

65803



FUTURE
HARVEST
www.futureharvest.org

CIAT



COLECCION HISTORICA

Visit by NARO and CIAT Scientists to Bushenyi and Kabale Bean IPDM Sites in Western and South western Uganda



CPP Project R 7965/ZA 0465 June 2004



NARO, Namulonge
P O Box 7084
Kampala



African Highlands Initiative
P.O. Box 293
Kabale, Uganda



65803

COLECCION HISTORICA

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

Written by E Minja, F Opio, M Ugen and
H Mziray

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



UNI. A. DE I. FORMACION Y
DOCUMENTACION

219815

20 ENE. 2005

Introduction

A three day field visit to Bushenyi and Kabale districts in south western Uganda was jointly organised in the first week of June 2004 by the National Agricultural Research Organisation (NARO) bean research programme at Namulonge Agricultural and Animal Production Research Institute (NAARI) (Drs F Opio and M Ugen) and CIAT (Drs R Buruchara and E Minja). The visit was facilitated by funding support from the DFID Crop Protection Programme (CPP) bean IPM project on *"Promotion of integrated pest and disease management (IPDM) strategies of major pests of Phaseolus beans in hillsides systems in eastern and southern Africa"* and the Farm Africa Maendeleo Agricultural Technology Fund (MATF) project on bean technology transfer. The activities in Kabale district are under the CPP project and activities in Bushenyi district are under MATF project.

Farmers in the hills and valleys of south western Uganda cultivate a variety of crops and also keep livestock. Main crops include bananas, beans, potatoes (round/irish and sweet), sorghum, coffee, vegetables, fruits, wheat, maize, millet and cassava. The major areas of focus for NARO bean research programme in south western Uganda has been on improved "pest" tolerant bean genotypes (root rots, anthracnose, halo blight, stem maggots, aphids, etc.), and soil fertility and crop management.

Researchers at NAARI have led other scientists in addressing bean production constraints in collaboration with farmer groups and other stakeholders in Bushenyi and Kabale districts. Farmers in these districts are fully aware of bean root rot as a key constraint to increased bean production in their fields. Most of these farmers described root rot as the *'rotting of bean plant stems and roots due to continuous high rainfall'*.

in the area are bananas, beans, sweet and round/Irish potatoes, sorghum, maize and vegetables. Most farmers also keep livestock. The major problems in bean production at the site



include bean root rots, stem maggots, aphids, and low soil fertility. The group was conducting field experimentation for the first time. They had established a bean demonstration plot with several root rot tolerant lines and used animal manure for soil fertility improvement. The farmers' objective was to select the most suitable bean lines and soil fertility management practice that they would adopt to increase bean production.

Farmers lost their traditional bean crop in the early season rains due to root rots. The demonstration was established with the late season rains which stopped after germination.

During the visit the plant stand was poor due to root rot infections, infestations from bean stem maggots and aphids, lack of sufficient soil moisture and compact soils/low fertility. A maturing sweet potato crop in a neighbouring field was however, green and healthy. Farmers were disappointed with the weather conditions but they were not discouraged to continue experimenting with different strategies.

The group expressed pride by NARO scientists' visit for the first time in their village, which enabled them to share knowledge and exchange experiences. All members declared that they would maintain and strengthen their group approach to various activities to enable them continue to seek assistance from NARO through the IPDM project facilitator and also train other farmers by sensitising them to form groups for easy access to new technologies from various stakeholders. Group members requested to be facilitated to visit other groups to learn, share and

Progress on IPDM farmer field school (FFS) group activities in Bushenyi and Kabale districts

The approach used by NARO, AHI and CIAT in Uganda is farmer field school (FFS) where one or two farmers are trained to lead each school. These farmer leaders are then responsible to train other farmers in the village and the immediate community. Over 75% of the members in the FFS in south western Uganda are women. The entry point to the on-farm work in Uganda was primarily the management of bean crop diseases (especially root rots and leaf diseases), insect pests (bean stem maggots, aphids, borers, sucking bugs, etc.), soil fertility and agro-forestry. During the course of these activities in the past three seasons, participating bean farmers also requested for other services including access to improved seed of other crops and livestock breeds (potatoes, vegetables, bananas, coffee, cattle, goats, etc.) and information on various aspects of farm

production (including inputs, markets, credits, formation of associations, etc.). Farmers are experimenting with improved pest tolerant and high yielding bean genotypes (bush and climbers), cultural practices, livestock farming, soil fertility and agro-forestry management strategies.

