

PROGRESS REPORT OF THE KARI'S FARMER FIELD SCHOOL PILOT PROJECT

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Introduction

This is a brief progress report of the Farmer Field School (FFS) pilot project that was initiated in March 2001. The project aims at incorporating the FFS approach in the Soil Management Project (SMP) and Legume Research Network Project (LRNP) of KARI. The first phase of the two projects ended in December 2000 after being on the ground for about six years. Ten technologies were developed and were ready for scaling up at the end of the first Phase. The two projects adopted the FFS approach as one of the methodologies for scaling up the technologies because of the successes it has had in Asia in dissemination of IPM technology. Since the FFS approach is new to most project staff, the pilot project was designed to include a strong training component. The project has six main activities, which are;

- a) Holding of a FFS sensitization workshop
- b) Training of Trainers course (TOT) on the FFS approach
- c) Development of farmer training curricula based on the technologies to be scaled up
- d) Development of monitoring and evaluation tools for the FFS approach
- e) Support of three Msc. students
- f) Running about 45 FFS in five KARI centers

FFS sensitization workshop

This workshop was held from 6-8th March 2001 in western Kenya. Its primary objective was to sensitize senior managers of KARI and Ministry of Agriculture and Rural Development (MoARD), researchers and extensionists implementing SMP and LRNP, and farmers on the FFS approach for information transfer and scaling up of agricultural technologies. About 90 participants attended this workshop. The workshop was facilitated by two experienced FFS practitioners from FAO, Drs Kevin Gallagher and Russ Dilts; Prof. Agnes Rola of Philippines University and Dr. Jaap van de Pol who has worked extensively in Africa on soil fertility management. The workshop covered, genesis of FFS approach and its principles and concepts; FFS ToT course and running FFS in the field; development of FFS training curricula; monitoring and evaluation of FFS; and FFS for integrated soil fertility and nutrient management and conservation. Country experiences on FFS approach from Philippines, Indonesia and Kenya were shared during the workshop. Participants visited two FFSs that were in session in Busia; one led by farmers and the other led by extension to see in practice what they had learnt during the workshop. The last day of the workshop was spent in discussing the way forward for the pilot project and a number of issues were discussed. They included the merits of working with existing groups vs. forming new ones, backstopping of farmer-led FFS, monitoring and evaluation of FFS process, sustainability of FFS, enhancement of local technical knowledge, FFS ToT course, and strengthening research and extension linkages (see Appendix 1).

Training of Trainers (TOT) course in FFS approach

The aim of this course is to equip the SMP and LRNP staffs with methods, skills, attitudes and knowledge to design, facilitate and implement FFS in their project mandate areas. The

participants come from KARI centers at Kitale, Kisii, Kakamega, Embu and Mtwapa. The course is in two parts; the first part is to cover the theory of the FFS and planning and running FFS. The second part is a season long training in the field where participants will initiate and run FFS. FAO Kenya is to provide two facilitators to conduct the training. About 60 participants are to participate in this training.

The first part of the ToT was held at Egerton University from 12 to 17th March 2000. Topics covered included introduction to FFS methodology, steps in conducting FFS, organization and management of FFS, and non-formal education methods. It also included field exercises, group discussions and plenary sessions. During the training participants developed tentative workplans of the schools they were going to initiate in the field. They also developed tentative training curricula of the technologies to be scaled up. A report of the training is available from the Project Coordination's office.

The second part of the ToT is season long field-based training on how to run a successful FFS. The workplans developed during the first part of the training were used to initiate and run the schools. KARI Kitale and Mtwapa started their schools in April 2001 because the long rainy season had just began in their sites. Schools in Kisii were initiated in May/June while in Kakamega they were started in late June. Embu was the last to start its schools in late July 2001. Table 1 gives details of the FFS that have been formed and are in session to date.



FFS on combination of organic/inorganic fertilizers for maize production in KARI Kitale



FFS on low cost soil conservation method in Kisii. The grass strip is of Vetiver grass

The FAO trainers provide technical backstopping and have scheduled to visit Kitale every first Monday of the month and Kisii every third Thursday of the month. The Project coordinator also supervises the ToT during his routine visits to the Centers. Appendix 2 is an example of a backstopping visit report. The participants have been provided with many reading

materials/publications of the FFS approach to enrich their knowledge on the subject (Appendix 4).

