Guideline
to
Participatory Agricultural Research through Farmer Research Groups (FRGs) for Agricultural Researchers

Revised in March 2015

Project for Enhancing Development and Dissemination of Agricultural Innovation through Farmer Research Groups (FRG II)

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Foreword

Participatory research with farmers has thrived under the test of time. In its earlier stage many remained sceptical whether it can really deliver the kind of required outputs in a scale demanded by overriding agricultural development challenges. Nonetheless, it evolved from one to another and reached to its current shape where scholars started to recognize that it is an essential approach to come up with an innovation customized to resource poor farmers who basically live in a complex environment. The physical and socioeconomic setup of such farmers cannot be captured without letting them take part in the design and development of technologies that will be appropriate to them. Over the traditional technology transfer make up, participatory methods are observed to bring in increased confidence of farmers and local people in their own knowledge, improved capacity of clients to innovate and experiment, and an enhanced ability to cope with change.

Within such strong premises, the Project on Strengthening Technology Development, Verification, Transfer and Adoption through Farmer Research Groups (FRG I project) was launched in 2004 aiming at addressing the limitations of conventional approaches through enhanced functional and institutional linkages as a pilot and its second phase "Project for Enhancing Development and Dissemination of Agricultural Innovations through Farmer Research Groups (FRG II project)" implemented between 2010 and 2015 with the objectives of scaling up and institutionalizing within the national agricultural research systems.. It was organized in a way to put in place institutional and functional arrangements involving both policy makers as well as research and development institutions at higher level and research centers, district agricultural offices, NGOs, private companies and farmers working in a team at functional level thereby ensure application and institutionalization of the approach into the existing research and extension system.

This Guideline presents the concepts and required steps in setting up of FRGs for agricultural researchers, who wish to follow FRG approaches. It was developed based on the concrete experiences of FRGs established in diversified topics ranging from crops, livestock, natural resource management, farming tools and marketing. It is hoped that the Guideline would take participatory approach, particularly the FRG, a step forward and will be instrumental in facilitating the institutionalization of the FRG approach in the Ethiopian Agricultural Research System, which will eventually lead to the realization of the significance of participatory approach in making agricultural research responsive to development needs of the rural communities.

Dr. Dawit Alemu

Director of Agricultural Economics, Extension and Gender Research, EIAR

Preface (2015 version)

This is a revised version of the guideline, which was originally published by FRG Project in 2009. The revised guideline is based on the experiences and lessons from the Project for Enhancing Development and Dissemination of Agricultural Innovation through Farmer Research Group (FRG II Project), which was implemented between 2010 and 2015 as a technical cooperation project of Ethiopian Institute of Agricultural Research (EIAR) and Japan International Cooperation Agency (JICA). Changes have been minor as the original guideline is already comprehensive and easy to refer when researchers need. It has been adjusted with recent organisational changes and minor reorganisation for easier follow of steps. Any researchers can use this guideline for implementing participatory research. It is encouraged to use and modify any part of the guideline based on users' experiences and share it widely, if the original text is properly acknowledged and the objective is not for profit. It is requested that any publications, which are based on this guideline to the Directorate of Agricultural Economics, Extension and Gender Research, EIAR.

The Editors, March 2015

Preface (2009 version)

In order for agricultural research to properly address farmers' bio-physical and socio-economic constraints and be impact oriented by addressing the needs of its clients, it has to be participatory. The Ethiopian Agricultural Research System (EARS) has been trying to promote participatory research to develop and promote technologies with farmers' active involvement. Encouraging results have been observed in the process, particularly by improving interaction among stakeholders. This has brought up a need to further improve and institutionalise participatory research in the research system for quick and tangible research impact on the client. Owing to this, the Project on Strengthening Technology Development, Verification, Transfer and Adoption through Farmers Research Group (FRG Project) was launched in 2004 and has been under implementation by two Agricultural Research Centres (ARCs) in the East Shewa Zone, lately covering part of Arsi and West Arsi Zones. It is being overseen by a consortium of institutions, i.e. the Ethiopian Institute of Agricultural Research (EIAR), Oromia Agricultural Research Institute (OARI) and Japan International Cooperation Agency (JICA).

The Melkassa Agricultural Research Centre (MARC) of EIAR and Adami Tulu Agricultural Research Centre (ATARC) of OARI, both located in East Shewa Zone, have been conducting farmer participatory research using FRG approach on subjects ranging from crop to livestock, natural resource to livelihood improvement and farming tools to marketing. Between 2004 and 2009, the two centres have established 80 farmer research groups with more than 1400 members including 800 female farmers. More than 50 researchers from nearly 20 disciplines formed a number of multidisciplinary teams and conducted 41 research topics in partnership with development workers and farmers as well as many other public and private sectors.

This Guideline has been made possible by those who were involved in FRG research activities including researchers, extension workers and experts, farmers, village leaders, district officials, NGO staffs, private traders, manufacturers, and many others. Mr. Amare Hagos, Mr. Shelif Akiy, Mr. Zalalem Beleyneh, Mr. Daba Feysa, Mr. Yeshitla Merene and Mr. Solomon Bizuayehu made comments to the guideline's earlier version. Dr. Teklu Tesfaye provided his valuable comments and suggestions. EIAR directors, Dr. Fasil Reda, Dr. Tolosa Debele, Dr. Adefris T/wold and Mr. Seyoum Bediye undertook the task of final reviewing of the Guideline. The editors are grateful to their support.

The Editors, June 2009

List of acronyms and abbreviations

ADPLAC	Agricultural Development Partners Linkage Advisory Council
ARDO	Agricultural and Rural Development Office
ARC	Agricultural Research Centre
ATARC	Adami Tulu Agricultural Research Centre
CDR	Complex, Diversified and Risk prone
COR	Client Oriented Research
DA	Development Agent
DARDO	District Agricultural and Rural Development Office
EARS	Ethiopian Agricultural Research System
EIAR	Ethiopian Institute of Agricultural Research
FFS	Farmer Field School
FTC	Farmer Training Centre
FPR	Farmer Participatory Research
FRG	Farmer Research Group
FSR	Farming Systems Research
JICA	Japan International Cooperation Agency
M&E	Monitoring and Evaluation
MARC	Melkassa Agricultural Research Centre
MBP	Mouldboard Plough
MUB	Molasses Urea Block
NGO	Non Governmental Organisation
OFR	On Farm Research
PR	Participatory Research
PRA	Participatory Rural Appraisal, (Participatory Reflection and Action-we may not need to put these two together)

PLA	Participatory Learning and Action
PTD	Participatory Technology Development
SMS	Subject Matter Specialist

Glossary of terms and meanings

Agricultural Development Partners Linkage Advisory Council (ADPLAC): A platform for planning, monitoring and evaluation of agricultural research and development activities carried out (more or less) in one administrative zone and district (*wareda*). There are also ADPLACs at national and regional levels.

Appropriate technology: Technology, which is compatible with resources, such as labour, skills, materials and capital, available to target farmers and products that are suited to targeted community as well as the market. The technology is usually characterised with easiness of use, minimum costs, and simplicity.

Cost sharing: It is an agreement to divide the input costs expended for trial activities among concerned parties including farmers who are expected to benefit from the activities. The nature of cost sharing could either be in cash (e.g. payment for inputs) or kind (e.g. labour contribution)

Development Agent (DA): DA is an extension worker situated at the lower level in the hierarchy of government extension system in Ethiopia. He/she is posted at villages and Farmer Training Centres.

Empowerment: It refers to increasing the economic, political, social, educational, gender, or spiritual strength of an entity or entities.

Exchange visit: It is one of the experience sharing and learning tools whereby farmers visit each others' farms to learn from good, as well as worse, practices.

Expert: A technical staff in agricultural extension system specialised either in crop, livestock, natural resource management or extension. They are posted at district, zonal, regional and federal agricultural offices. They are also called as "Subject Matter Specialist (SMS)"

Extension material: Leaflets, posters, manuals, samples, audio visuals, etc. that are used to disseminate information on agricultural technologies.

Extension worker: Extension worker is personnel who provide technical service on agriculture to farmers. It includes Development Agents, experts (SMS), NGO field staff, etc.

Farming system: The production and consumption pattern common to a group of farms with similar environmental conditions which are managed in similar manner with regard to types of enterprise and farming practices.

Farmer Training Centre (FTC): A place where training for farmers, demonstration of improved technologies and provision of agricultural information are carried out.

Farmer Research Group (FRG): A group of farmers involved in joint problem identification, experiment/trial designing/planning, execution and monitoring and evaluation in the process of technology generation, evaluation and transfer.

Field day: An event on which an area containing successful (why only successful?) farming practice is open for people to visit and learn.

FRG approach: One of the research approaches, in which a group of farmers, extension workers and a multidisciplinary research team jointly participate in agricultural technology generation, verification, and improvement so as to meet farmers' needs and improve farmers' production and management practices.

FRG research team: a team of researchers who are drawn from different discipline who work together to implement an on-farm participatory research applying the FRG approach to come up with comprehensive solutions.

Gender: It refers to the differences between men and women determined by social and cultural aspects (Moser 1993). Gender is different from sex which is connected to the biological and physical differences. When focusing on gender, the difference between men and women shaped by ideological, historical, religious, ethnic, economic and cultural determinants are looked at.

Gender sensitisation: Awareness raising process of both men's and women's various responsibilities, including productive, reproductive and community roles, access to and control over resources as well as decision-making.

