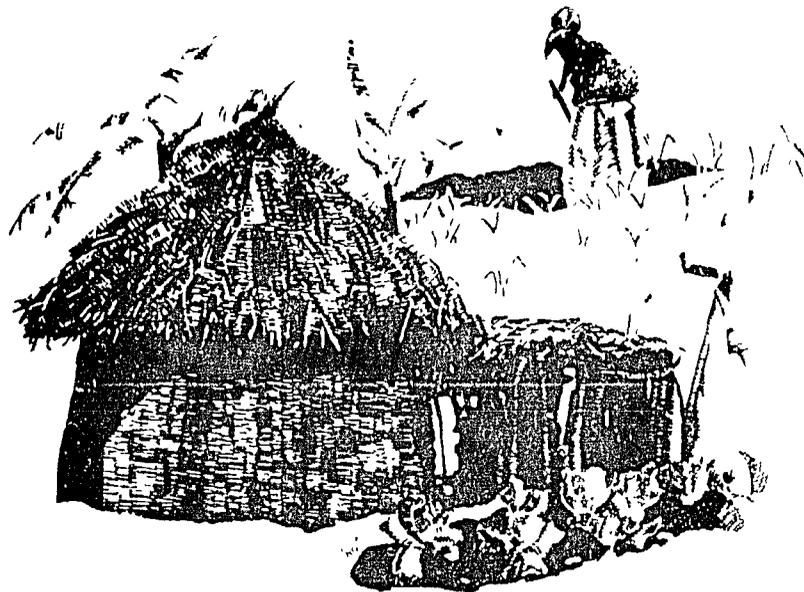


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**The University of Arkansas, Fayetteville
(International Agricultural Programs)**

and

**The Rwandan Ministry of Agriculture
Rwandan Institute for Agricultural Sciences (ISAR)**

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**Rwanda Farming Systems Research Program
Technical Paper Series**

**Bean Disease Identification
and Evaluation**

A Workshop Held in Kirambo
27 May 1986 and 8 and 9 July 1986

Ron Grosz

Report # 9

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BEAN DISEASE IDENTIFICATION AND EVALUATION

A Workshop held in Kirambo 27 May 1986 and 8 and 9 July 1986

Ron Grosz
FSIP/ISAR Extension and Training

INTRODUCTION

FSIP conducted a workshop entitled "Bean Disease Identification and Evaluation" in two phases for the agricultural cadre working with FSIP technicians on this season's on-farm bean variety trials. K. B. Paul, project agronomist, expressed the need to improve the technical capacity of the agronomes and monagris helping him monitor the bean trials installed on farmers' fields in March and April of this year. Though the agronomes, with their more extensive education, have knowledge of bean diseases, it was felt that they could benefit from such training. The communal monagris have less technical training and, it has been documented, often attribute disease to such factors as too much rain or too much sun. The farmers in the project area also identify diseases in this way and do not have a good concept of disease-causing microorganisms.

Farmers

One of the major constraints identified during the diagnostic surveys conducted among the farmers was the high incidence of disease on their bean crops during the rainy season. In response to this farmer-identified production constraint, the project adopted humidity-related bean diseases as one of its research topics for its first season "in the field."

Extension Agents

Since FSIP does not have enough personnel to assist with the necessary trial follow-up, it has been relying heavily on the existing agricultural cadre in the four communes, Butaro, Cyeru, Nyamugali and Nyarutovu. In an earlier problem identification survey conducted with the area's agronomes and monagris, need for training was one of the four major problems named.

Researchers

As FSIP team members began meeting and working with other agencies, projects and scientists in Rwanda, contacts were made with the CIAT (International Center for Tropical Agriculture) project at ISAR/Rubona. The CIAT/ISAR team were earlier involved in selecting which bean varieties FSIP should place on-farm during the first season's research. When it came time to program the workshop, Paul recommended tapping the skills of the CIAT/ISAR staff in Rubona since that project works specifically on beans. The Rubona-based technicians were anxious to work with our project and, after planning meetings, Peter Trutmann, CIAT bean pathologist, agreed to supply major course content while FSIP took care of logistics and organization and assisted in programming and implementing the workshop.

Thus, this workshop was organized in direct response to:

- a) an on-farm research topic selected with farmer participation in identifying major production constraints;
- b) a problem identified by the area's agricultural cadre regarding a major constraint they face in accomplishing their work;
- c) the needs of a researcher for improved capacity in the field staff he is dependent on for trial installation and follow-up; and
- d) the mandate of FSIP to improve and/or create linkages among researchers, extension agents and farmers.

