

Visit by DFID Crop Protection Programme Managers to Bean IPDM Project Sites in Tanzania

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COLECCION HISTORICA

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

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For distribution to Village Information
Centres (VICs) in bean growing areas in
eastern, central and southern Africa.



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Introduction

The DFID Crop Protection Programme (CPP) Manager (Dr F Kimmins) and Deputy Manager (Dr A Ward) made a one week field visit to Tanzania to meet with participating farmer groups and other stakeholders involved in four CPP funded projects in the northern and southern highlands of the country. The projects are on bean IPDM, community armyworm forecasting and control, management of maize streak virus and *Striga* weed in cereal fields. The bean project has pilot sites in northern and southern Tanzania while the armyworm project has sites all over the country where armyworm outbreaks are common. The breeding work for maize streak virus is based in the southern highlands of Tanzania whereas the *Striga* project has pilot sites in western, central, east and southern Tanzania.

Dr R Kirkby (Coordinator, CIAT Africa) teamed up with the visitors for a one day visit to farmer research groups in Hai district, Kilimanjaro region in northern

and Livestock Development Officer – DALDO (Dr E Ulicky) and introductions were made to the District Commissioner. Dr Ulicky gave a brief introduction on his responsibilities, the district location, agricultural activities and constraints to increased production of beans, other crops and livestock. He went on further to give the history of the integrated pest management (IPDM) activities for beans and the participatory farmer group approach in research, dissemination and promotion of IPDM technologies.

Bean farmers in Hai experienced crop losses due to various constraints including pests. One of the major insect pests that farmers diagnosed and prioritised as a major constraint was the bean foliage beetle (BFB) - *Oothea* spp. A few farmers were bold enough to approach the district agriculture extension office to request for assistance in the management of the pest. The extension officers did not have a lasting solution.

rotation due to land shortage. Some farmers also objected post harvest tillage because of difficulties in ploughing some of the soils during the dry period (although it has proved to be very effective in the estate farms). Both practices were also rejected by some farmers because most of them hire different field plots every season. The smallholder farmers in the district have a tradition of intercropping beans with maize especially in the main cropping season (March to July).

Farmers continued to experiment and learn about other pests on beans (including bean stem maggots, aphids, pod borers, leaf eating caterpillars, storage weevils, etc.), maize, pigeonpea, sunflower, bananas, coffee, vegetables and livestock. Participating farmers increased from 14 in 1998 to 5500 in 2004 while farmer research groups increased from 1 in 1998 to 77 in 2004 and participating villages from 1 to 52. Farmer activities widened from the study of bean foliage beetle (BFB) to include bean stem maggots (BSM),

the availability of knapsack sprayers for insecticide application. The groups at Sanya Juu pilot site were issued with some sprayers and group members were advised to sensitise and solicit fund raising (e.g. by hiring out the available sprayers, forming savings and credit accounts, etc.) to enable them buy more sprayers.

In response to a question from F Kimmins on ***“What happens after the end of the 2 projects in 2005”***, the DALDO indicated that the Ministry of Agriculture has started (through the Participatory Agriculture Development and Empowerment Project- PADEP) supporting 80% of the costs for project proposals from farmer groups that are approved by the district for improving agricultural production in the communities. The ministry is also hosting an IFAD project on Agricultural Marketing System Development Programme- AMSDP, aimed at promoting the development of linkages between agricultural production and markets. The district

moths. He then places warning announcements at the front door of his house (which is at a cross link for the main village paths) to create awareness to his neighbours. He also sends word messages to all village households on the magnitude of armyworm forecast together with instructions on individual farmer action within the following week.



More than 90% of land owners at Kimashuku village reside on the upper slopes in the coffee/banana belt. The village residents relay armyworm warning messages to the rest of their

b. Ingule bean IPM farmer group

This farmer group was formed in 2001 with the aim of improving bean production through adoption of integrated pest management (IPDM) and other practices. The group has 20 members (14 women, 6 men) involved in the production of beans, maize, coffee, bananas, vegetables, sunflower, sugarcane and livestock. The major pests on beans are bean foliage beetle, bean stem maggots, aphids, pod borers and sucking bugs. Farmers have been experimenting with



improved bean varieties, botanical pesticide crude leaf extracts (Neem, *Tithonia* sp., etc.), cow.

urine and wood ash for field and storage pests.