Development of farmer training curricula of the technologies to be scaled up

During part one of the ToT course at Egerton University, participants developed draft training curricula of the FFS they were to initiate in their respective centers. Some of these drafts are shown in Appendix 3. These draft curricula form the basis for preparation of weekly lessons of the FFS. The ToT participants meet once a week to prepare the lessons for the following week and also improve the contents of the lesson of the previous week using feedback from farmers. At the end of the ToT the weekly lessons will be compiled into a farmer training curricula for each of the technologies to be scaled up. Participants have been encouraged to take photographs of different stages of the technologies being demonstrated which will be used to enhance the quality of the curricula.

Development of monitoring and evaluation (M&E) tools for the FFS

The tools were to be developed during an M&E workshop scheduled to be held in June 2001. Due to lack of suitable facilitators the workshop was postponed to a later date. Several meetings and consultations have been held regarding this workshop and it is now proposed to be held in mid-September. Two experienced facilitators in M&E from the Natural Resources Institute (NRI) are keen to facilitate the workshop. They have shown a good understanding of the aspects of participatory M&E training we would like offered to the ToT participants. The outcomes of the M&E training they are likely to offer are presented here.

- Understand the basic principles of monitoring and evaluation
- Differentiate between the types of information required for learning compared to that required for accountability
- Involve farmers in order for them to learn more about the quality of training and support offered to farmers by the project both during and after FFS training events
- Design and use tools, qualitative and quantitative, to understand and learn about the extent to which farmers (female and male, young and old, poorer and better off, more and less literate) are responding to project services through the application and adaptation of knowledge and linked technology “hard-ware” to their own situations.
- Assess the attitudes and responses to project services and outputs among non-participating farmers/communities
- Work together with farmers and other stakeholders to better integrate processes of M&E into project practice, using results to influence decision making at various levels with a view to improving project delivery.

Support for three Msc. students

The Msc. training was included in the project so that the students could undertake research that would contribute to the development and refinement of M&E tools for the FFS process. They

were also expected to evaluate the rate of technology spread and the impact it is will have on smallholder farming. The original thinking was that the students would undertake Msc. studies by research but this was not possible because it is mandatory to take a taught course in the local public universities for such training.

KARI Kisii and Kitale nominated a student each for the training and KARI Kakamega was supposed to provide the third student. The student from Kisii has been admitted in Egerton University while the one from Kitale has been admitted in Moi University. The two students are joining their respective universities in September 2001 and they are expected to finish their taught course in May 2002 and embark on their research work in June/July 2002.

Running of FFS in 5 KARI centers

So far 17 FFS have been initiated during the season long ToT course (Table 1) and most of them will be terminated by the end of the year. It is hoped that a similar number will be conducted in year 2002 and double that number in year 2003.

Acknowledgement

We would like to acknowledge the financial support we have received from the Rockefeller Foundation. We are in deed grateful to Dr. Ruben Puentes of RF New York and Mexico and Dr. John Lynam of RF Nairobi for technical support they have given the pilot project from its inception up to now. Special thanks are extended to Ruben for provided many FFS reading material in Appendix 4.

Table 1: Summary report of Farmer Field Schools initiated during the season long Training of Trainers course

<i>KARI Center</i>	<i>Name of farmer field school (FFS)</i>	<i>Technology being scaled up</i>	<i>Number of school members</i>		<i>When initiated</i>	<i>Special topics taught up to end of June</i>
			<i>Male</i>	<i>Female</i>		
Kitale	1. Bikholwa (Action) FFS	Combinations of organic and inorganic fertilizers for maize production	18	4	10 April 2001	Poultry and dairy production; vegetable production; group dynamics and good leadership; tree management
	2. Bulala (Unity) FFS	Food legumes other than beans	15	10	20 April 2001	What is soil and soil fertility indicators; types of inorganic fertilizers and application methods; dairy production; nitrogen cycle
	3. Busime (Love) FFS	Management of organic and inorganic fertilizers for vegetable production	5	12	20 April 2001	Local vegetables known to farmers; poultry production
	4. Twende Mbele (Move forward) FFS	Suitable maize varieties for Kitale mandate region	4	8	30 April 2001	None
	5. Upendo (Love) FFS	Quality seed production in smallholder farms	7	23	10 April 2001	Hybrid seed development; role of Kenya Plant Health Services inspectorate; seed borne diseases
	6. Khuyetena (Helping one another) FFS	Forage crops establishment, management and utilization	12	11	20 April 2001	Group dynamics; benefits of intercropping; poultry diseases
	7. Mteremko (Steep slope) FFS	Low cost soil conservation measures	5	9	14 May 2001	Control of stalk borer in maize; plant deficiency symptoms; maintenance of soil fertility, poultry production; vegetable production;

