Integrated cotton pest and disease management for improved yield and fibre quality in the SADC region

Jody Terblanche
ARC-IIC; Private Bag X82075; Rustenburg; South Africa
Jodyt@arc.agric/za

INTRODUCTION

The purpose of this report is to give feedback to SEACF on the status of the project on cotton disease management in the SADC region. Changes made to the originally planned program, and the reasons why it was necessary to make these changes, as well as the successful progress we have made during the past year are discussed.

Due to the changes made to the program we have not been in contact with the SEACF scientists who would have been participants and country representatives, on this program. It is thus necessary to give you an update on the recent status and future planning of this program.

It is very important to know that although the direction and approach of the program have changed, the main objective is still exactly the same; viz. ***to facilitate and open channels for technology transfer to the small-scale cotton community, thereby empowering the farmer with knowledge in order to ensure a higher yield and thus better income.***.

ORIGINAL PROGRAM IN 2005

Structure:

1. Project manager (South Africa)
2. Scientist (plant pathologist) representing each country
3. Extension officers from each country
4. Small-scale cotton farmers

(*All contact of the project manager with the cotton community of a country would have been through the scientist representing his or her country*).

Planned actions *(in short):*

1. *Questionnaires*: Three different questionnaires on cotton diseases, incidence and impact thereof, production areas, agronomical practices and available infrastructures and resources. These questionnaires were to be completed by the scientist, all extension officers and a statistical representative number of farmers to determine the status of all cotton diseases, level of knowledge and existing problems and shortfalls.
2. *Workshops* (in South Africa):, Attended by country representatives to discuss feedback on questionnaires; standardize training programs and technology transfer for extension officers and farmers. Also to standardize all diagnostic techniques and disease control strategies used in the region.
3. *Germplasm acquisition*: To make the latest cotton cultivars and resistance sources available to the whole region, and to co-ordinate cultivar adaptation trials in participating SADC countries.

What happened?

1. During June 2006 all letters of invitation, project proposals and questionnaires for the scientists (country representatives) were electronically mailed.
2. *Common problems extracted from questionnaires* (excluding facts on diseases, nematodes and insects): The majority of participating scientists experienced:
   i) *Insufficient infrastructures*: (lack of proper vehicles, no access to pathology laboratories and greenhouse facilities for diagnostic services
   ii) *Insufficient funding* (for travel, especially the extension officers)
   iii) *Lack of trained manpower*
3. *Expansion of program*: To optimise the value of money spent, and widen the scope of knowledge fed to the farmer, we decided to expand the program and include all plant protection disciplines. Nematology, entomology, IPM as well as the handling and storage of agro chemicals were added to the program.
4. *Testing of the extension and farmer questionnaires*: Statisticians consulted to analyze the data of all expected future questionnaires indicated that any questionnaire needs to be tested by a peer group before it can be applied to the target group. Questionnaires for the extension officers and farmers were

then tested on a group of 50 small-scale cotton farmers and their 16 supporting extension officers in South Africa in the Makhathini area. This exercise made us realize that the farmers questionnaire had to be changed to them making simply a choice between a yes or no answer – and it was changed accordingly.

PROBLEMS EXPERIENCED AND FORSEEN BY THE PROJECT COORDINATORS

1. Inadequate electronic communication and feedback by most country representatives. If one cannot depend on regular and timeous feedback from all participants no deadlines will be met and objectives will not be achieved.
2. If participating country representatives do not have access to sufficient resources and facilities such as reliable vehicles, they will not be able to meet their obligations. These constraints will also prohibit the extension departments from meeting their objectives, of getting all knowledge and technologies to the farmers.
3. *Budget cuts*. The original budget for this project was severely reduced by the ARC.

CHANGES MADE TO THE PROGRAM

The above mentioned problems made changes to the program inevitable. The project was re-designed to a training program:

Technology transfer on cotton pests and disease management for improved production competitiveness of cotton in the SADC region

The curriculum is formatted on ***Training the Trainers.*** This implies that the extension officers will be trained in such a way that they will be equipped to train the farmers.

To overcome the budget constraints and lack of facilities available to us in the different countries, the only solution was to ask help from the commercial sector of the cotton industry. The international cotton buying company, CARGILL, agreed enthusiastically to collaborate with us in the SADC countries in which they are major buyers. Not only will they benefit from a higher yield produced by their farmers, but this program also supports their social responsibility program.

The new program was structured as follow:

- ARC scientists will be properly prepared and able to do the training
- CARGILL will facilitate us with a proper venue and .make all their senior extension officers available to us for a weeklong training course. The company will also .support their extension staff with transport and lodging for the duration of the cause.
- ARC will issue students with printed material and field guides for future reference and guidelines when they are training the farmers
- CARGILL undertake to establish a structured training program for their farmers done by the trained extension staff and monitored by management
- The impact of this whole input will be measured by monitoring a few designated farmers, comparing their performance and yields with previous data available.

The training program consists of Power Point presentations on:

Entomology: Harmful cotton insects; beneficial cotton insects; scouting techniques; the benefit and how to apply IPM in cotton farming.

Nematology: Basic introduction to nematodes; parasitic nematodes on cotton; recognizing nematodes in your crop (symptoms) and the importance of proper laboratory diagnostic services to know the status of your soil, principals to manage parasitic nematode when diagnosed.

Plant Pathology: Basic introduction to plant pathology and laboratory diagnostic services; recognition of major cotton diseases and the importance of proper laboratory diagnostics when identifying diseases in the field.

Safety procedures when handling pesticides/fungicides: Reading and understanding the label on any container, interpretation of the pictograms on the label, the importance of correct dosage, application intervals, clean calibrated equipment and most importantly, personal safety measures such as protective clothing, washing of hands and clothes and safe storage of chemicals.

Field trip: Visit to a cotton field where all principals are demonstrated practically.

PROGRESS MADE OVER LAST 6 MONTHS

October 2007: : 45 extension officers were trained in Malawi (Blantyre). With the onset of this year's cotton season, CARGILL started with the training program of their 75 000 small-scale cotton farmers.

February 2008: 30 extension officers were trained in Zambia (Chipata) and they have also reported that they have started with the training program for their 40 000 small-scale cotton farmers.