Innovation: Ways of doing something referring to changes in thinking, products, processes and/or organisation perceived as new at least by some segment of a society (Meckeown 2008).

Innovation system: A network of organisations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organisation into economic use, together with the institutions and policies that affect the system's behaviour and performance (Rajalahti et al. 2008: 3).

"kert": A unit of area, equivalent to 0.25 hectare, used mainly in Oromia Region

"kebele": An administrative unit with public emplyee at village level. It consists of a number of "*got*" (hamlets).

Multi-stakeholder platform: A forum whereby different institutions (individuals,

groups, organisations, etc.) come on board to deal with a particular issue which is related to them.

On-Farm Research (OFR): Trials and experiment which are conducted on farmers' field. It is an attempt to test technical options under real farmers' condition.

Participatory Research (PR): An approach that enables clients to involve at all levels of the research steps/process in one way or another including decision making.

Participatory Rural Appraisal/Participatory Learning and Action (PRA/PLA): While the former focus more on identifying situation, the latter emphasise methodological pluralism (Chambers 2002). In practice, they are not used with clear distinction.

Scale up/out: Expansion of proven technology at both vertical and horizontal levels

Stakeholders: They are individuals, groups or organisations who are in a position to influence your work or place demand on you or who are affected by your work.

Social capital: It is the expected collective or economic benefits derived from the preferential treatment and cooperation between individuals and groups.

Subject Matter Specialist (SMS): They are also called "Experts".

Technical manuals: One of the extension materials which describes how to make use of particular technology for particular target group (extension workers, manufacturers, etc.).

Technology development: Verification, generation, and improvement of technology

Well functioning FRG: A farmer group who is capable, through self initiative, to analyse the situation, collect necessary information, come up with possible solution, try out new technology and advice other farmers.

1. Introduction

Ethiopia's history in participatory research went back to Farming Systems Research in the 1980s, where participation, although in its rudimental form, was exercised. More recently, there have been a number of research projects which emphasised participation. To name some, Farmers' Research Project (1991-1998), Participatory Research in Agro-climate Management (1997-1999), Institutionalisation of Farmer Participatory Research (1998-2001) and Indigenous Soil and Water Conservation Project (1997-2001).

"The Guideline to Participatory Agricultural Research through Farmer Research Groups for Agricultural Researchers (FRG Guideline)" was originally developed by the Project on Strengthening Technology Development, Verification, Transfer and Adoption through Farmer Research Groups (FRG Project) in 2009. It was an output from participatory research activities implemented at Melkassa Agricultural Research Centre (MARC) of Ethiopian Institute of Agricultural Research (EIAR) and Adami Tulu Agricultural Research Centre (ATARC) of Oromia Agricultural Research Institute (OARI) in East Shewa, West Arsi and Arsi Zones of Oromia National Regional State under the FRG Project between 2004 and 2009.

Subsequently, the FRG guideline was used in the Project for Enhancing Development and Dissemination of Agricultural Innovation through Farmer Research Group (FRG II Project) between 2010 and 2015. The FRG II Project aimed to promote FRG approach and to institutionalise the approach in the National Agricultural Research System of Ethiopia including federal and regional agricultural research centres and universities with agricultural faculties. Considerable number of FRG based research activities were conducted under FRG II Project and other project such as Rural Capacity Building Project, East African Agricultural Productivity Project and Pastoralist Community Development Project. Based on experiences gained through these projects, the guideline has been modified and added information as a version 2 of the FRG Guideline.

Who is this guideline prepared for?

The guideline is intended primarily to be used by agricultural researchers who are working at federal and regional research centres and universities with agricultural faculties in Ethiopia to enhance the use of FRG approach in their research activities, which are implemented with farmers, extension workers and other stakeholders. It is expected that, through use of the FRG Guideline, FRG approach add value to the research and research outputs thus contribute to the improvement of the farmers'

livelihood effectively.

How is this guideline used?

The FRG Guideline is divided into two sections. Section 1 explains the concept of the FRG approach and provides some background information on participatory research. Section 2 walks readers through practical steps of planning, implementing and monitoring and evaluating research and development activities using the FRG approach providing some tips and examples in the process indeed. Useful forms in various kinds are also attached at the end for immediate use or modification to fit into each requirement. It is expected that the FRG Guideline will help researchers employ FRG approach effectively, but not limit them to one method and/or approach. It needs to be used flexibly and it is expected that it will evolve further through practices.

Section 1

Concept of Participatory Research and FRG Approach

Technology and innovation

Participatory research

FRG approach

2. Technology and innovation

Technology can be equipment, tool, machine, variety, management practice, information, organisation or a combination of either of these, which brings about improvement in production, productivity, profitability, quality and/or reduce/mitigate risks. It can be developed as new or by modifying existing practices, equipments etc. or by validating practices, equipments, etc. that are developed elsewhere or under different circumstances.

Technology needs to be **appropriate,** which is compatible with resources, such as labour, skills, materials and capital available to target farmers and products that are suited to targeted community and market. The appropriateness of the technology is important as there has been a shift of perspectives on the reason of non-adoption of technologies by farmers. The 1960s saw the non-adoption due to farmers' backwardness so transfer of technology was a dominant approach. It was understood in the 70s and 80s that constraints occurring at the farm level were attributes of the problem so their removal was the focus of the research and extension. In the 90s, some researchers started to realise that the problem was not farmers, but inappropriate technologies which they provided (Chambers et al. 1993).

Innovation is a new way of doing something in thinking, products, processes, and/or organisations (Mckeown 2008). It is an application of knowledge, which is acquired through learning, research or experience, and many other sources, for desired social and/or economic outcomes. Unless it is applied more or less successfully, it cannot be considered as an innovation (Hall et al. 2004). Innovation system is a network of organisations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organisation into economic use together with the institutions and policies that affect the system's behaviour and performance (Rajalahti et al. 2008: 3). Small scale farming is, in general, complex, diverse and risk prone (known as CDR agriculture, Chambers 1997), requires a systems perspective, which contrasts to a conventional notion of agricultural research characterised by specialisation, standardisation and maximisation.

Technology development and innovation are often used interchangeably. While technology development usually deals with a particular area of subject, innovation includes whole process where changes, either rapid or gradual, are brought by successful adoption and application of an improved technology or a set of improved technologies and further improvement of such technologies. Innovation system is also characterised by consistent and continuous improvement.

3. Participatory Research

Participatory Research (PR) is a research typology that enables clients to involve at all stages of the research process taking the leadership in making decisions. In the context of agricultural research, PR promotes the idea of joint needs assessment (problem identification), designing of solutions and/or strategies, conducting of experiments/trials, validation, monitoring and evaluation and transfer and utilization of technologies. Participatory research fosters innovation system through enabling technology generations and transfer to make sure that it is appropriate and can be adopted by targeting farmers.

PR emerged in recognition that conventional research and transfer-of-technology models could not meet all the farmers' needs. Particularly for small scale, resource poor farmers, development, adoption and use of technology need to be tailored to meet their specific needs and conditions. With recognition to the low rate of technology adoption by resource poor farmers through the conventional research, the importance of the need to make the research more demand-driven through participatory approaches started to be recognised among researchers in Ethiopia in the 1980s and 90s. This shift, although conventional research was still dominant, brought new more holistic and farmer-needs based approaches. Farming Systems Research (FSR) was introduced in 1984 with support from International Development Research Centre (IDRC) of Canada, firstly as a pilot project at two research centres (Bako and Nathareth, now Melkassa) of the then Institute of Agricultural Research (IAR) and later expanded to more number of centres. It was followed by Client-Oriented Research (COR) in 1998 piloted in projects namely Cool Season Food and Forage Legumes Project and Africa Highland Initiative. They were implemented in the public research system to enable farmers to participate in research activities (Agaje et al. 2002 and Amanuel et al. 2004). NGOs in collaboration with public research institutions promoted project based participatory approaches like Farmers' Research Project (FRP), Institutionalisation of Farmer Participatory Research Project, and Indigenous Soil and Water Conservation Project (ISWC) (Ejigu et al. 2005 and Farm Africa 2001). Farmer Research Group (FRG) was used as a component of FSR and more extensively applied in other projects such as Joint Vertisol Project and Participatory Research for Improved Agro-ecosystem (PRIAM) (Abera 2001, Adugna 1999 and Frew 1999). Encouraging results, although it was limited in scale, were observed in those activities, particularly by improving interaction among researchers, farmers and other stakeholders (Bedru et al. 2009).

PR attributes the low level of farmers' technology adoption not to farmers' resistance,

but to inappropriate technologies and the process in which they are developed. It emphasises researchers' perspective on subjects as an important factor. PR's/FPR's tenets are interaction among researchers, extension workers and farmers, working on farmers' priority problems, developing technologies at farm level, tapping the farmers' own technical knowledge, and fostering their ability to innovate through the participation including other stakeholders in the process.

Degree of participation may vary according to the nature of the research topic, level of researchers' facilitation skills, experience of farmers in on-farm trial and the level of mutual trust between researchers and farmers.

Researcher-managed on-farm trial: Trials are conducted in farmers' field. Researchers are decision makers in setting research topics, designing and implementing trials and evaluating results. Trial design is often similar to on-station research. Farmers' participation in decision making is limited. Possibility of farmers' adoption of technology is very limited.