The workshop took place at the Kirambo Sub-prefectural multi-use room, thanks to the collaboration of the Sub-prefect. The first phase was held on May 27 and the second on July 8 and 9, 1986.

THE PARTICIPANTS

The major target group for the training consisted of two sub-prefectural agronomes representing the sub-prefectures of Kirambo (Butaro, Cyeru and Nyamugali) and Busengo (Nyarutovu), seven agronomes representing the projects four communes and the seven communal monagris in charge of those sectors in which bean trials had been installed. Three technicians from the ISAR/Rwerere station were also invited. The FSIP team participated in the first phase along with the Ruhengeri Prefectural agronome, one of his staff members and the ISAR/Rwerere technician in charge of the station's leguminous crops research. Eight newly-hired FSIP/ISAR agricultural technicians took part in the second two-day phase. The project's new USAID project officer participated in the opening ceremonies for phase two. Her opening remarks are attached in the Annex.

The target groups participated eagerly in the workshop. The monagris had a few problems understanding the lectures presented in French, but holding the workshop in two phases and reviewing concepts in both French and Kinyarwanda alleviated, to a degree, the language problem. This is discussed more under analysis of the program. Area agronomes generally have a secondary school education, so the concepts presented were familiar to them. The monagris often have only an elementary or primary school education of about six years, so many of the concepts presented were new to them. Monagris often have no technical training.

The motivation and interest of the participants seemed very high, and their attitude was one of concentration, participation and hard work. It was nearly impossible to reconvene the small work groups once they were in the field because interest was so intense. During presentations in class, participation was active, questions easily posed, and responses given. A summary of the participants' evaluation of the workshop is found in the Annex.

ACHIEVEMENT OF COURSE OBJECTIVES

The major objectives of the lead content trainer, Trutmann, were to:

1. provide participants with an overview of bean diseases and pests;
2. help the participants identify 4 or 5 major diseases that occur in the project area;
3. assist the participants to understand the concept of causal agents, microorganisms, in bean disease; and
4. train the participants in the use of a bean disease identification and evaluation system developed by CIAT/ISAR.

Paul's primary objective for the workshop was to build the capacity of the agricultural cadre in the project area to assist with the monitoring and evaluation of the on-farm bean trials that had been installed. Mine included capacity building, response to an expressed need by extension agents as well as motivation for continued collaboration. This latter objective was needed since no formal working agreement has been signed that specifies how we work with the staff in the communes. To date their collaboration has been direct and positive albeit based on *bonne volonte*.

The objectives were ambitious, but their achievement level was satisfactory. Time was a major limitation, though lack of training resources was not. Even after the first one-day session, Paul noticed a substantial improvement in the agricultural cadres' capacity to identify diseases on his trial plots and on farmer's own fields. The capacity to use the identification and evaluation system will be judged on how well the agronomes and monagris fill out the formulas they have been asked to provide to assist in mapping disease incidence and pressure in the project area. Paul intends to reinforce the use of the system by asking the agents to use it during future cropping seasons. I intend to hold periodic review-to-improve sessions regarding bean disease as the project continues. This "formative" or progressive type of training will assist in goal achievement.

In general, I feel the workshop objectives were achieved by the participants if viewed as a first effort in a formative process. The project does not intend to "train then abandon" participants. In the short term, the objectives were satisfactorily achieved. The long term will judge the usefulness of the training and the need for follow-up, review or additional training sessions.

ANALYSIS OF THE PROGRAM

The workshop program is annexed. The training was given in two phases. The first phase, a day-long session, was held on 27 May 1986. The second phase lasted for two days, 8 and 9 July 1986. Both sessions were held at the multi-purpose room of the Kirambo Sub-prefecture because the project's training facilities were not ready.

Training followed a participatory, hands-on approach that included general sessions, presentation of theory, use of visual aids such as slides, flip charts and overheads as well as small-group sessions in the field. During the first phase, workshop presenters gave a practical overview of bean diseases and insect problems prevalent in Rwanda. Slides were used very effectively to illustrate the problem and then to check participants' problem-identification accuracy. Trainees were then introduced to the evaluation system used by the CIAT/ISAR team. The participants were broken into small work groups and taken to the field to practice both problem identification and use of the evaluation system. Everyone was then reconvened for general discussion of the field experience.

After discussions, participants were tested for accuracy in problem identification and given an assignment to prepare them for Phase II. Each participant was asked to use the bean disease evaluation system on several farms in their zone of action and bring the evaluation forms to the next session. They were also asked to make a scrapbook of pressed and dried examples of diseases and to describe the diseases in Kinyarwanda. We informed the trainees that we would use their Kinyarwanda descriptions to produce a field brochure on bean diseases. They were told that their efforts would be evaluated during phase two and prizes would be given for the top three done by the agronomes and the top three submitted by the monagris. We decided it was fairer to judge these two groups of participants separately.

