



# FRG UPDATE

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*Farmers' participation is a key to technology generation*

## Mobile phones are just more than phones in the hands of FRG farmers

Tekalign Gutu, ATARC

### 1. Back ground

Ethiopian government promotes market oriented agriculture but inefficient marketing system hinders its progress. Among many factors affecting the performance of marketing system, unavailability of timely market information to small scale farmers is a critical one. The research project "Marketing of agricultural products in the Mid Rift Valley" under the FRG project has been working with farmer research groups (FRG) on improving access to market information using mobile phones. Encouraging results on farmers' decisions in their production and marketing strategies have been observed.

### 2. Objectives

- To establish a mobile phone based market information system which is managed by small scale farmers
- To identify the impact of farmers' access to market information on their production and marketing strategy

### 3. Methodology of the approach

Marketing FRGs were established at Rafu Hargissa (Arsi Negele) and Anano (Adami Tulu Jido Kombolcha). Each FRG constitutes 20 member farmers. Firstly, training was conducted for the groups on marketing and record keeping. Each group elected a chair person, a secretary and a treasurer. The chairperson is a device holder who contacts with traders and market enumerators to collect market information and share it with the members. The groups have set rules and regulations (bylaws) on the use of the mobile phones. The cost for prepaid cards is covered by the group members' monthly contributions and changes paid for private calls. Arrangement was made with the enumerators and traders in nearby two market places, Arsi Negele and Zeway, for providing market information to the farmers. Mobile phones were leased out to the groups by the FRG project.



### 4. Achievements so far

- Farmers have increased their income from the sale of their produce due to timely access to market information.
- Farmers have started to make a choice on what, where and when to sale their produce.
- Farmer's networking within the group has been improved.
- Farmers by themselves have started to create new market channels. Arsi Negele farmers group has started to link themselves directly to Addis Ababa central market.
- Some farmers' production pattern has changed. Arsi Negele group has started to produce pepper which they learnt have steady and high market demand.
- Awareness has been created among the framers on practical importance of timely market information.
- More active social interaction among the farmers through use of the mobile phone.

### 5. What do farmers say about the mobile phone?

Mr. Jemal: "At the beginning, I assumed that the phone was given only to chairperson rather than to the group but now I have seen with my naked eye that the phone is for the benefit of the group. I have got additional benefit of 80 Birr by selling 2 heads of goats at the correct timing due to the mobile phone. Thank you all".

Ms. Ayelech: "I got 1000 Birr from selling a head of ox by learning price change within 2 hours due to this precious mobile. Not only this, I made a price assessment at different markets through the phone and finally called a whole sale trader in Addis Ababa from my home. On that day, I sold haricot beans of 25000 Birr and pepper of 50000 Birr. You can imagine how information can change livelihood."

Mr. Hussen: "When people said market oriented agricultural production, it confused me. Now I have practically seen through the mobile phone on my red gold pepper. I have benefited more. Mobile phone is

*just more than a phone in the hands of FRG”.*

Mr. Mohammed: *“I had purchased a mobile phone a year ago. But after I become a member of the marketing FRG, I realized that the phone can greatly contribute in boosting our income from sale of our products wisely. We have lost much money before introduction of the system to our groups. Thank you for opening our eyes”.*

Mr. Denebo: *“I am evaluating what is going on in our group, a number of group members have benefited and changed. I hope I will benefit like them soon because I am waiting appropriate price and time through our chairperson to decide for selling my produce.”*

Mr. Simbo: *“The mobile system in our group encourages me to have my own. I am planning to buy a mobile phone for my family if it really benefits us. We thank the FRG project for the support. We have seen new chapter”.*

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### **Excerpt from a farmer’s justification for broadcasting over row planting of maize**

Ato Gamadi Dubiso: maize growing farmer  
Interviewed by Wole Kinati, ATARC

INTERVIEWER: *Do you know maize row planting?*

FARMER: *Yes, I know.*

INTERV.: *Are you practicing it?*

FARMER: *No, mostly I use broadcasting for planting maize in my farm.*

INTERV.: *Don’t you know the yield advantages of row planting over broadcasting?*

FARMER: *Yes, I know row planting saves seed and gives more yield when it is compared with that of broadcasting.*

INTERV.: *If so, why did you practice broadcasting for maize planting?*

FARMER: *Since we have a lot of work during cropping season, we can’t go far away from our farm to look for feed for our cattle. Because here in our village, we don’t have enough pasture land, therefore, we need to feed our cattle with maize tinned form the field planted by broad casting.*