Consultative researcher-managed on-farm trial: Researchers consult farmers to identify needs for setting research topics and opinions on trial results. Farmers' participation is usually limited to provide land, labour and information required by researchers for their research objectives. It is difficult to ensure farmers' adoption of research results.

Collaborative farmer participatory research: Researchers and farmers work together to design, implement and evaluate trials. It combines local knowledge of farmers and scientific knowledge of researchers for meeting farmers' needs, balancing participation in achieving the objectives of farmers and researchers.

Farmer managed participatory research: Farmers are decision makers throughout the process of experimentation. Researchers are to assure utilisation of farmers' experimental capacity fully by linking them with the necessary information which is not available locally.

Some claim that the former two levels are on-farm trial, but not regarded as farmer participatory research. "Collaborative" or "farmer managed" participatory researches are ideal. However, each on-farm trial is a process where researchers and farmers learn from their experience and interaction. It is possible that "researcher-managed" on-farm trial can evolve into "consultative" and "collaborative" and end up sharing much of its outputs by researchers and farmers.

4. FRG approach

4.1 What is FRG approach

FRG approach is a research approach by which a **multi-disciplinary research team**, **extension workers** and **groups of farmers** jointly conduct research on selected topics based on farmers' needs on the farmers' field. Researchers facilitate the involvement of extension workers and farmer groups in all the process of the research from planning through to implementation and from monitoring to evaluation and sharing of outputs or results. The approach also involves other stakeholders when it is necessary.

FRG approach is one of the participatory research approaches for agricultural researchers to actively and efficiently conduct research activities so that their contribution to improving farmers' production and management activities, and reducing risks in their practices are realized.

4.2 Objectives of FRG approach

The main objective of the FRG approach is to enhance the technology generation, verification and adoption process.

More specifically;

1) To generate new technologies, modify technologies developed on station, introduced from outside or indigenous ones to fit to a new set of situations at specific area so that the technology can be easily adopted and disseminated.

2) To develop a set of technologies which enable farmers to achieve desired production and income under their complex, diverse and high risk conditions.

3) To tap farmers' indigenous knowledge important for the technology, which otherwise researchers do not realise, adding value to research process and outputs by making research activities for the technology to fit to farmers' situations

4) To provide a platform for concerned stakeholders to collaborate easily to find appropriate solutions along the value chain to solve farmers' problems.

5) To foster farmers' innovative capacity to analyse their situation and to develop measures for solving problems and/or improving the situation they face with their own initiatives.

Farmers' as well as stakeholders' participation is crucial in the entire process.

FRG approach can be applied to any kind of topics and commodities but there are topics better fit in FRG based research activities. (1) Selecting suitable one among a number of technologies, e.g., varieties and tools are a typical topic for FRG approach. Participatory Variety Selection (PVS) or Participatory Plant Breeding (PPB) is an established method and has been practiced extensively. (2) Improving existing farmers practices to make them easier to apply, lower risks and better output performance through modifying and/or reorganising model or process. Such topics, e.g. irrigation frequency or sowing or harvesting timing, are easy to handle by farmers with relatively low risks. (3) Validation of farmers' technology, which provides scientific evidence for and endorsement to farmers' practice so that the farmers technology can be improved further. (4) Modify and validate technologies/good practices developed in other areas with similar agro and socio-economic conditions. (5) Developing cultivation/husbandry standards for the target area through combining set of technologies required for entire production and value chains.

4.3 Cornerstone of FRG approach

The FRG approach is promoted with the following principles in mind.

4.3.1. Multidiscipline

Researchers from different disciplines form a team to work on selected topic(s) so that the complex and diversified situations of farmers can be taken into account when solutions are found, selected, developed and/or modified. Normally, different multidisciplinary teams are formed at a given research centre level. In order for the multi-disciplinary teams to work effectively and stimulate entire FRG activities, coordination among the teams at the centre level is important. The coordination is usually done by the centre manager or the head of socioeconomic/research extension division/coordination office. It is beyond an aggregation of researchers/experts and relying on individual capacities and/or good team leaders.

4.3.2. Farmer participation

FRG member farmers are involved starting from planning stage so that their real needs are reflected in the plan and they will have an ownership feeling about the activities. Farmers also do research so that their knowledge and skills of farmers are combined with those of researchers and outputs become more appropriate to their circumstance.

4.3.3. Stakeholder participation

There are other stakeholders who play important roles to generate solutions for farmers' problems. Their involvement will make the approach's outputs more

comprehensive and sustainable in technology's scale up. Possible stakeholders include NGOs, processors, manufacturers, mass media, traders/brokers, etc.

4.3.4. Collective action

Farmers participate in group. Each farmer group is expected to function as an institution to bring about changes to the community. Their collective activities play important roles in (1) technology development and improvement, (2) technology dissemination, (3) marketing and (4) promoting cooperatives.

4.3.5. Capacity development

FRG activities are geared towards developing farmers' capacity to innovate and extension workers' capacity to facilitate the innovation. Thus, capacity development of the participating stakeholder needs to be an integral part of the FRG approach.

4.3.6. Gender and youth considerations

Not only men but women and young farmers are important forces in agricultural transformation to take place in the community. FRG approach involves gender and youth consideration so that their needs, interests, and knowledge are taken into account for technology generation.

4.3.7. Information sharing

Every experience of the FRG is a valuable resource for other farmers, extension workers and researchers. In order for the experience to be effectively disseminated, the activities need to be recorded, analysed and reported properly.

4.3.8. Cost sharing

Farmers are direct beneficiaries of FRG activities. In order for FRG member farmers to have ownership of the activity, thus ensure sustainability of technology to be generated, it is a necessary condition to agree with farmers for their share of costs required for trial activities. It is recommended that the government's extension package system or any other forms of credit system is used for delivering inputs (see Box 1).

Box 1 Cost sharing

Revolving seeds (MARC/ATARC)

At MARC and ATARC, the research centre procures necessary materials which then are provided to farmers on credit basis. Refunded cash or in kind is pooled for purchasing materials for next experiments. For example, seed equivalent to the value of the inputs is collected in kind and used in a revolving way in the community. Collected payments can be used for lately established farmer groups. Alternatively, collected seed can be sold and

income is used for additional research topics which are discussed with the farmers.

Credit on inputs for vegetable (MARC)

The arrangement is set with the MARC vegetable FRG member farmers to pay 50% of the input costs used in conducting participatory trials. The consensus among the farmers and the centre was to pay back the farmers' share at the end of harvest. For that purpose each input used for FRG purpose is registered by the FRG research team and the farmer himself/herself.

Credit on inputs for maize seed production (ATARC)

Cost sharing arrangement for ATARC maize FRG between farmers and the centre was made with farmers to pay back 40% of the input costs used in conducting the trial. The trial was conducted for two consecutive years. The research procured necessary materials covering all the costs required for the first year trial with a condition that the farmers would pay back their share (40% of the total cost) in the following year. The logic behind this was that farmers could afford the payment from the income generated during the first year activities.

4.4 Linkages in the FRG approach

4.4.1. Functional linkages

The FRG approach makes the participation among researchers, extension workers and farmers, as well as with other stakeholders, realising a functional linkage. Agricultural Development Partners Linkage Advisory Council (ADPLAC) is an institutionalised linkage in which farmers' representatives and some farmer organisations involve in identifying major issues and setting priority areas at national, regional, zonal (centre) and *wareda* levels. The linkage brought by the FRG approach is practical and useful to create technologies and innovations which are required in farmers' day to day activity.

Functional linkages by effective communication among researchers, extension workers and farmers and by making use of farmers' experiences and their capacity to experiment, indigenous knowledge, ensures the appropriateness of technology and provide researchers, extension workers and farmers with opportunities to develop their capacity to deal with problems and potentials under a specific situation. The effective communication and roles of stakeholders for functional linkages are multi-dimension and multi-direction (Table 1.).

It also offers stakeholders with a platform to form necessary linkages and alliance, and to deal among them. It is particularly important for considering the value chain in the technology development process (Figure 1).

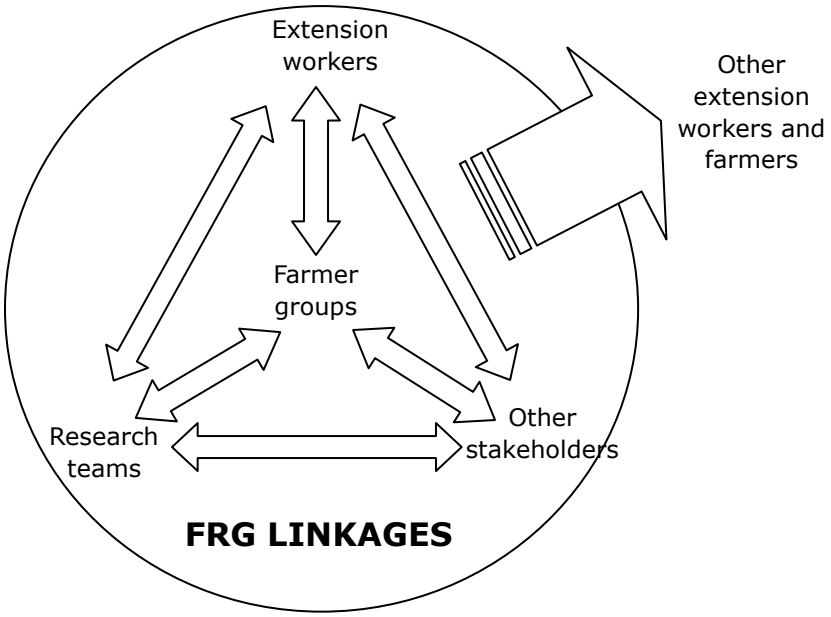


Figure 1 Functional Linkages and outputs in FRG approach

Table 1 Roles in the functional linkages in the FRG approach

From / To	Farmer group	Research team	Ext. workers	Other stakeholders
Farmer groups		Training, technical information and guidance	Training, support organising farmer groups, facilitate linking farmers with other partners	Market information and market channels
Research teams	Local knowledge, information of local situation, feedback on new technology		Support consolidating scientific information	Market information such as quality, etc.
Extension workers	Feedback on new technology	Training, technical guidance for		Market information
Other stakeholders	Marketable commodity	Training, information of potential commodity	Linking them to the farmer groups	

4.4.2. Interaction between researchers and extension workers/farmers in the FRG approach

Four modes of participation are explained in the Chapter 3. Although, "farmer managed" in more conventional participatory research is regarded as a desirable and multi-actor innovation system is given more focus, it does not mean that researchers' role is less important. Their ways of involvement have a decisive influence in the FRG approach and its outputs. Since, not every researcher is experienced and has skills and desirable behaviour and attitude for dealing with farmer participatory research, it is important that researchers gain experience and realise the importance of change in the way of communication with farmers while they are implementing trials.

