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Hai District - Field Visit to Sanya Juu Village by ECABREN Coordinator

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January 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

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



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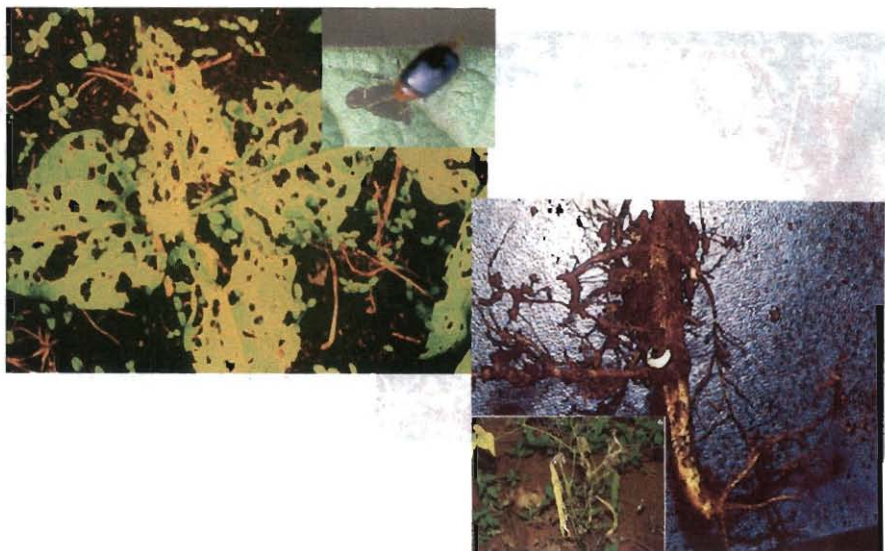
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Introduction

The history of the bean IPM promotion project started with few innovative bean farmers at Sanya Juu village in Hai District, Kilimanjaro Region in northern Tanzania. Farmers in Hai depend on beans for food and household cash income. The farmers observed that bean production has been decreasing in recent years and frequently the plants would wilt, turn yellow and senesce prematurely. This situation adversely affected their livelihoods to such levels that the few innovative farmers from the village approached the district authority for assistance.

The district agriculture office linked the farmers to bean researchers at Selian Agricultural Research Institute (SARI) in Arusha where CIAT is also based. Farmers formed a group and together with the team of scientists (national bean research scientists, extension personnel and

CIAT staff) participated in diagnosing the problem, developing and testing management strategies, and formulating ways and means to disseminate the results. The problem was identified to be the bean foliage beetle (BFB) - *Ootheca* spp. whose adult beetles feed on foliage at seedling stage and larvae feed on the roots of the growing plants causing yellowing, wilting and premature senescence. The pest is particularly important during the main planting season in March - June.



Farmers experimented with various traditional (wood ash, cow urine, cow shed slurry, soap

solution mixed with kerosene, etc.) and improved pest management technologies (high yielding and early maturing bush and climbing bean varieties, neem seed powder, neem seed oil emulsion, time of planting, mixed cropping, post harvest tillage, crop rotation, row planting, appropriate spacing, timely harvesting and clean storage, soil fertility management, etc.). Farmers used conventional chemical insecticides only when there were very high incidences of some of the pests. After the first



season of testing, farmers opted to continue evaluating wood ash, cow urine, cow shed slurry, soap + kerosene, neem

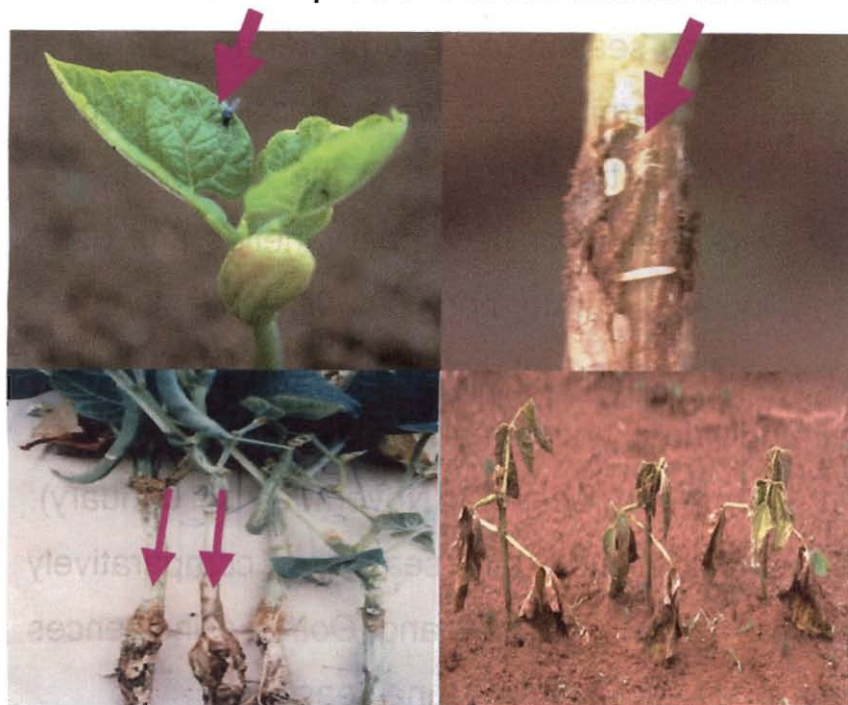
products, improved high yielding bean varieties and time of planting.

