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# Hai and Lushoto Crop Protection Programme (CPP) Visit

COLECCION HISTORICA



March 2003



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Farmer group activity reports for the DFID  
Crop Protection Programme (CPP) Bean  
IPM Promotion Project in eastern and  
southern Africa

*suave*  
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For distribution to Village Information  
Centres (VICs) in bean growing areas in  
northern Tanzania

## Introduction

The bean IPM promotion project in eastern and southern Africa (R7965) organized a bean cluster project leaders' meeting at Arusha in mid March 2003. This meeting involved three projects funded by the DFID Crop Protection Programme in eastern and southern Africa (R 7568 "Characterisation and epidemiology of root rot diseases caused by *Fusarium* and *Pythium* spp. in beans in Uganda", R7569 "Promotion of improved disease resistant and farmer acceptable *Phaseolus* beans in the southern highlands of Tanzania" and R7965 "Promotion of integrated pest management strategies of major insect pests of *Phaseolus* beans in hillsides systems in eastern and southern Africa"). The first two projects current phases were coming to an end in March 2003 and the third project entered its current final year in April 2003. The objective of the meeting was to discuss the way

forward for the bean cluster activities particularly the promotion strategies for products from the older two projects and the scaling up and scaling out of the strategies in the region.

Dr A. Ward, Deputy Manager for the Crop Protection Programme visited Tanzania to participate in the meeting and later travelled to Lushoto and Hai districts to talk to a few of the bean IPM participating farmer groups at their villages.



## **Visit to Lushoto District**

Lushoto is the Tanzanian benchmark site for the African Highlands Initiative (AHI). AHI has involved community groups at Kwalei pilot site where the major concentration has been on soil erosion, fertility and nutrient management. This has been done in a farmer led approach. The IPM project has been working with these same community groups. A similar approach has been successfully utilised by the bean IPM project and there are links between the initiatives, e.g. the emphasis on utilising farmer knowledge which has increased utilisation of botanicals as sources of fertilizer (green manure) and insecticides.

## **Ubiri Village Information Centre**

This group formed to work together to control soil erosion and preserve the little land they have. Interest in pest management was a response to

increased pest infestations on beans (*Oothea* spp., bean stem maggot (BSM) and aphid) and vegetable crops. Because of the high price of synthetic pesticides, the group experimented with botanicals that they use for human and veterinary medicines. Farmers displayed some of the botanicals and explained their use. Some of these botanicals were found to have soil nutrient enhancing properties especially *Vernonia* spp. and *Tithonia diversifolia*. The use of botanicals has been perceived to be successful and improved bean varieties from Sokoine University (Rojo and SUA 90) and ARI Selian (Lyamungo 85 & 90) are considered to have boosted production for the few farmers experimenting with the materials. The group was represented at the cross-site visit to Kisii (Kenya) and have adopted the application of milk to vegetables to control fungal diseases although it was felt that there was insufficient milk production.

## Some botanicals and other traditional materials displayed by Ubiri farmer groups and their different uses

Plant/Material	Local name (Kisambaa)	Pesticide use	Fertilizer use	Target pest
<i>Vernonia</i> spp.	Mhasha	Crude leaf extract + Chilli + water		Foliar/pod feeding pests including <i>Ootheca</i> spp. and aphids
<i>Vernonia</i> spp.	Tughutu	Crude leaf extract + water + soap	Chopped or pounded fresh or fermented leaves	Foliar feeding pests
<i>Euphorbia</i> sp.	Muui	White sap drops in water		Cutworms
<i>Solanum incanum</i>	Ndulele	Crushed fruits + water		Cutworms
<i>Datura</i> sp.	Mnanaa	Crude leaf extract + Chilli + water		Foliar feeding pests
<i>Tithonia</i> sp.	Alizeti pori	Crude leaf extract + water + soap	Chopped fresh leaves	Foliar/pod feeding pests
<i>Ocimum suave</i>	Mzumbasha	Crude leaf extract + Chilli + soap + water		Foliar feeding pests
Cow urine	Mkojo wa ng'ombe	Fermented urine + water + soap	Improves plant vigour after repeated use	Foliar/pod feeding
Fresh milk	Maziwa ya ng'ombe	Fresh milk + ash + water		Potato and vegetable leaf diseases
Wood ash	Majivu	Wood ash + various aromatic plant leaves e.g. <i>Tagetes</i> sp., <i>Cyprus</i> sp., <i>Eucalyptus</i> sp., etc.		Bruchids and weevils in stored grain





**Benefits from the project:** Participating farmers have been able to access improved BSM tolerant bean varieties and knowledge on cultural practices that have enabled them to increase bean and vegetable production. They are now able to sell some of the produce at the local market and nearby schools. The increased income has enabled them to sustain household needs and send their children to private school. They hope that they will get sufficient extra income to buy a vehicle, as a group, to assist with the transportation of produce to markets.