INTERV.: *If you use green maize as feed, why don’t you plant maize for feed separate from your maize for food with row planting to*

*maximize your yield?*

FARMER: *You know, maize is a crop that we eat, we respect and can not be planted in separate as forage for livestock purposively. It is primarily given and planted for human being as food. We believe that it is given to human being by God as food.*

INTERV.: *I see.*

FARMER: *Yes, that’s why we plant maize densely by using broad casting primarily to harvest yield for ourselves and thin the weak plants for our animals to feed them.*

*(Ato Gamadi now practices row planting for his maize.)*

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## **Building the Process towards Package Technology Scaling Up: Experience from Bean Farmer Research Group**

Endeshaw H., MARC

*Proving the validity of research outputs under farmers’ condition with the involvement of the target groups is the beginning of value addition to the technology.*

Three years have elapsed since a research team from MARC, composed of research-extension, breeding, pathology, entomology, farm mechanization, agronomy, and food science, started to work with FRG farmers (40 male-headed and 5 female-headed households) at three woredas (Shala, Bora and Adami Tulu) on a variety of research topics on beans. The Development Agents and agricultural experts were part of the activity, played an active role of facilitating group activities in the process. Field days and exchange visits were held to facilitate immediate flow of information to non participant farmers.

The research team, FRG farmers and extension workers in respective woredas have successfully identified technologies applicable and productive at farmers’ level. This includes 1) improved bean variety, 2) management practices (line planting, improved plough, and maize-bean intercropping) against farmers’ practices. Each management practice provided an advantage over local practice expressed in the form of yield and reduced cost of labour.

In addition, different bean utilizations (recipes) were introduced and farmer based seed multiplication of selected varieties was carried out.

### From trial to non-trial farmers within FRG farmers

The first year was devoted to evaluate and selection of the best suit out of 15 varieties for the respective waredas using farmers' own criteria, i.e. both physico-chemical characteristics (colour, taste, size, cookability) and field performance (yield and tolerance to pests). In each wareda, 4 farmers participated as trial farmers. Accordingly, best performing varieties were identified by the FRGs in each wareda as shown in the table below.

Wareda	Selected varieties
Shala	Nasir, Awash 1
Adami Tulu	Dimtu, Goberasha
Bora	Awash melka, Awash 1, Tabor, Roba

The other two years were used to carry out three major activities.

- 1) Testing of the different management practices with FRG farmers
- 2) Embedded with the trial on management practices, multiplication of seeds of the selected varieties was carried out with 24 FRG farmers in respective waeewdas to improve the level of access to the seed by non-FRG farmers. The seed was being revolved and the same is being facilitated by the respective wareda extension workers.
- 3) Survey and training on bean utilization (preparation of different bean recipes were conducted in the respective waredas where the wives of the FRG and non-FRG households as well as restaurant owners have participated).

### From FRG to non-FRG farmers

The research team, farmers and extension workers have reorganised themselves to promote the package of technologies (variety, line planting and improved plough) to a larger number of farmers (116) in 5 waredas. The worth of the package components was proven by the farmers who have already adopted the practices into their normal farming practice and showed readiness to purchase the technology. Therefore, to realise wider dissemination:

- 1) a team composed of different stakeholders (Research, NGOs, Zonal and Wareda Agricultural and Rural Development Offices, Rural Technology Centres, and private manufacturers) was formed to expand the activity,
- 2) Extension materials are being developed as reinforcement for field level promotion activity,
- 3) Simultaneously, this activity would serve as multi-location trials where research would keep an eye and find out more insight for further improvement of the technology and/or the

package as a whole thereby value to every following dissemination activity.

Even at the stage of wider dissemination, research remains watching for possibility of value addition to the technology already endorsed by the FRG farmers.

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## Minimizing evaporation loss from water harvesting pond

Iwao Matsumoto, FRG Project

### 1. Introduction

Evaporation loss from the water surface is a critical problem for water harvesting pond. By controlling solar radiation and wind, there is a possibility of reducing the evaporation from the water surface. Some methods using locally available materials were tested for minimizing evaporation in March 2008 at Melkasa Agricultural Research Centre(MARC).