The second phase began with a discussion of the tasks assigned during the first phase and a careful review of diseases, insect pests and the disease-evaluation system. Day one of this phase was then used to visit the field again and practice identification and evaluation skills. Both the workshop coordinators and the participants felt the repetition was needed and valuable. During day two we discussed the distribution of bean diseases in the project area based on the evaluations done as a "homework" exercise. Then the trainers introduced the concept of causal agents using slides as well as microscopes and stereoscopic viewers. They went on to discuss some basic concepts of disease control. We visited the field again, and participants were given individual attention according to their level of skill. We ended the workshop with presentation of prizes for the work done as well as certificates for participation and completion of both phases. Each participant was also asked to use the system to evaluate ten farms and to send the evaluations to FSIP. A summary report mapping disease occurrence and severity will be produced and copies sent to the trainees.

Strong Points

Major strong points of the workshop included the following:

1. The lead trainer, Peter Trutmann, used very effective training methods centering around the use of slides to test participant identification skills with immediate feedback on their ability. After he presented the range of diseases and discussed the slides, he asked participants to identify additional slides. Participant reaction to this technique was very positive.
2. The assistance of ISAR/Rwerere's staff was critical and extremely helpful. Enoch Rubaduka's presentation skills during plenary sessions were excellent and elicited strong participation from the entire group. We also asked Enoch and two ISAR/Rwerere agronomes, Froduald Ngendabanga and Edouard Murwanashyaka, to assist with the small team field work during the second phase because Rubona did not send a full complement of specialists as had been planned. The assistance of these three was of high quality.
3. Breaking the workshop into smaller work teams during the field exercises was a strong point of this training effort. In fact, the schedule had to be constantly adjusted because of the difficulty of getting the participants out of the field and back into the training room. Motivation during these exercises was among the highest I have seen.
4. The linkages and collaboration that took place during the two phases were important. Input and assistance were received from CIAT/ISAR/Rubona, FSIP, ISAR/Rwerere and AID/Kigali.

5. Another important collaborator in the workshop was the Sub-prefect of Kirambo. He not only made the multi-purpose room available to us but also offered valuable counsel and guidance on organizing the care and feeding of such a large group of people.
6. The issuing of the "homework" and the competition created for prizes were also strong positives for the workshop. One of the results of the assignments will be the creation, because of the participants' efforts, of a brochure in Kinyarwanda of the area's bean diseases.
7. A final point to mention is the very strong participation of the agricultural cadre in our project area. There was 100% attendance for Phase I and 99% during Phase II. Added to this was the welcome participation of the prefectural agronomist of Ruhengeri and one of his staff. The interest and participation of the whole FSIP team also need to be cited.

Areas Needing Improvement

A few areas that could be improved include the following:

1. More time needs to be allowed for the various phases of the workshop. Constant time pressure, though generally unavoidable, has both positive and negative aspects. In this case we could have programmed more time for the field experiences.
2. The lectures presented during plenary sessions could be strengthened by doing some "training of trainers" in the future. Presentation and summarizing skills can be improved with a bit of effort.
3. We'll need to work on better scheduling with ISAR/Rubona in the future to assure that planned-for content experts actually participate in the training event.
4. Though some of the concepts are most easily dealt with in French, we can strengthen future workshops by conducting plenary sessions using more Kinyarwanda, especially for the monagris. I suggest we program lecture summaries in Kinyarwanda after each major presentation and conduct the question and answer sessions in both languages. Someone like Enoch Rubaduka could function very well as a simultaneous translator.

RECOMMENDATIONS AND FINAL COMMENTS

This type of workshop is exemplary of the kind of linkages discussed in FSR/E between research and extension. The short-term value is that the capacity of the extension cadre to participate in on-farm research is enhanced. The longer-term benefits will show themselves as this on-farm research generates extendable information and technologies. The extension staff will feel they own the problem and have participated in the search for solutions and will have an on-going knowledge of the information generated.

Thanks are due all those who participated in the workshop. The linkages established are invaluable. This first effort at conducting a training workshop was very successful, but the linkages begun need to be cultivated and expanded. Future training review sessions will be needed so skills continue to be developed. Researchers, extensionists and farmers must constantly pursue their mutual objectives. Formative training and extension is iterative and on-going. This workshop lays some of the groundwork for positive change and self-sustaining development. Such efforts are integral to the project and will be continued both in the training room and on the hillsides.