Bushenyi district

A total of 44 farmers (32 women, 12 men) from 2 villages (Runyinya and Masheruka Central) in Kigarama sub-county organised a meeting at Masheruka Central where they have established demonstrations for both bush and climbing bean types. Runyinya is the pioneer FFS and it has trained the Masheruka group. Farmers are screening bush and climbing bean lines for tolerance to root rot and other production constraints as well as testing different cultural practices and comparing the use of farm yard manure, green manure, compost and inorganic

fertilizers for soil fertility management in both bean types. Farmers are happy with the experiments despite the current unreliable rains and poor germination of some of the newly supplied bean genotypes (e.g. SCAM).

The discussions with farmers were facilitated by research and extension personnel to review the



priority of bean production constraints, summarize the season's plans, activities, results

and future plans. Farmers were happy with the exposure and opportunity to conduct experiments on different technologies including cultural practices (planting dates, spacing and row planting, timely weeding, etc.), fertilizer testing (organic-compost and farm yard manure, inorganic- DAP) and bean genotype screening (bush bean and climbing types). The bush beans were ready for

harvesting while the climbers were at late podding



and early maturity depending on the growth period.

Farmer field school leaders from both villages were very

keen to harvest the beans and taste them. All farmers agreed in principle that participating in FFS is a way forward to access new technologies and use them to improve agricultural production and are therefore, keen to experiment with more bean genotypes and other technologies to enable them make suitable bean selections for food, markets and local environmental conditions as well as other strategies for various production constraints. Farmers requested to be facilitated to share knowledge and exchange experiences with other farmer groups.

Kabale district

Two sub-counties (Rubaya and Buhara) visited in Kabale district. Currently there are IPDM farmer field school groups with members in Kabale district. These groups facilitated by the project through Mr P Kananura. Nyamabale FFS was the first group in Rubaya sub-county and it has trained 3 groups and a technical school community (teachers and students). Two of the new farmer field school groups (Rwamuguzi B, Kigaramatukole) and a school (Rukore Community Polytechnic) visited. Nyamabale is far ahead in screening germplasm, seed multiplication and dissemination of suitable genotypes to neighbouring farmers. The group has also embarked on bean marketing and credit association procedures with assistance from CARE. The new groups have selected a few of the promising materials and they are currently experimenting with them at various locations for the first season.

Nyamabale FFS

The group is under the leadership of Mr James Kabalebe. It started its activities in 1997/98 with



the African Highlands Initiative (AHI) on soil fertility management and NARO on improved potato and bean

cultivars. Since 1999, the group has been collaborating with NARO and CIAT on bean root rot experimentation through Drs F Opio, M Ugen and R Buruchara. Currently Nyamabale has 18 members (12 men including 3 young men-boys, 6 women including 4 girls). The group has been accessing root rot tolerant bean materials for field screening and evaluation. In the first season, 68 bean lines were screened. These were increased to 140 in the second season, among which 51 lines were selected by farmers and

researchers. Farmers are now selecting the best-suited materials from among the 51 lines and seed multiplication for some of them is progressing well in individual farmer's fields. The new groups have obtained seeds from these sources.

The other main strategies that the groups are learning together and promoting include demonstration and training in appropriate bean management practices such as bean spacing, row planting, establishment of climbing bean staking materials, use of green manures (*Calliandra*, *Crotolaria*, *Tephrosia*, etc.), soil and water management, bean market studies as well as savings and credit association. All Nyamabale field school farmers have been very innovative in training other farmers and disseminating new technologies to the community. This has resulted in new field school groups whose members are acquiring improved root rot tolerant bean seeds

for group demonstrations and individual farmer field experimentation.

The main constraints that the groups were facing this season were the poor crop establishment due to unreliable seasonal rains and the non-germinating seed that they obtained from the researchers. Mr J Kabaleba also indicated that he was facing transport problems while reaching out to the newly formed farmer groups particularly during the rainy period. He therefore requested to be facilitated with at least a bicycle if possible.

Rwamuguzi B FFS

This group is led by Mr Isidero Senyamara. The farmers started their group after visiting and observing the activities of the Nyamabale FFS. The discussions during the visit were conducted at the group's demonstration plot and 17 farmers (12 men, 5 women) participated. The surrounding slopes and fields were mostly bare with very few

round potato fields where planting is normally done on ridges. A few fields had small plots of wheat, cabbage, carrots and unweeded garden peas. The main bean "pest" problems include bean root rots, bean stem maggots, aphids, striped bean/sweet potato weevil- *Alicidodes* sp., etc. The group is experimenting with bean materials acquired from Nyamabale group. So far the group has benefited by gaining knowledge on establishing field demonstration plots, the use of manures and other fertilizers as well as field cultural practices (row planting for convenient field practices including weeding, spraying, etc.).