Group members expressed satisfaction with the results obtained with beans and have started

of these 5 groups are women who in addition to farming activities, own and run a sunflower oil pressing mill near the Hai district office. Two of the 5 groups were formed in 2001 while the other 3 were formed between 2002 and 2004. Over 50% of group members are women. Farmer groups are involved in crop and livestock production. The main crops are maize, beans, sunflower and vegetables. Farmers have also been experimenting with improved genotypes of pigeonpea, high protein maize, soy bean and *Dolichos* sp., as well as fertilizers (Minjingu rock phosphate, animal manures, etc.). Livestock include cattle, goats, pigs, sheep, rabbits and poultry.

Farmers were happy with the exposure and awareness that they have gained through participation in project activities. They are keen to train, share knowledge and exchange experiences with other farmers and continue to collaborate with researchers and other

and women farmers, Upendo is a women group that is also involved in various other activities including needle work. The 4 groups plan and organise field activities together but each group has its own separate programme. The plans for Umoja in 2004 were to establish field demonstrations on improved genotype seed and agronomic practices for the production of beans, maize, pigeonpea, soybean, green manure, pasture, botanical plants and soil fertility amendments. The groups will use their meetings, drama, songs, poems (See Appendix), field days and visits to train, disseminate and promote the field results to other farmers.



projects (ERI programme on market studies, TSBF on soil nutrient management)

Constraints

The major constraints to increased farm production include:

- Unpredictable weather conditions
- High prices for agricultural inputs
- Land shortage
- Unreliable markets
- Non group members are still untrained and very poor

Requests

- Study visits to learn and share knowledge as well as exchange experiences
- More training in the control of pod borers and other bean insect pests (e.g. semi looper- *Trichoplusia ni* and bollworm i.e. pod borer- *Helicoverpa armigera*)

research zone has greatly improved the skills of research staff in technology promotion with small holder individual farmers and farmer groups. Links to the national client oriented research funding that is based at district level and collaboration with the private sector (especially in horticultural produce) has enhanced technology dissemination to farmers at village level.

ARI Uyole farm produces quality seed for several crops (beans, maize, soybean, wheat, vegetables etc.) that is sold to farmers and other stakeholders. The research teams are also involved in training farmer groups and extension agents in quality crop seed production. Farmer groups and extension agents frequently visit the Uyole farm and its substations in some of the districts (e.g. Mbimba in Mbozi district) for training in different aspects of agricultural production.

on the history and activities of Satunduma IPM farmer group (Appendix 2). The major insect pests on beans at Zelezeta village are aphids, bean stem maggots, cutworms and pod borers. Satunduma group was formed in 2001 with 4 objectives:

- To collaborate with ARI Uyole in integrated insect pest and disease management (IPDM)
- To access improved bean seed
- To experiment with different botanical pesticides and organic fertilizers
- To train neighbouring village farmers on the appropriate pest management strategies for increased production

The farmers had prepared and organised songs, poem and drama on the use of traditional (including botanicals), cultural practices and improved high yielding pest tolerant bean and maize genotypes. Farmers have experimented

meeting were also visited. Both fields had germinating plants of the 12 improved bean lines.

One of the participating farmers had a maize field near the bean demonstration plot. The plant stand was uneven with poor growth in most parts of the field indicating use of poor quality seed on low fertility soils. The farmer had recycled a hybrid maize seed (H614 from Kenya) that was purchased from a nearby town shop. The amount of inorganic fertilizer applied in the field was very low because of high prices and scarcity at the appropriate time. Farmers were advised to obtain locally adaptable seed from ARI Uyole, follow appropriate cultural practices and use organic fertilizers (green and animal manure) to compliment the small amounts of inorganic fertilizers that they can afford to purchase.

Benefits gained from project activities and group approach

Satunduma group members and neighbouring

cleanliness, better clothing for the whole family, family cohesion improved- men are paying more attention to their wives and children, etc.)

- HIV/AIDS incidences are currently absent in group member families
- Group member increased from 14- 24

Technology dissemination and promotion by Satunduma group

- Establishment of a demonstration plot for botanical plants and new crop varieties for training non participating



farmers and visitors

- Group members have created IPDM awareness among farmers and village leaders, trained and sensitised the formation of a new

and other farm inputs

- Have not accessed knowledge on traditional grain storage pest management strategies (farmers experience up to 50% grain losses during storage)