ANNEX

OPENING REMARKS OF MS. LEVINE

Messieurs les agronomes,

Messieurs les moniteurs,

Mesdames et Messieurs:

Au nom de l'USAID, je suis très heureuse d'être ici pour la seconde partie de l'atelier du projet FSIP sur l'identification des maladies des haricots. Je suis particulièrement heureuse que cet atelier ait été organisé conjointement avec le CIAT et l'ISAR puisque l'un des buts de l'USAID est de renforcer les liens entre l'ISAR, les centres internationaux de recherche et les projets agricoles.

La formation en cours d'emploi est un volet important de ce projet. Grâce à cette formation sur-le-tas et à des ateliers comme celui-ci, vous, les agronomes et les moniteurs, pouvez améliorer vos techniques pour aider les agriculteurs à augmenter le rendement de leurs récoltes. Cette formation est donc importante non seulement pour vous personnellement, mais aussi parce qu'elle aide votre pays à se rapprocher de son objectif d'auto-suffisance alimentaire.

Je vous souhaite à tous un séminaire réussi.

ANNEX

PARTICIPANT EVALUATION: BEAN DISEASE WORKSHOP

The evaluation was conducted on the last day of the workshop, 9 July 1986. Twenty-three participants filled out the evaluation, which included three questions.

1. What 3 areas of study do you suggest for future training?
2. What was good about or worth maintaining in this workshop?
3. What would you like to see changed in the future?

Responses do not, of course, total 23 since multiple responses were involved. The reader is encouraged to group responses according to the interpretation being sought. A summary of responses and frequencies is as follows:

1. FOR THE FUTURE		2. WHAT WAS GOOD, MAINTAIN	
Problems of Other Cultures	5	Practical Field Work	9
Disease Control & Treatment	9	Good Care and Feeding	2
Microscopy	2	Repetition, 2 Phases	5
Study of		Use of Slides	3
Corn	4	Individual Attention	1
Potatoes	5	Maintain Workshops, Increase	6
Bananas	1	Transportation	2
Sweet Potatoes	9	Course Content	3
Cereals	3	More of Rubaduka's Training	1
Sorghum	3		
Peas	2		
Extension Methodology	2	3. WHAT SHOULD CHANGE	
Soil Fertility (Fumier)	2	More in Kinyarwanda	7
Mountain Soils	1	Day too Long	2
Use of Pesticides	3	Lectures in Better French	1
Erosion Control	2	Give per diems	3
Resistent Varieties	1	Better Field Documents	1
Local Control Methods	1	Time too Short	2
Review of Beans	4	Slow Down with Slides	2
Use of Fertilizers	1	Nothing Should Change	5
Correct Planting Dates	2		

ANNEX

ATELIER SUR L'IDENTIFICATION DES MALADIES DES HARICOTS

Phase I Programme

le 27 Mai 1986

FSIP/ISAR

Rwerere

- 8H00 Transport a l'atelier
- 9H00 Inscription
- 9H30 Ouverture
- 9H45 Maladies des haricots
- 10H30 Discussions
- 11H00 Repos
- 11H15 Insectes ravageurs des haricots
- 12H00 Systeme d'evaluation de la gravite des maladies des haricots
- 12H45 Diner/repos
- 13H30 Visite/travail sur terrain
- 16H30 Fin de l'atelier/transport aux bureaux communaux

Phase II Programme

le 8-9 Juillet 1986

Rwerere

Premiere journee

- 8H00 Transport a l'atelier (sauf Nyarutovu = 7H15)
- 9H00 Inscription
- 9H30 Ouverture
- 9H45 L'atelier commence (premiere journee)
 - 1. Discussion des taches donnees le 27 Mai 1986
 - 2. Revision et approfondissement de connaissance sur les maladies et insectes
- Repos
- 3. Systeme d'evaluation des maladies
- 12H30 Diner/repos
- 13H30 Visite/travail sur terrain
- 16H30 Fin de la journee/transport aux bureaux communaux

Deuxieme journee

- 8H00 Transport a l'atelier (sauf Nyarutovu - 7H15)
- 9H00 L'atelier commence (deuxieme journee)
 - 1. Discussion/analyse des taches
 - 2. La distribution des maladies dans notre region/travail commun
- Repos
- 3. Les causes des maladies/microorganismes
 - presentation
 - travail avec microscopes
- 4. Controle des maladies/presentation et discussions
- 12H30 Diner/repos
- 13H30 Session generale/travail individuel et en groupe
- 15H00 Cloture/certificats/prix
- 16H00 Fin de l'atelier/transport aux bureaux communaux