### 2. Materials and method

Small evaporation pans (60cm diameter x 20cm depth); see were used to simulate water harvesting pond. Shading materials tested were maize stalk, plastic film, water hyacinth and passion fruit vines which were compared with a pan with no shading as a control. Water was poured at 15 cm depth and decline of water level was checked at 9 o'clock every morning to measure amount of evaporated water.

### 3. Results and discussion

As Fig.1 shows, there was significant difference in amount of evaporation among the treatments. Under direct sunshine, evaporation loss was 10-12mm per day (the control pan). Plastic film minimized evaporation loss down to 1-1.2mm per day. Shading by maize stalk resulted 4.0-4.4mm per day evaporation loss. Passion fruit shading, conducted at Adami Tulu Agricultural Research Centre separately, resulted 4-6mm per day.

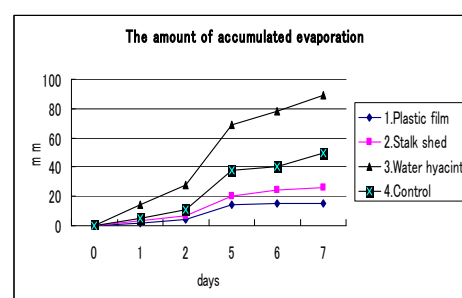


Fig. 1 Accumulated evaporation 21/03/07 - 28/03/07

Using the data collected from the test, volume and ratio of evaporation losses from the surface of water harvesting pond (11mx11m or 121m<sup>2</sup> in size) are estimated.

Type of shade	Decrease of water level (mm per day)	Evaporation loss in volume from filled pond*(litters/day)
Open(control)	10-12	120-145
Maize stalk	4.0-5.5	48-67
Passion fruit	4.0-6.0	48-73
Plastic film	1.0-1.2	12-15

\* The capacity of water harvesting pond is 140m<sup>3</sup> at full.

It is clear that evaporation losses can be reduced by placing physical barrier around and over the pond to minimize air movement and direct radiation across its surface.

Construction of shading structure over water harvesting pond, which is 11m x 11m (121M<sup>2</sup>) in size, needs further consideration. In order to cover the pond, four plastic sheets (4mx5m) are required and cost about 700 Birr including rope and poles. It saves about 3400 litters in a season, assuming water in the pond last for 8 weeks. It may not save much money for a case where there is water tap nearby. For areas where water source is far, it can save considerable amount of labour for fetching water which is usually a women's task.

Covering above the surface of water by passion fruit, which saves about 1500 litters in a season, may be a more practical measure, although, how to maintain passion fruit vines over a large water surface needs further consideration.

The tested covering materials



Plastic film



Water hyacinth



Maize stalk

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## Extension Material Development Committee

The FRG Project focuses on delivering research outputs to end users through developing appropriate extension materials. In order for the FRG extension materials to be client oriented, the Extension Material Development Committee has been established. It is also an attempt to improve the situation of DAs who have a limited access to such materials.

The committee consists of eight farmers, eight DAs, eight researchers, three experts from woreda offices, three NGO staffs, three woreda extension heads, and zonal extension head of East Shewa Zone. So far the committee meetings were held in December 2007 and March 2008 to review available extension materials and what improvement should be made.

The committee members have listed up following points as criteria for appropriate extension materials.

- Pocket size with hard cover so it can be durable and taken along.
- Use of simple languages and common names.
- In Amharic and/or Oromic.
- Use of pictures, drawings and cartoons to illustrate the technology.
- A set of technologies to cover entire production practices of the commodity instead of only a particular aspect of the commodity production. Cropping calendar is a good way to describe many practices at different timings together.

Other criteria are also added by the researchers.

- It explains well about how to do it.
- It indicates clearly the benefit of the technology to farmers, e.g. productivity, profitability, reduce risks, improve nutrition, etc. Cost and benefit need to be explained in it.
- It explains how to access to required inputs.

FRG research teams will work with DAs and farmers for the development of extension materials, which are leaflets and booklets, as well as picture-card show, posters and audio-visual material.

### Upcoming activities

- June 2008: DAs' training on Farmer Field School
- July 2008: workshop for FRG guideline.

**FRG UPDATE** is a newsletter from the FRG Project for sharing experiences of researchers, extension agents and farmers who involve in participatory agricultural research through "Farmer Research Group" approach. For further information and your valuable comments, please contact +251 22 111 4622 or [jica.frg@ethiopianet.et](mailto:jica.frg@ethiopianet.et).