Table 2 describes the characteristics of research and the behaviour and attitude of researchers at both ends of FRG research, (A) researcher dominated, similar to on-station trials and (B) farmer managed innovation system. The FRG approach is also a process of fostering the capacity of farmers and extension workers. They will be able to handle the technology by themselves in the course of time (Figure 2). An FRG research can start at anywhere between A and B using technical options come from research, local knowledge or outside sources. When researchers withdraw from the FRG research, the technology is either self-spreading or farmers and extension workers can continue managing innovation by themselves.

Table 2 Research characteristics and researchers' behaviour and attitude in FRG research

	Characteristics of research	Behaviour and attitude of researchers
A	- Single issue - Single commodity - Hardware technology - Standardised research - Researcher dominated	- Dominate in decision making - Teaching - Regard farmers as ignorant
	⇩	⇩
B	- Complex issues - Integration into the farming system - Software technology - Flexibility - Farmer managed	- Sensitive - Mutual trust - Listen - Fostering farmers' confidence

4.5 Farmer group in FRG approach

4.5.1. Why farmer group in FRG approach?

Farmers participate in FRG approach as a farmer group. Member farmers of the group share a same or similar farming system and common needs, either problem of opportunity. They usually come from the same community or geographical area. The farmer group takes collective actions and share information efficiently among them.

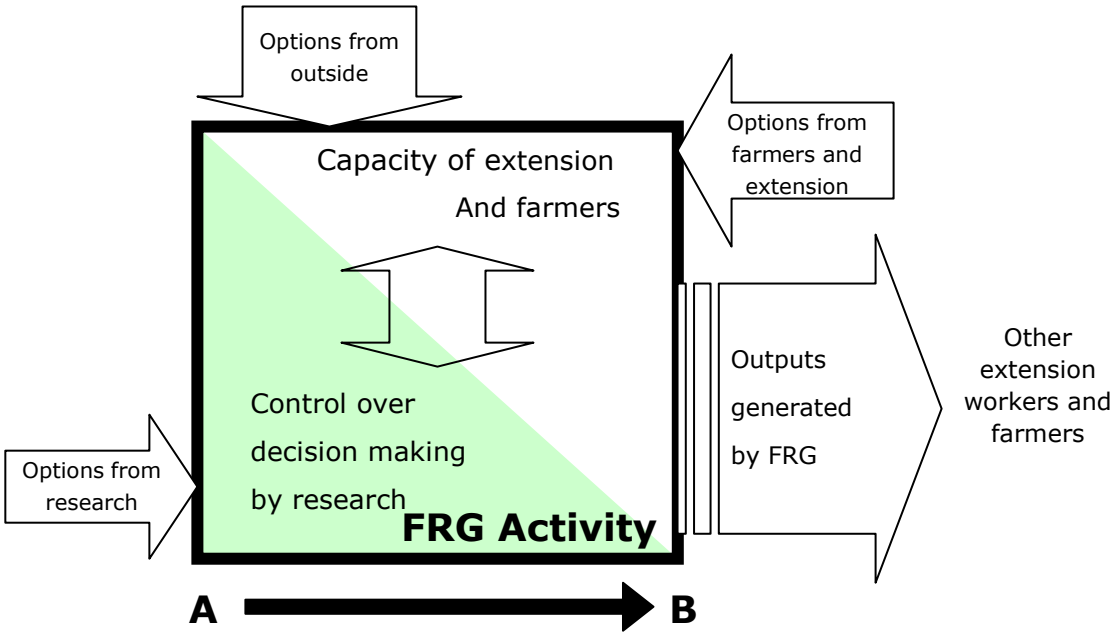


Figure 2 Capacity of farmers and extension workers and control over decision making by researchers in FRG approach

Use of the group has many advantages. The group approach ensures an **appropriate coverage** of situations where the technology is tried, improved and verified for solving particular problem. The group approach also offers a reflective learning environment in which farmers and researchers can discuss, learn from each other and decide collectively a course of action for technology development. Because members of the group have similar problems and work on topics chosen by them, the group will continue working together and **influence** to reach out more number of farmers, speeding up of scaling up/out and create pressure on institutions to satisfy group demand.

4.5.2. What roles do farmer groups play in technology development?

Farmer groups can act as a forum for different purposes such as technology development, extension, training, marketing, and many more for agricultural and community development.

FRG approach uses farmer group as means for technology development. Member farmers are expected to reflect the reality they face in the technology development process so as to make the technology as much practical, lower risk, and more effective outputs as possible.

Through involvement in technology development activities, farmer groups develop

the capacity to innovate so that they will be catalysts for technology scale up/out.

4.5.3. What is well functioning farmer research group?

Farmer research groups which meet the following criteria are regarded as well functioning farmer research groups

1) Capable to diagnose, analyse and come up with possible solutions to problems through self-initiative
2) Capable of collecting necessary information from outside for solving problem
3) Capable to try out, evaluate and improve new technology
4) Capable of conducting, planning, monitoring and evaluating of group activity
5) Capable to help and advice other farmers

4.6 Entry point for FRG research

FRG activity can start differently, depending on subjects, situations and target farmers. It is a matter of where the entry point is but the ultimate goal is to match farmers' needs and available technical options that come from researchers, farmers or other sources. Entry point can be based on available technology with the researcher for its easiness, but several topics may continuously emerge in the course of FRG approach. The topics are not mutually exclusive as one entry topic may address farmers' needs and/or may also research in development issues. Following four entry points are available. See Box 2 for example. Please refer to Chapter 6, which discusses how initial ideas are collected and narrowed down to formulate a proposal.

1) **Available technology based:** Choose potential technologies available with researchers then select target group for which the technology can have the most impact.

2) **Farmers' needs based:** Identify farmers' need first and then select possible technical option. Also consider gender, when you identify farmers' needs.

3) **Farmers' technology based:** Farmers practice their traditional method of farming among which some are appropriately fit to the situation. Some innovative farmers even modify these traditional technologies or, in some cases, recommended technologies further to meet their present needs. Such farmers' technologies may be better to be proved scientifically and improve them further.

4) **Research and development based:** Collaborate with ongoing agricultural/rural development projects and deliver solutions to the problem identified by the project.

Table 3 Level of farmer groups

	Different level		
	Level 1	**Level 2**	**Level 3**
Features	Newly established group Require more technical and input support from research/extension, not sure what will it take to work with groups, and may tend to be expectant of free gifts	Worked for at least one year on a particular topic May take calculated/minimum risk while conducting trials	Worked on more than one topic for at least two years Ready to take risks while conducting trials (already built some confidence to share the cost) Willing to explore more other topics with minimum guidance & technical support
Criteria			
1.Capacity to diagnose and analyse situations	Can only identify the problem Not sure what are its causes	Can diagnose and find solutions if with close assistance from DAs and researchers	Can diagnose and analyse the situation by themselves
2.The capacity to collect information and improve farm management	Can only articulate their observation Not sure how to trace sources of important information	Can collect information with close assistance from DAs and researchers	Can collect relevant information on the trial Capable to locate sources of information
3.Capacity to test new technology and modify/improve it	Can test new technology if it is simple and supervised well by extension workers or researchers	Can test and evaluate new technology and improve it with close assistance from DAs and researchers	Can test new technology and improve it by themselves
4.Capacity to run group activity (planning, management, marketing)	Can form a group and discuss necessary activity	Can run group activities with close assistance from DAs	Can run group activity by themselves and organise field day
5.Capacity/culture of sharing information and advice to other farmers	Can understand the necessity of information sharing But not know how it can be done	Can share information with and give advice to other farmers with arrangement by DAs	Can share information with and give advice to other farmers

Box 2 Different entry points

Available technology based

Improved milk churner (ATRAC): A team of researchers have been working on dairy improvement with FRG member farmers in two villages. During the implementation period, researchers observed that women's work load was high as milk churning using traditional clay pot requires more than one hour, sharing much of women's already busy time. Researchers introduced an improved milk processing technology to these dairy farmer groups. Farmers, extension workers, researchers and private manufacturer worked together and made continuous modifications to the equipment. The equipment has proven to reduce churning time from more than one hour to

around 30 minutes. The structure of the churner without agitator inside has made the handling of butter easier. The farmers accepted the idea and actively involved in improving the churner further.