	8. Mutua (Last born) FFS	Use of plant extracts to control crop pests	9	16	21 May 2001	Farm yard manure management and storage; compost making; construction of water tanks, sheep and dairy production
Kisii	1. Riboba (cultivated plot) FFS	Combinations of organic and inorganic fertilizers	10	18	4 May 2001	Food security; dairy feeding; poultry production; group dynamics
	2. Mlango (Door) FFS	Improved soil conservation measures	29	23	4 May 2001	Compost making; low cost methods for soil erosion control
	3. Etono (small edible mushrooms) FFS	Integrated pest management on bean production	8	19	27 June 2001	None
	4. Keroka FFS	Improved fodder production	25	20	10 June 2001	None
	5. Riomwando (Inheritance) FFS	Finger millets varieties tolerant to blast disease	5	27	10 July 2001	None
	6. Umoja (Togetherness) FFS	Use of soil fertility improving legumes	11	25	13 June 2001	None
Kakamega	Malanga FFS	Green manure technologies for soil fertility improvement		38	25 June 2001	None
Embu	Karurina FFS	Up-scaling green manure technology	-	-	To be formed in July	-
Mtwapa	Jembe (Hoe) FFS	Combination of green manure legume with FYM and inorganic fertilizers	7	8	28 March 2001	Group dynamics; pest and diseases of maize and their control measures

APPENDIX 1

FARMER FIELD SCHOOLS SENSITIZATION WORKSHOP (6-8th March 2001, Golf Hotel, Kakamega)

Issues arising for the way forward

1. Work with existing groups or form new ones?

- The participants felt there was need to work with already existing farmer groups e.g. the “merry-go-round” as the FFS activities can be conducted concurrently with the initial activities of the group. However, each KARI center will have to evaluate its own local conditions as situations may be different between the different KARI centers to be involved with FFS activities.
- In some regions, Farmer Research Committees (FRCs) are already in existence and are conducting field experiments. These FRCs are in the forefront in strategically setting up demonstrations of promising technologies, and they train and assist other new groups in setting up experimental activities. They can thus be transformed into Farmer Field Schools.
- Some disadvantages of working with some pre-existing groups are:-
 - Old groups may not accept a FFS curricula for only integrated soil & nutrient management topics
 - Weakness and problems are inherited.

2. Farmer-led vs extension-led FFS

- It was observed that usually it is graduates from Extension-led FFS who become trainers in Farmer-led FFS. It is not common to find a trainer originating from a Farmer-led FFS.
- Extension-led FFS have more to learn and share in terms of knowledge and skills, as the input of extension personnel cannot be ignored.
- Backstopping is useful to prevent new groups from repeating the same experiment the old groups had conducted.
- Backstopping by the extension in the Farmer-led FFS should be more than twice a month.
- In case of setting up new FFS, there was need to include subject matter specialists from problem diagnosis and through the season long experiment so as to backstop the project all the way through.

3. Monitoring and Evaluation

- The data that the farmers were documenting was technical data, but there was need for farmers to generate and document the indicators they use for monitoring and evaluation. For example, farmers have their own indicators for evaluation of crop varieties and needed also to use them in M&E.

- It was also felt that Researchers, Extension and Farmers might have different indicators, which should be identified and used in the M&E process. But it was important to set up a benchmark, which should be the basis for future M&E assessments.
- There was also a feeling that the farmers and trainers can develop and run a M&E system that:
 - (i) Provides good data to outside decision-makers.
 - (ii) Strengthen “Farmer Groups” for sustainability.
 - (iii) Allow FFS participants to use data to gather support for their own programs.

4. Sustainability of FFS

- Farmers suggested that they needed small grants (funds) in order to initiate new schools. The participants felt there was need to provide new FFS with basic materials e.g. paper, markers, new seeds etc. so as to assist in the running of new FFS. This kind of support was seen as different from that of giving handouts.
- Critical support to the farmers should be in the form of collegial, moral, technical, networking and organization and not necessarily monetary support.
- Farmers should be encouraged to manage their resources as “Group Resources” to optimize on available assets.