Expectations/Future plans

- Increase experimentation and adoption of improved bean varieties
- Increased use of organic fertilizers including animal and green manure
- Continue collaboration and training farmers from neighbouring villages on use of **IPM** in farming
- To construct an office for the group and set up a village information centre (VIC)
- To strengthen collaboration with ARI Uyole for new technologies on improved farm production

and other stakeholders

Progress/achievements

- Maize variety demonstrations were successfully conducted in 2002/2003. This has contributed to the high demand for seed of one of Uyole's hybrids –UH615 by Mbozi and Njombe district farmers
- Mbarali district has high incidences of maize streak virus (MSV) and most of the demonstrations were severely affected. Due to a shorter rainfall period associated with frequent moisture stress conditions, the area requires early maturing varieties with resistance/high tolerance to MSV
- Participatory involvement of farmers, extension agents and private seed traders in seminars and field visits in the 3 districts has helped to identify gaps between farmers and knowledge source. Hence the development of appropriate learning

to court in Njombe and Mbeya for selling bad seed with UH615 labels)

- Lack of local entrepreneurs to produce and market quality maize seed
- Maize streak epidemic in Mbarali district
- Low soil fertility in most areas of the southern highlands

Visit to maize demonstrations at Majenje and Igomelo villages, Mbarali district in Mbeya region

Majenje and Igomelo villages lie in the rift valley off the main road to Iringa, 50 and 125 km respectively from Mbeya. These sites are a hot spot area for maize streak virus incidence. All maize lines proved to have various levels of tolerance/resistance elsewhere in the southern highlands are highly susceptible at these locations. Igomelo is the worst of all, as three of the varieties tested in this location were completely wiped out by the disease (UH615,

Visit to improved maize demonstration plots at Mtwango village, Njombe district in Iringa region

Mtwango village is at an altitude of about 1800 metres and village is located along the Makambako-Njombe-Songea road. The major crops in this area are maize, beans and potatoes. Mtwango farmers, like in the rest of the project area, volunteer plots to be used for the maize demonstrations. Different improved high yielding disease resistant maize lines were approaching maturity stage at the time of the visit and unlike the crop at Majenje and Igomelo villages, there were no incidences of maize streak in the demonstration plots at Mtwango. Farmers were very happy with the performance of the varieties and could point out varieties of their choice. The most outstanding varieties were Uyole Hybrids 6305, 6504, 6303 and the already released H615. These farmers' choices are among those that have been earmarked by the research team to be tabled for release at the national seed release

Mwangulu are local cultivars. Mwangulu is hard to thresh and fetches low market prices, but it has high tolerance to *Striga* growth and development. Four farmer groups in 4 village sites have been experimenting with several strategies for the management of *Striga* and *Ramphicarpa* sp.

Meeting with Kilasilo village farmer group at Mbako Primary School

The Kilasilo village farmer group started in 1997 with 9 farmers and the number has increased to 26 including men and women. Rice fields are individually owned and every farmer demonstrates selected strategies in their personal fields. The main objective of forming the farmer group was to access knowledge from research and extension agents on management of constraints to rice production and conduct experiments in their individual rice fields.

sale (*Crotalaria* seed and pigeon pea grain)

- Farmers are observing positive results on rotation with pigeon pea and *Crotalaria*. These plants produce exudates that stimulate the germination of *Striga* seed but because *Striga* plants cannot survive on the legume roots, they die immediately. This gradually reduces the seed bank in the soil and the legumes add nutrients to the soil for use by



the following rice crop. The deep legume roots also help to percolate the soil

profile for better aeration. Pigeon pea plant roots are known to produce exudates that help to solubilize fixed P in the soil, and making it available to plants in the following season

- Most of the farmers that were visited have

groups in owning and using traditional and improved technologies

- Farmers have gained knowledge on cropping systems diversification for weed and soil nutrient management

Revival of abandoned rice fields and increased crop yields per given land area

Future plans

- Farmer have planned to continue collaborating with research and extension to acquire new knowledge on rice production
- Farmer intend to intensify the use of legumes in rice cropping system
- Participating farmers would like to disseminate their knowledge and share experiences with other rice farmers

*We are bringing the message to our fellow farmers
Who have extensively planted maize and beans
We urge you to follow appropriate management practices
Welcome to Hai district, welcome to Sanya Juu*

*We are also reminding our fellow farmers not to forget
The maintain the armyworm trap properly
Because we have suffered losses due to armyworm
damage*

Welcome to Hai District, welcome to Sanya Juu

*We need to use appropriate fertilizers for increased
production*

*And monitoring traps for armyworm forecasting and
management*

Let us continue to use IPM for Oothecca management

Welcome to Hai District, welcome to Sanya Juu

*To our leaders in the offices, your work is important
If you don't respect farmers' needs what will farmers do?
This we leave to you because we value agriculture
Welcome to Hai District, welcome to Sanya Juu*

*We will stop at this point and rush to the fields
To plant crops and reap the benefits in the coming year
You can claim the product when we meet at the market
Welcome to Hai District, welcome to Sanya Juu*