Farmers had established bush and climbing beans but the growth was generally very poor due to moisture stress. Farmers were also experimenting with inorganic (NPK) and organic (farm yard manure) fertilizers on plots with different bean genotypes. One local bush bean cultivar had however, established very well in both fertilised and unfertilised plots. There were indications that this cultivar also tolerated the widespread bean stem maggot infestation. Participating farmers were disappointed with the bad weather conditions and the poor germination of the new root rot tolerant bean lines including SCAM. The group expressed their need for knapsack sprayers and were advised to save as a group in order to be able to access loans or use the interest on their savings for such purchases. The men farmers in this group were more outspoken compared to the women.

Kigaramatukole FFS

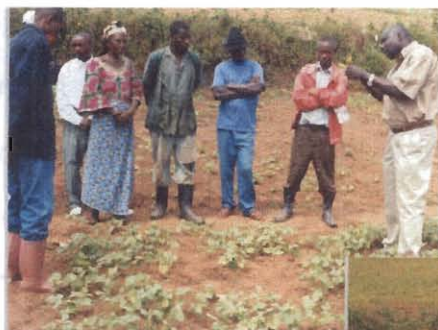
This group also emerged through awareness

created by Nyamabale group. It is less than a kilometre from Rwamuguzi group. Most of the surrounding area is completely devoid of trees and soil conservation structures. Even some of the old bands and terraces have been pooled down for cropping in search for more fertile soil patches. The farmer who owns the field with the demonstration plots had a well cared for crop of climbing beans (flowering/early podding stage) nearby.



The demonstrations were composed of both bush and climbing beans and like in the previous site, SCAM germinated poorly while MLB 49/89A was

doing well. Other root rot materials included RWRs that had germinated well but had poor



plant stand due to infestation from stem maggots and striped bean weevil

(pest samples, damage symptoms and management practices were



discussed with participating farmers). The climbers in the participating demonstration plots were looking better at this site than at Rwamuguzi most likely due to soil moisture/fertility differences. The Kigaramatukole group was also experimenting with farm yard manure and NPK.

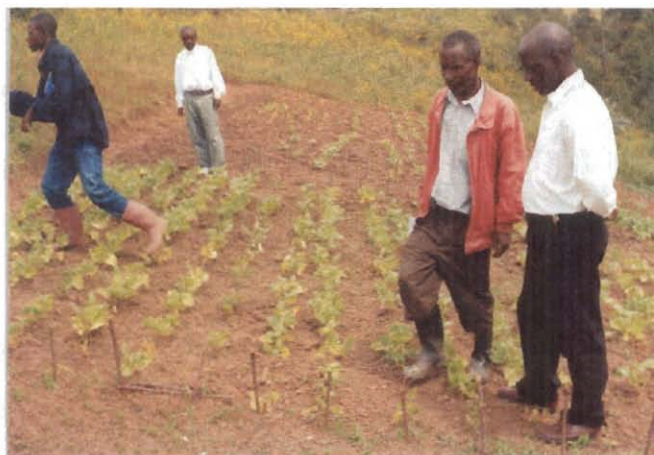
Despite the bad weather, farmers were happy with some of the bean lines (e.g. MLB 49/89A and RWRs) and were keen to continue

experimenting, learning and training other farmers. The 3 groups appreciated the visitation that facilitated learning together, sharing knowledge and exchanging experiences on different aspects of bean and other crop/livestock production issues. Farmers in the 3 groups expressed their desire to be facilitated to visit other farmers in different locations to learn, share knowledge and exchange experiences in various aspects of farm production.

Rukore Community Polytechnic

The Nyamabale FFS created awareness to the administration of the Polytechnic school before the current planting season and an agreement was reached for a demonstration plot of root rot tolerant materials to be established at the site. The idea here is to demonstrate possible solutions to different local agricultural production constraints to the teaching and student community for further dissemination in different areas. The soils at this

hillside top site appeared more infertile and of compact clay that had dried up quickly to form hard blocks. The establishment of all entries in the demonstration plot was poor. Despite the poor crop conditions, the school headmaster was optimistic about the whole objective of involving the school community and was determined to continue with field experimentation on bean production technologies because agriculture is one of the components of the polytechnic curriculum.