5. Enhancement of Local Technical Knowledge

- Since the technical knowledge held by farmers is limited, there is need to supplement it with scientific knowledge from the extension and research personnel. One case in point is the use of the local concoctions against pests and diseases. KARI should come in and test these concoctions for proper dosage application to avoid toxicity. Another case is on fertilizers where the farmers apply handfuls of fertilizer without an idea on the proper quantities to be used.
- The frontline extension personnel should consult subject matter specialists from the Agriculture Office or in Research Stations so as to access the available information that exists and pass on the same to the farmers. It was noted that KARI has been producing extension leaflets/pamphlets with simplified language for the extension and farmers.
- Any extension leaflet with difficult language can be brought to the notification of KARI Publications Unit for simplification of language.

6. ToT course

- It was felt that the initial one-week training was short, but this could be overcome by conducting another joint training week in the middle of the season-long FFS.
- More regular follow-up meetings (backstopping) for problem solving and experience sharing were emphasized. It was suggested that there be weekly or bi-weekly 1-2 days team meetings for reviews and planning the way forward. These regular meetings are essential especially at the implementation phase of the FFS where the teams would consult and exchange ideas with their facilitators.

- The ToT was expected to also cover the following specific topics such as:-
 - Group development
 - Facilitation skills
 - Technical skills
 - Management
 - Monitoring & Evaluation

7. Manual development

- The teams were advised to start with a draft FFS program and on the basis of experiences on what they have learnt, they can develop them into manuals.

8. Research and Extension Linkages

- The participants felt there was need to continue the collaboration and linkages between Research and Extension. This would facilitate implementation of some joint activities such as production of leaflets/bulletins for farmers.
- Overall it was felt that the collaboration between Research and Extension should be strengthened for mutual benefits to farmers.

APPENDIX 2

Backstopping visit to FFS of KARI-Kitale on 11th June 2001

Comments/observations

1) **Khuyetane FFS**

(Forage crops establishment, management and utilization)

- Host team concept did not come out strongly. Facilitators were doing most of the things and so the role of host team should be emphasized.
- Field schools usually deal with comparative studies and this should be emphasized. During AESA presentation there was no presentation on comparative studies and this made it difficult for farmers to notice any differences between plots.
- There should be summary of presentations across the board by facilitators after all the presentations have been done. This was not done.
- Planning for next week should be participatory. That is all the farmers should be involved and not dictated by the facilitator
- Ownership of the FFS should be by the farmers. The farmers should own the FFS and not look at it as if it is for KARI.
- Tagged plants should be inside the plot and not at the edge.
- Group dynamics were good.
- Overall the field school was well organized

2) **Busime FFS**

(Management of organic and inorganic fertilizers for vegetable production)

- Plot size was Small.
- Control plot not very clear
- Host team role was also not clear. One farmer was dominating.

2) **Bulala FFS**

(Promotion of alternative food legumes to than beans)

- Technology being scaled up should be emphasized. Not very clear from the visit
- Late planting
- Generally FFS process is being followed well although we arrived late and so not much could be seen.

General comments

- The Rotational systems by groups between plots should be implemented
- AESA taking, analysis and presentation should be done on the same day, during the learning day.
- Farmer selection is very critical and only practicing farmers should be nominated to join the FFS and not those working elsewhere.
- The officials elected in FFS should be strong.

APPENDIX 3

Draft training curricula developed during ToT course of some technologies to be scaled up

1. Low cost soil conservation methods

Soil ...Definition
... Importance
...Genesis
... composition
... Management (general

Soil Erosion

... Definition
... When?
... Why?
... How?

Soil Conservation

... Definition
... Importance
... When?
...Why?

Soil Conservation Structures

- Biology Structures
- Physical Structures

Economics of Soil Conservation

- Maintenance of soil conservation structures

Options/basket

Both biological and physical

Biological structures

- Makarikari
- Vetiver
- Trash line
- Napier grass

Physical structures

- Fanya juu
- Stone lines
- Fanya chini

2. Organic manure management and its use in combination with inorganic fertilizers for crop production

Teach and train

- Soil genesis
- Soil management technologies

- Collection management and use of manures
- Demo on compost management preparation and storage
- Collect materials
- Set up compost
- Monitoring

FYM management

- Boma composting
- Collection of crop residue into cattle Boma

Teach aspects of maize production

Teach about seed production such a

Teaching on harvesting, storage of maize.