- iii. Kushirikiana na wakulima wa vijiji vya jirani katika matumizi bora ya ardhi, udhibiti wa wadudu na uzalishaji bora katika eneo

Shughuli zilizofanyika hadi sasa (muda wa miaka mitatu ya IPM)

1. Wanakikundi waliweza kutambua wadudu

- i. Serera (Cutworms)
- ii. Wadudu mafuta (Aphids)
- iii. Inzi wa maharage (Bean stem maggots)
- iv. Viwavi (Funza) wa vitumba vya maharage (Pod borers)

2. Dawa za asili zilizotumika

- i. Isogoyo kubwa (*Vernonia* sp.- with large leaves)
- ii. Isogoyo ndogo (*Vernonia* sp.- with small leaves)
- iii. Utupa (*Tephrosia* sp.)

na kuchnganya na maji lita 10. Hatua za hapo juu zinafuatwa.

4. Matokeo ya utafiti juu ya dawa hizo

- i. Isogoyo kubwa na ndogo zilionyesha matokeo mazuri katika kudhibiti madudu mafuta (Aphids) na Serera (Cutworms)
- ii. Utupa ulionyesha matokeo mazuri katika kudhibiti Inzi wa maharage (Bean stem maggots)

5. Utafiti wa wadudu

Inzi wa maharage (Bean stem maggots)

Utafiti ulionyesha kuwa dawa isipopuliziwa katika maharage mara baada ya kuota yakiwa na MAJANI MAWILI, wadudu hao huweza kusababisaha hasara ya asilimia 80 (80%)

6. Utafiti wa dawa za asili

- i. Ni rahisi kupatikana
- ii. Hazina madhara kwa wanadamu na mazingira

- iii. Kutumia dawa za viwandani pekee katika kudhibiti wadudu
- iv. Baadhi ya wanakikundi kutosafiri nje ya kijiji
- v. Wanakikundi hawakuwa na uwezo mkubwa wa kuzungumza mbele ya watu wengine (waliona aibu)

Hali ya maisha ya wanakikundi baada ya miaka mitatu ya mradi wa IPDM (Mafanikio)

- i. Uzalishaji wa zao la maharage kuongezeka na kufikia wastani wa gunia 4 hadi 6 kwa ekari
- ii. Wanakikundi kuongeza muda wa kufanya kazi mashambani hadi saa 12 kwa siku
- iii. Wanakikundi kuongeza matumizi ya dawa za asili na kupunguza matumizi ya dawa za viwandani
- iv. Wanakikundi kusafiri nje ya kijiji kwa msaada wa mradi wa IPDM.

- c. wazazi kuvaa vizuri, usafi kuongezeka majumbani kwao na mazingira yao
- viii. Upendo katika familia kuongezeka: kwa mfano, wanaume kupendana na kuwajali wake zao pamoja na watoto
- ix. Maambukizi ya ugonjwa hatari wa UKIMWI (HIV/AIDS) hayapo kabisa katika familia za wanakikundi
- x. Wanakikundi wameongezeka kutoka 14 hadi 24

Matatizo

- i. Baadhi ya wanakikundi kutohudhuria mikutano ya kikundi wakidai kutosheka na elimu ya IPDM
- ii. Bei za pembejeo kama mbegu na mbolea kuwa juu
- iii. Kukosekana kwa utafiti wa dawa za asili katika hifadhi za mazao katika ghala
- iv. Wadudu waharibifu wa nafaka katika hifadhi

- v. Mwaka 2003 Julai vikundi vipatavyo 6 kutoka Mbeya na Mbozi vikiwa na wakulima 82 hadi 100 walitembelea shughuli za IPDM za kikundi cha Zelezeta
- vi. Wakulima wapatao 82 wa vijiji vya jirani wameweza kutembelea shughuli za IPDM za kikundi kwa siku tofauti

Matarajio (Malengo) ya baadaye

- i. Kuendelea na kuongeza matumizi ya mbegu bora za maharage
- ii. Kuongeza matumizi ya mbolea za asili kama samadi
- iii. Kuendelea kushirikiana na wakulima wa vijiji vya jirani katika kutoa elimu ya IPDM
- iv. Kujenga ofisi ya kikundi
- v. Kuanzisha maktaba ya kikundi
- vi. Kuendelea kushirikiana na watafiti kutoka ARI Uyole katika kuboresha kilimo

waliyoongozana nao, jisikieni mpo nyumbani na mtakaporudi Ulaya msitusahau Wanasatunduma.

Taarifa hii imetayarishwa na wanakikundi cha Satunduma na kusomwa na Katibu wa Kikundi

Ndugu

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Rehema Kasekwa