Muhende-Nyarutojo FFS

This was the first farmer field school in Buhara sub-county and it has trained Nyabichwamba village group in Kafunjo Parish. Both groups were visited. Muhende farmer field school has screened a large number of root rot tolerant materials, and experimented with green manures (*Crotalaria*, *Tephrosia*, etc.), agro-forestry, as well as soil and water management technologies. The major problems at Muhende-Nyarutojo include bean root rots, bean stem maggots, aphids and poorly drained soils. The group (represented in the meeting by 19 members- 15 women, 4 men) had established a demonstration field where they planted 29 bean root rot tolerant lines.

The group leader has been very instrumental in training farmers including those in Nyabichwamba village but a few of the members have not been very keen. Farmers were keen to learn about the association of lady bird beetle

(Coccinelids) adults and larvae as predators of aphids on the bean plants and hence, they should



always be protected especially during pesticide application in the field. During the discussions farmers requested to

be assisted with improved round potato seed because some of the seed that was issued to them by NARO in the previous season was insufficient for each farmer. Dr F Opio promised to make arrangements for the availability of the seed during the next season.

Nyabichwamba village group

The group was represented in the meeting by 15 members (13 women, 2 men). This is a new group that emerged from lessons gained during visits and observations of activities conducted by the Muhende-Nyarutojo school. The main crops grown

Farmers also described bean stem maggot damage as *'sun burning during dry spells and on late planted beans'*. The unreliable weather conditions for the current season have favoured both diseases and insect pests on beans and other crops. There were heavy rains at the beginning of the season and most early planted beans were lost due to root rots. Farmers replanted and the rains stopped soon after crop establishment, thereby encouraging the spread of bean stem maggots, aphids and also root rots. Most bean crops at farmers' and research fields are likely to dry up if the dry spell continues in the coming weeks.

NARO is also working with other projects (e.g. African Highland Initiative- AHI, ICRAF/AFRENA, etc.), the extension service and non-governmental organisations- NGOs (e.g. Africare, CARE International, etc.). Researchers at Namulonge, especially the Director of Research,

Dr F Opio have assisted in linking some of the IPDM participating farmer groups to these institutions for various services including market information, agro-forestry, soil fertility management as well as savings and credit movements.

Objectives

- To familiarize with some of the field activities conducted by NARO and project participating farmer field school (FFS) groups in the 2 districts and
- To capture some of the collaborative NARO/CIAT research activities in root rot management and strategies for dissemination of IPDM technologies including improved “pest” tolerant bean genotypes to farmers in Uganda

gain experience in various aspects of farm production.

Progress on NARO research activities at Kachwekano Agricultural Research and Development Centre (ARDC) to address farmers' needs in south western Uganda

The research work targeted to meet farmers' needs in south western Uganda is conducted at Kachwekano Agricultural Research and Development Centre on the hill slopes overlooking Lake Bunyonyi near Kabale town. Activities include germplasm screening, multilocational yield trials and seed multiplication for both bush and climbing bean types, crop protection activities (root rot management, crop rotation, etc.), soil conservation, soil fertility and water management, livestock research (cattle and improved goats from South Africa), wheat and potato research, chickpea screening, agro-forestry research and various student research activities. Currently there are over 4 ha of

different crop germplasm materials and yield trials dominated by bush and climbing beans, 1.5 ha of crop protection and soil fertility management trials and over 6 ha of bean seed multiplication fields to



generate improved pest tolerant and high yielding seed for distribution to farmers.

General observations

The awareness among Bushenyi and Kabale farmers on bean root rot, insect pests, soil fertility, livestock, agro-forestry and other production constraints has increased over the past 3 seasons of experimentation with NARO/CIAT/AHI and other stakeholders. Farmers in the groups that were visited indicated their keenness in learning more from field experimentation. These farmers requested to be facilitated to train more

farmers and visit other locations to learn, share knowledge and exchange experiences. Farmers are willing and keen to learn and train non-participating farmers and visitors.

CIAT LIBRARY



100081897



For more information on the report, please contact:

Coordinator
CIAT
Selian Agricultural Research Institute
Dodoma Road
P.O. Box 2704, Arusha-Tanzania.
Tel: (+255-27) 2502268/2508557
Fax: (+255-27) 2508557
E-Mail: <ciattz@habari.co.tz>

Design and Layout by:
H. Mziray & Eva Ngallo