3. Quality Seed production

- Introduction
 - Basis for developing varieties
 - Altitude, rainfall, temperature
 - Lightly methods of development
- Type of varieties
 - Characters of good seeds
 - Hybrids, open pollinated (composites)
 - Isolation
- Selection of crop and variety to plant
 - Source of good quality seed
- Land preparation and field layout (per crop variety)
- Planting - site selection and time of planting
 - Weeding - noxious weeds
 - Crop management - as per crop
- Weekly observations, monitoring and data collection
- Harvesting - time of harvesting and
 - Economic analysis
 - Seed processing - (as per crop) threshing, cleaning, pure g. seed
 - Seed treatment - (as per crop) i.e. use insecticide/ash), fungicide
 - Seed storage - Temperature, humidity (as per crop)
 - Data to collect
 - as per crop variety
 - Include seed processing
 - Seed storage

4. Suitable crop varieties for different AEZ's in Kitale Region

- Introduction
 - Basis for developing varieties e.g. altitude rainfall, temperature etc
 - Diversity of AEZ in the country
 - Participatory description of the environment

- Establish farmer practices and reasons – (Ground working)
 - Participatory selection of treatments from the basket
 - Land preparation and field layout
 - Planting, weeding, top-dressing, pest management (and general crop management)
 - Weekly observation, monitoring and data collection
 - Harvesting and economic analysis
- 5. Bean varieties tolerant to bean fly and root-rot**
- Importance of beans (food, soil improvement, income generation)
 - Problems related to bean production(diseases, pests, soil fertility)
 - Problems limiting bean production in the area (Marani)
 - Bean-fly pest-Infestation, Life-cycle, effect on plant vigor
 - Root-rot disease – Infection, Typical symptoms, effect on crop
 - Establishment of insect zoo (bean-fly)
 - Farmer evaluations of the different varieties – size, color, taste, yields, cookability (ranking to be one)
 - Special topics as need arises
 - Seed production – selection, storage, treatment

APPENDIX 4

Reading materials issued to FFS ToT participants

1. Making Farmers Better Decision - Makers Through the Farmers Field School
By Rola A.C. Provido Z.S, Olanday M.O, Paraguas A.S, Sirue, A.S., Espadon, M.A. and Hupeda S.P

Kasakalikahan. The Philippine National IPM Program

2. Rural Learning Networks - Farmer Field School in Integrated Crop Management
By Marco Miagostovich

3. Economics of IPM – FFS Knowledge Diffusion in Rice Farming Communities: A Case Study in Iloilo, Philippines
By Agnes Rola

4. Can the Farmer Field School Replace the T&V System of Extension in Sub-Saharan Africa?
By Cees Leeuwis, Neils Roling and Gerard Bruin

5. A Note on the Sustainability of the Farmer field School Approach to Agricultural Extension
By Jaime Quizon, Gershon Feder and Rinku Murgai

6. Output of the Intensive Training of Trainers Course on Farmers Field School - Mabanga

7. Guidelines and Reference Material on Integrated Soil and Nutrient Management and Conservation for Farmer Field Schools
FAO, ROME, AGL/MISC/27/2000

8. Community Driven Development; from vision to practice
A technical Source book

9. Process – Monitoring Report Pilot Sweet Potato IPM Farmer Field Schools and Field
By Kim Groenewg

10. FFS studies in Vietnam

11. Searching for Strategies to Replicate a Successful Extension Approach: Training of IPM Trainers in Indonesia
By E. van de Fliert, J. Pontius and N. Roling

12. The IPM Farmers' field School
An Indonesian contribution to Sustainable Agriculture

13. Do farmer field school graduates retain and share what they learn? An investigation in Iloilo, Philippines

A.C. Rola, J.B. Quizon and S.B. Jamias

14. An economic framework for assessing the impact of farmer field schools: A case study in Iloilo, Philippines

A.C. Rola

15. Living soils

Training exercises for integrated soils management

UNFAO Program for Community IPM in Asia, Jl Jati Padding no. 38B, Pasar Minggu, Jakarta Indonesia

16. An introduction to the IPM farmer field school

Russ Dilts and John Pontius

17. Beyond the farmer field school: IPM and empowerment in Indonesia

Peter A. C. Ool, gatekeeper series no. 78