Sweet potato (ATARC): Shortage and uneven distribution of rainfall is the major challenge for farmers in the Rift Valley areas. Understanding the existing situation, researchers at Adami Tulu District thought the possibility of screening for adaptable drought tolerant sweet potato varieties. Accordingly, an adaptation trial was conducted with FRG member farmers for the last two years.

Farmers' need based

Community based seed multiplication (ATARC): Maize is one of the dominant crops and has multiple purposes for farmers as food, income source, feeds and construction material in Adami Tulu District. Since the drought is a serious problem in the area, drought tolerant varieties are important for the farmers, but most of them do not have access to recently introduced varieties. Therefore, the farmers developed interest to produce maize seed by themselves. Thus, community maize seed production technology trial was conducted for the last two years. The group with 10 farmers in the community has produced 100 quintals in the first year, which was distributed to 10 villages in the area.

Farmers' technology based

Onion plant density (MARC): Farmers in the Central Rift Valley had been using very dense spacing to produce onion bulbs which was different from research recommendation. Different spacing (2, 4, 6, 8 and 10 cm) was tested and found that medium density (4-6 cm) can maintain high productivity levels.

Research in development

Drip irrigation and water harvesting (MARC): The government and NGOs were widely involved in digging water harvesting ponds, but most of the pond was not used due to limited water storage capacity. So, a research was initiated to add value by testing water saving technology, drip irrigation, using harvested water for growing cash crops mostly vegetable and fruit crops with the already established scheme.

4.7 Necessary steps in following the FRG approach

There is no strict rule for the steps followed in FRG approach. The basic one is as described below and depicted in Figure 3. For a more detailed explanation of the steps, see Chapter 6 "Planning", Chapter 7 "Implementation", Chapter 8 "Monitoring and evaluation" and Chapter 9 "Communicating FRG outputs".

1) **Problem identification:** Farmers' situation is analysed, understood and needs and problems are identified and prioritized. Potential options are identified based on technical feasibility, farming system compatibility, economic feasibility, social

feasibility, research period, expected risks and research capacity. (See Chapter 6, 6.4)

2) **Establishing multidisciplinary team and identifying technical options**: According to the identified problem and potenatial option, a multidisciplinary team is established at the research centre and various technical options are identified, discussed and agreed upon for proposing them to farmers later. (See Chapter 6, 6.5 and 6.6)
3) **Forming farmer groups**: Form farmer groups with whom FRG research is to be carried out. (See Chapter 6, 6.7)
4) **Matching needs and options**: Farmers' needs/potentials and possible/available options are matched to select FRG research topics. No research should not be implemented unless farmers agree the topic and worth doing research on it. (See Chapter 6, 6.8)
5) **Formulating FRG research proposal**: Formulate research proposal by the researcher for securing budget. (See Chapter 6, 6.9)
6) **Networking stakeholders**: Identify important stakeholders and start establishing linkage among them. Discussions on cost sharing start this time. (See Chapter 6, 6.10)
7) **Making a joint action plan**: Make an action plan jointly by researchers, extension workers, farmers and other stakeholders to make sure that the activity is owned by them. Make sure how the cost is shared among them. (See Chapter 6, 6.11)
8) **Implementing field activity**: The activities including on-farm trials, training (at different timing of the cropping season or livestock cycle), field days and exchange visit are carried out jointly by or shared among researchers, extension agents, farmers and other stakeholders. Data collection needs to be conducted scientific way. (See Chapter 7)
9) **Monitoring and evaluation**: Monitoring and evaluation are carried out at various levels and stages by the research teams, stakeholders and the member farmers. (See Chapter 8)
10) **Consolidating and communicating FRG outputs**: Data analysis is carried out including farmers' observation and their opinion. Conclusion must be based on evidences you and farmers have collected. Comprehensive set of technologies which are well incorporated into the farming system. Technical outputs are converted into extension materials for the wider impact of the technology. (See Chapter 9)

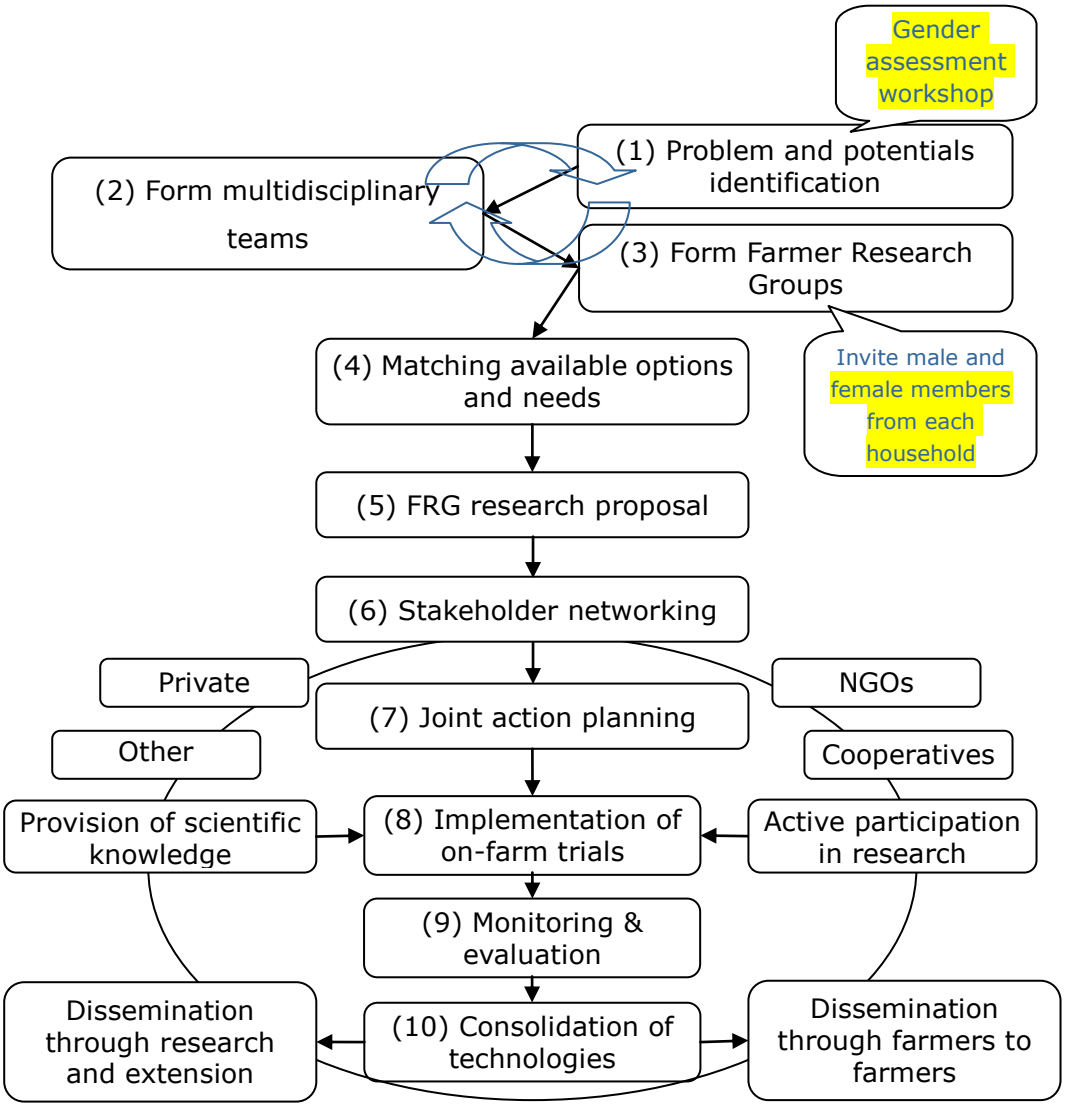


Figure 3 Steps of FRG approach

Section 2

Practicing the FRG Approach

Coordination

Planning

Gender consideration

Implementation

Monitoring and Evaluation

Communicating FRG outputs

5. Coordination

5.1 What is coordination?

Coordination consists inter-relating the various parts of FRG activities to maximise efficiency of their outputs and further progress. It involves coordinating the various job roles and responsibilities of among researchers within the research centre, other stakeholders, such as agricultural and rural development Offices, NGOs, cooperative society, etc., and the broader community. Coordination among different research teams within the research centre is essential for efficient use of resources and information available at the centre. FRG activities should be linked to and be part of agricultural development activities of the government and NGOs as well as private sectors in the area for consistency in development.

5.2 Why is coordination necessary?

The desirable research result is not only a result of employing appropriate research methodologies, but also depends on effective coordination of all activities within a team and all the stakeholders, which directly or indirectly influences your overall research implementation. Well coordinated activities achieve effective use of resources and stimulate active interaction among researchers from different disciplines and stakeholders.

5.3 How to coordinate?

5.3.1. Who coordinates?

Coordination of FRG research activities which, in principle, are implemented in multidisciplinary way is better to be done by someone who can communicate and network with different people. Coordination within a research team is usually done by the team leader.

Coordination among different FRG teams within a research centre is recommended to be a responsibility of the centre manager assisted by research extension or socio-economics researchers.

