected flower. Next, the flower needs to be isolated to avoid further pollination from other plants. This can be done by surrounding the flower with sticky tape that should not touch the stigma directly. This tape to be removed after 3 days and a label added mentioning the date and a number. The number and date will then be recorded together with other relevant details. Once it becomes clear that pollination has been effective and a young pod develops, it is advisable to remove all other pods and flowers from the same inflorescence. One can expect a minimum of 100 seeds from a single pod. The process can be repeated for the other inflorescences to be formed on the same selected plant.

***Corchorus* species**
The jute group is notoriously complex as far as its taxonomy is concerned and there is a lot of confusion about the correct identity of species. Based upon the work carried out by Dr Jennifer Edmonds, it was possible to conclude that the most important cultivated species in Zimbabwe is *Corchorus olitorius.* The most important species collected from the wild was found to be *C. trilocularis,* closely followed by *C. tridens.* Their cultivation is minimal or not existent. The plant size and leaf surface of *C. olitorius* is clearly larger than those of the wild species and it is therefore recommended to concentrate on this species.

Project Accounts
The balance of funds as at 31 December 2000 was Z$ 38,704 with the ARF account and Z$ 3950 with the account at Barclays bank in Marondera. Since then a further deposit of £1000, equivalent to Z$ 106,861 was made to Barclays bank in January. In addition, £4000 was exchanged during the present visit and with the proceeds Z$ 182,898 could be deposited with the ARF account and Z$ 317,436 to the Barclays Bank account.

The 2001 budget for HRC Marondera to be controlled by the project leader, Mr N. Nenguwo will be £250 for additional laboratory equipment, £ 3500 for staff, £5000 for trials and farm inputs in Marondera, Save Valley and Bulawayo, £ 2000 for subsistence allowances, £ 2000 for transport costs and £ 2500 for administration and miscellaneous expenses.

Bills for the period after December 2000 could only be partially accounted for due to funeral arrangements for one of Mr Nenguwo's relatives. It has been agreed that further invoices will be sent by post.

New Responsibilities

Discussions have been held with Mrs Patience Dhliwayo, the propagation research officer at HRC who has been working for some time on Livingstone potatoes, *Plectranthus esculentus.* This is becoming an increasingly important indigenous vegetable and discussions were held to include this crop in our programme. Cowpea varieties that are used for their leaves are indicated as a target commodity by the workshop participants and accordingly a decision was made to request Mrs Rosario from the Crop Breeding Institute in Harare to prepare an overview of what is known in Zimbabwe about this species.

As of now, the officer in charge of HRC Marondera, Mr Nenguwo, has overall responsibility for this project and will be assisted by three officers: Fabeon Chigumira, Ben Mvere and Patience Dhliwayo. The team will further be complimented by Mr Edwin Marongwe, a research technician responsible for the field trials. Mr Marongwe has been appointed for the duration of the project and will be paid by the project. The latter action was requested by HRC since the Ministry of Lands and Agriculture was not able to fill any new vacancies.

Field Day

During a field day organised by Save Valley Experimental Research Station, farmers were most impressed with the demonstrations of indigenous vegetables. They had never seen spider plants grown as a cultivated crop and many people asked for seeds. They realised that they could produce this as a crop at a time when plants were no longer available from the wild and would thus be able to offer this crop for an attractive price.