## **Kwalei Village Office**

Kwalei village has been the focal point for the AHI project. All farmer groups at this location participate in both AHI and IPM activities and the blend has worked very well in the dissemination of technologies. As in other parts of Lushoto beans and vegetables are replacing coffee as a cash crop. The groups visit each other for assistance in the application of botanical pesticides and fertilisers. They use similar botanicals as Ubiri farmer groups. All village farmers are in groups and members work on individual farmer's terrace construction in turns so that they can finish quickly. All farmers have terraces on their various farm plots. Farmer groups are now looking at broader issues than soil and water conservation. The bean IPM project has enabled them to associate poor producing crops with various pests because they now understand the biology and ecology of

common crop pests. Some farmers are keeping improved dairy cows at zero grazing, a technology acquired during cross-site visit to Hai district in 2001. In addition they also learned about the use of animal manure to improve soil fertility and cow urine as a pesticide. These farmers use the improved fodder established on the terraces (*Pennisetum* and other grass species, *Caliandra* sp., etc.) and bean haulm to feed the livestock.

Kwalei farmer groups have also formed and registered an association (Community based association) to help them access credit facilities. They have started borrowing to pay for an irrigation pump to increase their vegetable production.

## **Visit to Hai District**

Hai district is the base site for the bean IPM promotion project. Few innovative farmers from Sanya Juu village approached the district office in

1998 for solutions to the yellowing and premature senescence of their bean crop. The district authorities forwarded the request to the Northern Zone Agricultural Research Institute at Selian (SARI) in Arusha where CIAT office is located. The CIAT entomologist (Dr J K O Ampofo) and the national programme scientists visited Sanya Juu and discussed the problem with the small farmer group. Both parties agreed to research on the problem together. They diagnosed the problem to be due to *Oothecca* spp. where the larvae damaged the roots causing yellowing and premature plant death while the adults defoliated seedlings immediately after germination. The farmer group, extension personnel and researchers studied the life cycle of the insect in a farmer's field. Meanwhile management strategies (traditional and improved methods) were discussed and tested. Among the strategies tested, cow urine, wood ash, neem oil emulsion and neem powder, synthetic insecticides (e.g.

Selecron), timely land preparation and planting, improved high yielding varieties, crop rotation and post harvest tillage were found effective. Farmers however, opted for improved varieties, cow urine, wood ash, neem oil emulsion, timely land preparation and timely planting for use in further testing and verification as well as in their own individual fields. When farmers demonstrated that one or more of the strategies were effective in pest management, they requested to be assisted to disseminate the information to other bean farmers. Their request was addressed through a project proposal to CPP that has enabled the message from these farmers to reach many more farmers in other parts of Tanzania, Kenya, Malawi and Rwanda.

## **Hai District Office**

Dr E. Ulicky, District Agriculture and Livestock Development Officer (DALDO) stated that,

“Farmers have been able to identify communication bottlenecks, either when their extension staff lacks knowledge or when there is a need for a promotional tool.”

News, e.g., about deaths, spread through villages like wildfire. Indigenous communication structures are fast and efficient. Can this be tapped into for the good of development?

Hai district has an agricultural development strategy with a heavy emphasis on research, i.e. sympathetic policy framework. Hai has a research liaison officer. The extension services in Babati, Arumeru and Hanang districts were also singled out for praise in linking farmers with research. One recent initiative has been linking farmer groups with TechnoServe for the production and marketing of pigeonpea. Six bean IPM groups have established pigeonpea intercropped with maize and beans/sunflower.

The success of the groups in Hai district was credited to the link established when farmers came to CIAT to find out more about the *Oothenca* (1998) that was damaging their beans. From this the groups have grown from one to 52 and have been utilised by World Vision, Sokoine University of Agriculture (SUA), the GTZ IPM programme and the CPP armyworm project based at Tengeru, Arusha.