5.3.2. Coordination of research teams

FRG research teams are multidisciplinary teams at research centre level. The teams are composed of researchers from different disciplines. One researcher can be the member of one or more teams. The activity of FRG research teams needs good communication for better performance by periodically sharing information and discussing, within and among FRG research teams, on issues which may be faced in

the process of implementing research activities. It is recommended that each team meets at least once a month (see Box 3).

Box 3 Schedule for multidisciplinary team meeting, August 2008 (MARC)

Mon	Tues	Wed	Thu	Fri
4	**5**	**6**	**7**	**8**
Maize FRG team meeting		-	FRG Guideline preparation meeting, ATARC	Agro forestry team meeting
11	**12**	**13**	**14**	**15**
Tef F_1	Parthenium control	Marketing	MBP (row planting, haricot bean promotion, bean weed control)	Vegetable team
18	**19**	**20**	**21**	**22**
Monthly team Meeting*		Maize team meeting		Agro forestry
25	**26**	**27**	**28**	**29**
Tef F_1	Parthenium control	Marketing	MBP	Vegetable team

*NB. Each team leader present progresses and all FRG research team members have to attend

The team members share the implementation status of the activities among themselves and suggest measures if there is any issues.

5.3.3. Coordination of resource utilization

Resources need to be utilised in the most efficient way. Similar FRG activities can be grouped/combined and jointly implemented for appropriate utilization of physical, financial and human resources.

For example, management of vehicle allocations for different activities is a crucial aspect of coordination. As vehicles are usually a scarce resource, this necessitates different teams and activities to be brought together. Box 4 is an example of vehicle sharing schedule from MARC.

Box 4 Weekly vehicle arrangement sheet (MARC)

	Centre manager	Head SE-RE
Signature		

Date and day		Vehicle 1	Vehicle 2
Monday (Jan 1)	Morning	Dairy: data colle., Bishola	Veg.: farmer mtg. Berta Sami
	Afternoon		-- do --: Meki
Tuesday (Jan 2)	Morning	Agro-fore. + Maize: data collection, Melkassa	-- do --: Ziway
	Afternoon	-- do – Adama	-- do --: Aris Negele
Wednesday (Jan 3)	Morning	Haricot: farmer mtg, visit *wareda* off., Ziway	Tef + agro-fore.: Boset
	Afternoon		
Thursday (Jan 4)	Morning	-- do --: Siraro	
	Afternoon	-- do --: Shala	
Friday (Jan 5)	Morning	-- do --: Berta Sami	Veg. + haricot + dairy: procurement, AA
	Afternoon		
Saturday	(Jan 6)		
Sunday	(Jan 7)		

The vehicle arrangement basically deals with bringing together the trip requests of different FRG research teams according to the activities they undertake and places visited. The request is collected early by one week and announced on Friday for the next week. On the program, the research team and places to go are listed; Activities to be performed is shortly indicated and the period also mentioned (including morning and or afternoon time as per request).

5.3.4. Coordination of monitoring and evaluation activities

There are different tools that can be used to monitor and evaluate FRG activities:

1) Regular meetings
2) Joint M & E visits (once or more per season among stakeholders)
3) Farmers' and extension workers' evaluation meetings (once per season by each research topic and once per year among

Proper implementation of monitoring and evaluation (M & E) is a must for easy coordination thus effective implementation and better outcome of FRG activities. M&E should be a part of the action plan.

Regular meetings are for sharing, activity schedule, progress and important issues to

have common understanding among researchers. It is conducted weekly or bi-weekly by each research team. General meeting is conducted monthly or quarterly by all the research teams.

Joint M & E visit is to have field observation together among stakeholders to check the relevancy of the activity in the development contexts of the area and promote the technology. The visit is implemented once per season by each research topic.

Farmers' and extension workers' evaluation meeting is to collect feedback for FRG member farmers and extension workers particularly on the activity management aspects in addition to sharing their experiences with other farmers and extension workers. It is conducted once per season by each research topic and once per year by all the research topics.

5.3.5. Coordination with stakeholders

Participation of relevant stakeholders is important particularly for FRG research activities to have tangible results and wider impact. Bringing all the important stakeholders together requires establishing a platform.

Joint action planning among the stakeholders is one of the activities to bring about good coordination (joint action planning is explained in Chapter 6). Submission of the joint action plans to respective district Bureau of Agriculture (BoA) in official manner brings all the concerned district officials on board and the BoA acts as a coordinator.

While the coordination for detailed actions is maintained at the district level, attending to zonal extension meetings and reporting the progress of FRG researches helps the FRG research to have broader impact.

5.3.6. Coordination with extension activities

FRG researches which have promising results after verified by FRG member farmers and ready to be transferred to extension have coordinated pre-extension/initial extension activities such as field days and training for extension workers in a similar area. It is particularly important when generated/improved technologies are to be integrated within the farming system of the area.

6. Planning FRG research

6.1. What is planning

Planning is the process of identifying targets and organising resources as well as set of activities in a systematic way (in time and space) as a means to reach a desired end.

6.2. Why planning is important for FRG research?

FRG as a participatory approach focuses on meeting expressed needs of the targets farmers. Defining priority needs and devising appropriate ways to improve/change the situation demand a lot of organisation/arrangements both from farmers' as well as other actors' side (research, extension, NGOs, etc). FRG, as a platform for different stakeholders to converge and interact, involves negotiation and clear definition of roles and responsibilities within the mandate as well as interest of the stakeholders. The quality of the output also depends on the quality of the planning process. Hence, planning stage is indispensable edge of FRG research approaches.

6.3. How does planning take place?

6.3.1 The start up

Any FRG research should have a general background/base, which provides insight about the existence and nature of certain gap/problem in a given agro-ecology/region. The idea/issue may be too general, yet it is important to have some cause to start with. This will also be useful frame while refining it to a well defined researchable topic through joint discussion at grassroots level.

Once an existing need (felt or unfelt) is recognized based on observation of current practices, potentials or farmers' demand, it can be used as entry point to initiate FRG research activities with a newly established group. Accordingly, the entry point in early stage of an FRG can be based on available potential technologies, expressed needs of farmers, farmers' own practices, or value addition to ongoing development projects.

Nevertheless, for already functioning FRG research, the progress and experiences of previous activities as well as outputs of ongoing interactions with different stakeholders and emerging problems can serve in identifying issue to design follow up actions.

Followings are possible sources of ideas for starting FRG research.

1) Discussions and reports of Agricultural Development Partners Linkage Advisory

Councils (ADPLACs)

2) Communication with farmers and extension agents
3) Experiences of researchers
4) Documents (research/study reports)

After having ideas from different sources, then, they are narrowed down to few. Consider the entry points discussed at "4.6 Entry points to FRG Research" for setting sights for an area of your FRG research.

When it is necessary and the situation allows, conduct a preliminary survey to collect information and discuss with key persons on the idea.

6.3.2 Why and how target areas are defined?

Purpose: Defining target area is useful to understand the coverage of the problem and the width of applicability of the output of the research activity, i.e. the potential area where the output can be used and bring impact. It helps to reduce the temptation of (researchers) selecting a topic with little significance in terms of coverage and to avoid investing meagre resources on topics/issues/problems that are not common to many. In general, it helps to identify areas where the experience gained and/or the output can be potentially extrapolated

How to define target areas: Try to confirm how big the coverage of the problem by considering the different categories of farmers affected (secondary sources including reports of ARDO at different levels can be useful in this case).

Areas that share the same background to the common problem are usually potential impact area by the solution. It is, however, necessary to look at the candidate solution and its characteristics as it solves the problem partially or requires some conditions which not all the farmers in the area can meet so that the impact may be limited.

6.4. Problem/potential identification

Tentative list of problems are made and, if necessary, organise a farmers' meeting to discuss the problem. Participatory tools, such as seasonal calendar and resource mapping (Annex 1 and 2), are used to analyse the situations and problems.

6.5. Establishing multidisciplinary team

6.5.1 Purpose

Based on the information collected and discussed during the meeting with farmers, multidisciplinary research team is formulated. Basically one team is formed for each FRG topic. The team members can be added whenever necessity arise. The team is

going to identify possible technical options from multi-disciplinary perspective. Box 5 and 6 show examples from Melkassa and Adami Tulu Agricultural Research Centres.

Implementation order between "establishing multidisciplinary team" and "identifying technical options" can be reversed.

6.4.2 Coordinator

The Socio-economics, Research Extension Farmer Linkage Coordinator takes charge as a coordinator of each multidisciplinary team.

6.4.3 Management

Maintain participation in team activities. Role of each researcher is defined clearly. Minutes of meetings are produced each time.

Box 5 FRG research team compositions at MARC

	Research teams											
Disciplines	Vegetable	Agro-forestry	Pulse	Tef	Maize	Sericulture	Marketing	Weed control	Drip irrigation	Water harvesting	Dairy	Plant protection
Research Extension	X	X	X	X	X	X	X	X		X	X	X
Socio-economics						X	X					
Plant protection	X		X					X				X
Horticulture	X											X
Agronomy	X		X	X	X			X	X			
Fruit	X	X							X			
Forestry		X										
Entomology			X									
Pulse			X									
Mechanisation			X									
Maize			X		X							
Food science			X									
Tef				X								
Sericulture						X						
Weed science						X		X				
Natural resources						X			X			X
Agro-pastral						X					X	

Box 6 FRG research team compositions at at ATARC

	Research teams													
Disciplines	Beehive	Groundnuts	Maize	Vegetable	Forage seed	Chopper	Gender	Sweet potato	Agro-forestry	F1 heifer	Milk churner	Marketing	Cattle fattening	Water harvesting
Research Extension	X	X	X	X	X		X	X	X	X	X		X	X
Socio-economics	X	X	X	X	X	X	X	X	X	X		X	X	X
Horticulture	X	X	X	X			X	X	X					X
Animal health	X									X			X	
Animal production	X				X	X				X	X		X	
Animal nutrition	X				X	X		X		X	X		X	X
Animal breeding										X			X	
Natural resources									X					X

6.6. Identifying technical options

6.6.1 Feasibility, risks and capacity

Identified research topic(s) is assessed from following aspects to select one from multiple candidates and/or clarify it further.