Farmers also decided that they would set up learning

and demonstration plots as well as applying the techniques in their individual fields during March - June planting season (cool compared to the rest of the year). Learning plots were specifically for pest management strategies while the demonstration plots were meant for new crop varieties and other technologies. Furthermore, farmers decided to increase the seed of selected bean materials in their individual homestead fields during the short and warm rain season (November to January). Generally the short rain season is comparatively free from plant diseases and *Oothea* incidences compared to the March - June season.

Another important pest on beans is the bean stem maggot (BSM) - *Ophiomyia* spp. that may cause damage to the crop during the warm period in November to January. The pest is most serious in areas with warm conditions all year round and in locations with low soil fertility. The larvae (maggots) feed in bean stems causing wilting and

death on seedlings while older plants turn yellow and wilt as stems develop cracks at soil surface level.



Farmers in Hai have accessed some genotypes that have shown tolerance to the pest. Some of the genotypes were selected from CIAT bean germplasm by farmers who were later involved in the participatory plant breeding project (PPB) at Makiba site in Arumeru district. The PPB activities were supported by Eastern and Central Africa Bean Research Network (ECABREN) during an extension

in 2002, hence the follow up on dissemination of the improved materials by the ECABREN coordinator (Dr M Pyndji) during this visit. Farmers in Hai were keen to test some of the genotypes (they also have some degree of drought tolerance) especially after the failure of the previous main bean crop during March to June 2002 as a result of '*Bean yellowing syndrome*'.

Objective of the visit

To respond to an invitation from Sanya Juu village farmer groups during evaluation of their bean seed increase field plots established at individual farmer homesteads.

Field observations

Individual farmers in different groups had established various homestead field sizes for different bean genotypes (Table below). Some of

the farmers with larger farmland area had field plots for more than one genotype. It was observed that farmers in Sanya Juu prefer to establish learning and demonstration plots during the main bean growing season (March - July) and increase seed of the selected materials during the short rains (November - January). This practice also enable farmers to increase bean grain for family needs and the local market.

Genotype	Source of original seed
Lyamungu 85 & 90	SARI Arusha
Selian 94	SARI Arusha
Jesca	SARI Arusha
SUA 90	Sokoine University, Morogoro
Rojo	CIAT germplasm and later Sokoine University, Morogoro
G22501 (Macho)	CIAT germplasm, Arusha
Soya	Local market
Kiblanketi	Local market
Punda milia - black/white striped seed type	Local market
Kanamna (bush type)	Local market
Kanamna (Climber)	Local market
Kariasii	Local market



All fields were sole cropped and most of them were ready for harvest while a few were at maturity stage. *Oothecca* spp. incidence was very low at the beginning of the season while that of *Ophiomyia* spp. was negligible. Late planted crop suffered mildew infections that intensified with early morning high altitude drizzles. The bean crop was clean of pests and farmers were satisfied with the performance of beans as well as vegetables under irrigation. The pest management strategies used during the season included cow urine, wood ash, a mixture of soap

and kerosene, tolerant genotypes (e.g. G22501 for bean stem maggots), manure for soil fertility and water conservation as well as timely planting and weeding.

Farmers were happy with performance of the improved genotypes and they had enough seed for planting in the coming main season. Discussions involved clean seed storage and sale of extra seed



to World Vision, Tanzania (WVT) Sanya ADP (have facilities for buying quality bean seed from farmers, store it and later re-distribute it to farmers in need at an agreed price). Farmers enquired about pigeonpea seed

and fertilizers (including Minjingu rock phosphate).

The DALDO (Dr E Ulicky) assured them of linkage with SARI and TechnoServe for pigeonpea seed and grain market, and to World Vision for fertilizer and other inputs. Farmers requested for continued facilitation to further disseminate IPM technologies to other farmers and stakeholders in the wider audience. Farmers and the DALDO thanked CIAT and ECABREN for the continued collaboration with farmers and extension personnel in various agricultural activities in Hai district and also for links to other institutions.



Constraints

- Farmers pointed out land shortage as the major constraint to agricultural production in Sanya Juu village. Most individual farmers own less than 0.5 hectare of land and part of this area is usually under other crops (coffee, bananas, fruit trees, livestock forage, etc.)
- The other constraint that farmers were concerned about was crop theft in their fields which forces them to harvest their crops very early and dry them at the homesteads or employ guards all day and night.

The DALDO urged the farmers to address these constraints to the village government and the local area member of parliament who has offered part of his own field for farmer experimentation.







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The Report on Hai District - Field Visit to Sanya Juu Village by ECABREN Coordinator is produced by the International Centre for Tropical Agriculture (CIAT)

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