These groups have accelerated the adoption of technologies and led research to “be very near appropriate”, as the farmers are driving research and not just accepting extension messages. Farmers have decided to form a community-based association (Muungano wa Vikundi vya Maendeleo Wilaya ya Hai MUVIMAHA - Union of Development Groups in Hai District) to help facilitate their farming businesses. The union has been registered and will be inaugurated in July 2003. Farmers and extension staff are planning together with the

farmers providing the chair to the meetings. Extension officers are becoming facilitators rather than teachers. Dr Ulicky said he would welcome the privatisation of extension because it would be an opportunity for him to capture more business.

## **Sanya Juu Village**

This is the village for the first farmer group that has resulted in the formation of 52 farmer groups in Hai district by end of 2002. The three village groups that were represented in the meeting have over 30 members but involvement varies. There were 12 core innovators (12) in the meeting. Other members are less involved and some just watch for the results as they have less interest in discussions about how the results were obtained and the implications. A few farmers only experiment with their groups and do not adopt the technologies. When the 12 members were asked



to comment on these different farmer attitudes they said that their village groups accept all levels of involvement.

Last year the 3 groups planted 16 learning plots. In June 2003 they plan a field day for 200 people including farmers, CIAT, WVI, religious people, politicians, extensionists and NGOs. They will conduct trials with 14 varieties of beans and will assess climbing beans, as they are known to be tolerant to constraints including drought. This year they are experimenting with pigeonpea, soybean, cowpea, green gram, sunflower, high protein maize and grey leaf spot resistant maize. Their drama has already been recorded for radio and broadcast in Tanzania. This year all groups are going to organise a field day (with assistance from their Village Extension Officer). The 12 members have been involved



in improved bean seed multiplication. For example, Mama A Koola (Lead Farmer from founder group

Village Extension Officer) who hosted the meeting has been able to produce 14kg of bean stem maggot tolerant seed (G 22501) from a handful within two planting occasions in 2002. Other farmers in the 3 village groups have increased seed of other improved bean genotypes (e.g., SUA 90, Rojo, Selian 94 & 97 and Lyamungo 85 & 90, etc.).

**Benefits from the project:** Farmers have through their groups, learnt about bean pests and bean IPM. They are keen to learn more, especially vegetable pest management. One lady said that the project has increased her production and increased her stability of production. She produced an excess of vegetables that she was able to sell.

One man (Mr Ng'enesaeli Nkini), as a result of group membership was able to apply to WVI for inputs for high yielding maize variety (H 513) and use of appropriate cultural practices that



increased his harvest from 8-10 90kg bags to 18! This helped him sustain his family food requirement and sold part of the extra grain to obtain cash to send his child to school. A young lady learnt about *Ootheca* management, planted improved high yielding bean

variety (Lyamungo 85) at the recommended agronomic practices and increased her bean production from 18kg to 60-70kg on a quarter acre plot.

Another young lady (Ms Pudesiana Massawe) applied cow urine and ash to control *Oothecca* and



improved variety (Lyamungo 85) and boosted production on her half acre plot from 12kg to 3 bags each of approximately 100kg. Another man said that he was very happy to be in a learning group and that his bean production had been boosted from 40-200kg. Group membership has improved their knowledge and farm efficiency. Through the group they learnt about high yielding improved varieties, plant spacing and row planting which have reduced the amount of seed required and weeding costs but boosted production.

**Constraints:** The following constraints were described: unpredictable weather, shortage of land for activities (plots are hired for trials at \$12 per

acre), poor availability of neem products - neem products are felt to be easier to carry to the field than cow urine or other products. Farmers would like to visit other farmer sites to exchange information and share experiences.

**Aspirations:** The farmers' desire for the future were to seek more information about markets as some bean varieties grow well but don't sell in the local markets. Traders will be invited to field days and dishes from new varieties of beans prepared for them. Group membership was described as lifelong and for future generations, 3 farmer groups were represented at this meeting. Membership of a co-operative savings and loans account is being investigated.

## Notes



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The Report on Hai and Lushoto - Crop Protection Programme (CPP) Visit is produced by the International Centre for Tropical Agriculture (CIAT)

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