Technical feasibility: it is practical possibility of applying a proposed solution or option in FRG research activity. It deals with easiness to apply and handle the solution within the capacity, skill and knowledge, of FRG members at the end of FRG research activity.

Farming system compatibility: Matching technical options to be identified with the farming system in terms of production system, resource requirement (labour availability, time allocation patterns and other inputs) and the whole value chain of the commodity should be considered.

Economic feasibility: It deals with affordability, cost effectiveness and profitability of a proposed research activity to the farmers.

Social feasibility: It is suitably or acceptability of proposed research option in the existing social arrangements e.g. division of labour, in a community.

Research period: The time required to conduct the trial to check the applicability of the option under farmers' condition should be short.

Expected risks: Associated risks to emerge as a result of the trial, e.g. effect of chemicals, introduced varieties/breeds' effect on the local ones, should be considered.

Research capacity: Researchers' capacity and available research facility should be considered against necessary level of trials.

6.6.2 Characterise options

It is important for researchers to have clear ideas what each option's advantage, disadvantage and possible impact will have on farming. Summarise them in a table for presenting them to extension workers and farmers later for their prioritisation and selection.

6.7. Farmer group formation

6.7.1 Identifying target group

Select a target community within the target area where identified needs are derived from based on representativeness, accessibility and commitment. Target farmers are selected within the selected community in collaboration with DA, *Kebele* leaders and/or holding a community meeting. It is advisable to consider what are existing groups. FRG research is not aiming community development directly but to generate agricultural technologies which will be essential for the community development.

6.7.2 Size and number of farmer group

Size of each farmer group is recommended between 10 and 30 households. Depend on subjects, the group size may differ. Less than ten for livestock topics and more than 20 for weed management and marketing subjects are generally recommended (Box 7). Number of sites which usually not more than three and number of farmer group is one or two at each site.

Box 7 The sizes of different farmer groups for FRG research (ATARC)

FRG research title	Group size
Goat fattening FRG	10
Maize seed FRG	20
Access to market information FRG	30

6.7.3 Equal chances

Basically, chances should be given equally to those who want to join a farmer group. If many households want to join, the criteria in 6.7.5 are used to discuss with the community so that the community members themselves can decide who should be

members of the farmer group.

6.7.4 Gender, age and wealth

Consider balances on age, sex and wealth as far as they are willing to join the farmer group. Both husbands and wives of the selected households are farmer group members and will participate in all the FRG activity unless otherwise the research topic is gender specific. Gender analysis workshop (see 7.2.) may be organised for the selected FRG members to think why gender consideration is important for technology development. Wealth distribution among the members is important to guarantee the appropriateness of technology generated and not narrowing the gap among the community members further.

Do not create unnecessary jealousy within the community. It is important to spend enough time to discuss the purpose of FRG research, which is not aiming at benefiting particular farmers but entire community.

6.7.5 Criteria for selecting farmer group members

1) Composition of group members: Gender [1], age, geographical and wealth representativeness depends on research topics.
2) Interest/initiative: Select farmers who are ready to try out new innovation. Information can be from extension workers and from the participants of the village meeting
3) Willingness to contribute: Select farmers who are ready to share information and contribute to the community understanding that doing so eventually benefit him/her.
4) Community consensus: It is important that consensus among the community on the selection of farmers based on their awareness and responsibility.

Once farmers are selected, compile the farmers' basic information.

6.7.6 Organisation of farmer group

After a group is formed, select a chairperson and a secretary of the group. The chairperson is responsible for coordinating among the group members and liaison between the group and the researchers. The secretary is responsible for record keeping. Organise farmer group meetings, together with the stakeholders if necessary.

6.7.7 Farmers meeting

[1] Government policy indicates that female participation should be minimum 30% in every government activity.

Having a good meeting with farmers needs careful preparation and facilitation.

Preparation among researchers

1) Make all the researchers who attend the meeting to know why you are organising the meeting.
2) Agree among the researchers on what each of them are doing during the meeting (facilitation, record keeping, photo taking, etc.).
3) Arrange transport.
4) Prepare flip charts for the visualization.

Preparation for farmers

1) Let the farmers group know the time you arrive and leave.
2) Check if the meeting date is convenient to all the FRG members (busy time of the day, market day, women's time, etc.).
3) Let the farmers know why you are coming.

During the meeting

1) Confirm with the farmers about ending time.
2) Confirm the purpose of the meeting with participants.
3) Arrange sitting pattern for better communication. Rearrange according to activities during the meeting.
4) Facilitate women to contribute but not to pressurise too much.
5) Check if the farmers have resource for follow up activity.
6) Make sure you record who participates and what they discussed with gender segregated information.

At the end of the meeting

1) Select a contact person among the farmers
2) Agree next meeting date and time.

6.8. Matching options and needs to define FRG research topic(s)

Discuss among farmers, extension workers and researchers on all the research options and farmers need. Considering technical, economic and social feasibilities, research capacity and possible impact on farmers, Researchers, extension workers and farmers reach consensus on which topic to be worked on. Box 8 shows an example of a table used for matching options and needs during the discussion among the dairy research team, the extension worker and the dairy FRG member farmers.

Selecting detailed research topics are discussed during a Joint Action Plan session (see 6.11), while more general research topics are tentatively set by researchers for submitting a research proposal for a purpose of requesting budget.

Box 8 Matching of needs and option: case of Dairy FRG at Bishola and Wake Tiyo (MARC)

Problem identified	Lack of availability of enough feed in dry season- poor milk productivity
Options listed	• Produce feed crops in a separate plot using irrigation • Produce feed in integration with existing irrigated crops (vegetable) • Making silage
Selected options	• Silage making using maize produced during rainy season for fresh cob • Planting feed crops along the border or intercrop within irrigated crops (vegetable)
Trial activities implemented	• (As part of forage component) On farm production and evaluation of improved maize (Melkassa 2) for food/income and silage making with farmers • Evaluation of intercropping versus border cropping feed crops in irrigated plots of onion
Expected output	(1) Practice of feed production in combination with vegetable introduced and adopted (2) Dry season availability of feed improved

Some of the options, such as producing feed crops in the off season together with their high value crops as onion, were not easily endorsed by the farmers. Thus a study visit was organized to farmers involved in dairy production in other places where the FRG member farmers witnessed the possibility of integrating feed crops and vegetable. Accordingly, the plan to intercrop/border plant the feed crop with vegetables was accepted for trial activity.

6.9. Developing FRG research Proposal

6.9.1 Criteria of a good FRG research proposals

Consider the following criteria when FRG research proposals are formulated.

1) **Farmers' problem is clearly stated.** Source of information or actual case are cited.
2) The list of activities with a **high probability of tangible outputs** which benefit farmers directly.
3) **Research does not require a long research period.** Each research is completed within 2 years. For livestock and forestry, set short term targets so that the final goal will be met after few phases.

4) **Cost of research is low**. On-farm activities should not be a reason for more budgets per topic. The budget can be minimised by working with extension workers and FRG framers. (The case of FRG project, 2005-2008, average budget per topic was less than 20,000 Birr.)
5) **Required investment is low.** Initial inputs by farmers to adopt new technology should be minimised for enabling majority of farmers to benefit from it.
6) **Responsibility is clearly stated.** Roles of farmers, extension workers and researchers in FRG researchers are clearly defined.

6.9.2 Contents of FRG research proposals

Layout should be clear and understandable by the farmers. The layout should be clear to show the difference between any two or more compared treatments with control no treatment (no new treatment).

The area for participatory demonstration should be set by discussion with the group. In general, farmers do not like very small area such as 10m x 10m. They prefer full or at least half length of their field. This is for purpose of economic benefit not only trying out something new for learning purpose. For cereals like maize half a *kert* (0.125 ha) is reasonable area to show the performance and give economic benefit of a new variety.

1. Research title
2. Research program
3. Background (Farmers' situation with constraints and potentials.)
4. Justification (Reasons for attempting to introduce the technical options with technological, sociological, economical and environmental feasibility.)
5. Objectives (Practical, specific and tangible objective is described.*)*
6. Expected outputs
7. Target area/potential impact area and description related to the research topic
8. Research design (Research is broadly designed with a room for modification after more detailed information is identified.)
    - Material used (inputs, technical information, etc.)
    - Method used (plot size, plot design, treatment, etc.)
    - Data to be collected and method of collecting data
    - Expected roles of each actor (researchers, extension workers, FRG member farmers, FRG trial farmers, and others) in the trial.
9. Trial location
10. Duration
11. Work plan
12. Estimated budget

6.9.3 FRG research design

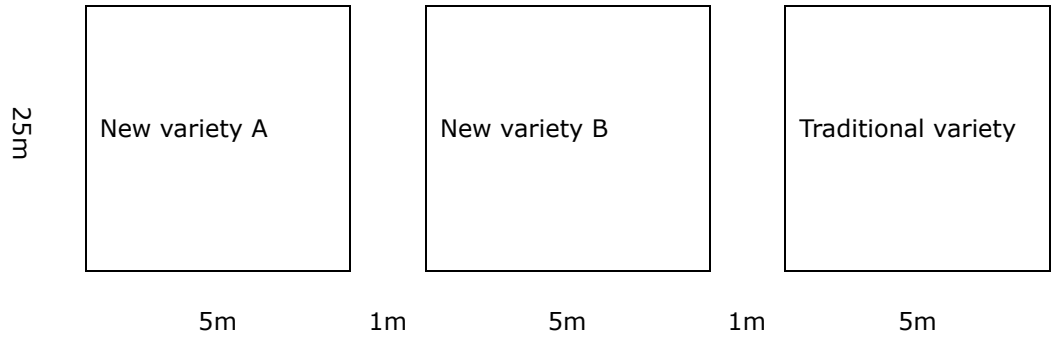
Researchers have to have a clear plan on expected outputs, how they can be obtained, what data should be collected to proof them and what kind of inputs are required and allocated over the time. Accordingly, treatments, plot design and data to be collected and timing of data collection and method of data analysis are determined. Box 9 shows an example of an onion plot layout.

Simple trial: Treatments are designed simple. Avoid too many treatments and isolations of a particular technical aspect which may have difficulty later to integrate into the technology set. There should not be more than three treatments.

Comparison and improvement: Compare a few new set of technologies with farmers' existing practices or between two sets of recommended technologies. While new technology is tested, modifying the new technology to fit into the specific environment is important so the research is designed to find how such improvement is possible. Useful reference is "Conducting on-farm experiments" (Stroud 1994).

Box 9 Example: Trial plot layout

An example of onion variety trial field lay out.



6.9.4 Roles of farmers, extension workers and researchers

The research proposal needs to state clearly the roles of each partner. Their roles will be discussed and confirmed during the joint action plan session (see 6.11).

Farmers are expected to (a) provide land for trials, (b) manage trials, (c) evaluate progress and results, (d) discuss progress among FRG member farmers, (e) provide information to other farmers, and (f) keep activity record.

Extension workers are expected to (a) mobilise resource, (b) facilitate activities among farmers, (c) linking other farmers and FRG member farmers, (d) keep activity record.

Researchers are expected to (a) listen to what farmers comment and record them, (b) provide appropriate technical information, (c) help farmers analysing situation and trial results, (d) evaluate results, and (e) process data to verify the results.

Farmer training is also included in the activity to enhance their capability to innovate. An ideal goal is that farmers will be more innovative so that they can find solution to their problems by themselves.

6.10. Stakeholder identification and networking

Identify stakeholders of each FRG and invite them to the joint action planning. Possible stakeholders include (1) *Woreda* Bureau of Agriculture (BoA), (2) FTCs, (3) NGOs, (4) traders operating in the area, (5) input suppliers, (6) farmers' cooperatives and (7) local administration.

6.11. Joint action planning

Preparing an action plan for FRG research trials is an important activity in FRG research process. The action plan is usually prepared for new and ongoing research activities jointly by researchers, extension workers and farmers. The following are points to be included in the action plan.

6.11.1 Objective of joint action plan

After having consensus among researchers, farmers and extension workers on subjects and potential technologies to be tested and improved, detailed activity plan is formulated jointly among them. Other stakeholders also participate the planning session if necessary.

Farmers, extension workers and researchers reconfirm the core problem and why it exists and potential area to remove the problem.

6.11.2 Research activity in context

If it is the second or third year of a research project, review the progress in the previous years. Identify what is achieved and not achieved. Remaining as well as emerging problems are research topics for the year.

6.11.3 Trial options and expected outputs

Possible solutions are disintegrated into trial options and list out respective expected output. Farmers, extension workers and researchers discuss their feasibility. They can agree all or reject some of them.

6.11.4 Select trial plots/farmers

Visit fields with farmers and select trial plots and trial farmers. Criteria for selection of trial farmers should consider the following:

- resource rich or poor,
- male or female,
- old or young,
- leadership,
- geographical distribution,
- field condition, etc.

The selection of trial farmers can be done after Joint Action Plan is made.

6.11.5 Roles and responsibilities in trials

The roles described in the section 6.8.4. are discussed among farmer, extension workers and researchers by identifying all the activities and responsible person, group and institution. Roles of stakeholders, who have been identified by the time of the joint action plan making, are also thoroughly discussed and agreed too. Box 10 shows an example of agreed roles during the Mouldboard FRG research Joint Action Planning.

Box 10 Stakeholders' roles and compositions for "Mouldboard plough (MBP) promotion" (MARC)

The following list of stakeholders and their roles are for the activity on mouldboard plough on-farm demonstration, evaluation and establishment of the tool's manufacture-marketing-maintenance system. The activity was carried out as a part of haricot bean promotion FRG research.

Woreda Bureau of Agriculture (BoA): **DAs and extension experts**

(1) Selection of farmers in each district, (2) identify preferred varieties for the research activities, (3) collection of information concerning performance, farmers& opinion and quantitative data, (4) information sharing within the group and farmers-to-farmer exchange between FRG and non-FRG members, (5) organise field days jointly with the research centre, (6) involve in joint evaluation meeting, (7) identify demand for improved MBP, (8) distribute improved MBP to farmers

NGOs (Self Help Development International, Christian Children Fund)

(1) Provide financial support for purchase of improved MBP through district offices, (2) provide financial support for farmers' training and field days, (3) organise field days jointly with the research centre and BoA

Manufacturers (Rural Technology Promotion Centres, private companies and small artisans)

(1) Manufacture and maintain MBP and spare parts, (2) make feasible modification

based on farmers experience

Research centre (Melkassa Agricultural Research Centre: MARC)

(1) Prepare data collection formats for extension workers and farmers, (2) provide training for extension workers, farmers, manufacturers on manufacturing and operation of improved MBP, (3) regularly visit the FRG research sites in a team and interact with farmers and extension workers, (4) analyse data and discuss the result with farmers and extension workers, (5) facilitate interaction among stakeholders, (6) organise exchange visit among FRGs

Farmers (FRG members)

(1) Keep record of their observation and experience, (2) execute the recommended and local practices for the trial, (3) purchase improved MBP towards the end of the activity if it is proved to be useful, (4) produce seed, return in kind of the same quantity, distribute the seeds to surrounding farmers

Other programme (Bean Seed System Project)

Provide seeds of required variety to participant farmers through farmers cooperative unions and BoAs

6.11.6 Term of cost sharing

Mode of cost sharing can be cash or in kind. Farmers can meet full cost or a part of it. The payment can take place at the beginning or after harvesting. The government's extension package system or any other forms of credit system can also be used for delivering inputs.

6.11.7 Formalising FRG Joint Action Plan

The joint action plan is distributed to all the stakeholders and *Woreda* Bureaus of Agriculture (BoAs) with official letter for confirming the responsibility and insuring their smooth involvement particularly of extension workers.

Box 11 is an example of mouldboard plough on farm demonstration, evaluation and promotion-cum-bean seed production of MARC.

Box 11 Joint Action Plan of Mouldboard Plough on farm demonstration, evaluation and promotion-cum-bean seed production (MARC)

Activity	Target	May	Jun	Jul	Aug	Sep	Oct	Nov	Bud-get	Responsible person
Organise stakeholder meeting	Farmers, extension workers, researchers and other share responsibility	●							Abbr.	(Researchers' and extension workers' names are indicated here)
Identify sites	Researchers and extension workers observe the sites	●								
Monitor land preparation	Properly prepared plots		●							
Prepare inputs	30 quintals of seeds		●							
Planting	@0.5ha x 30 plots planted		●							
Training	15 farmers and 4 extension workers		●							
Survey on utilisation	Bean utilisation at home and in the area			●						
Develop recipes	Bean recipes			●						
Training	30 farmers, 3 extension workers and 3 restaurant owners				●					
Monitoring	Progress of skills gained and utilisation of beans		●	●	●	●				
Prepare posters	Posters on bean prod. And utilisation				●	●				
Field day	300 participants from farmers, extension workers, NGOs, etc.					●				
Post activity survey	Utilisation pattern of beans							●		
Evaluation meeting	Participation of all the members farmers and their comments							●		
Documentation	Report and extension materials						●	●		

Responsibilities

Researchers: Collect scientific data, analyse them, share the results with farmers and DAs, and produce extension materials based on the results. Provide necessary training for DAs and farmers.

DAs: Monitor activities at trial sites by farmers through visiting the trial plots, meeting farmers and organising FRG member farmer meetings. Organise field days to involve other farmers.

FRG member farmers: Trial farmers, the owner of trial plots, are responsible for day to day management of the trial plot. They make sure that all the information regarding the trial are recorded and shared with other non-trial farmers.

6.11.8 Follow up

Joint action plan should be regularly checked by team leaders as well as through team meeting and this has to be indicated in terms of time benchmark. Box 12 provides some useful tips for stakeholder meeting.

Box 12 How to insure farmers' and extension workers' participation in every FRG activity?

Maintaining participation of all the partners (extension workers and farmers) in FRG activity needs careful management of your FRG activities. It is useful to ask all the partners during DA-farmers-researchers meetings the following questions.

- Do I know what I am doing?
- Do I know why I am doing what I am doing?
- Do I know how I am doing what I am doing?

If any of them have any doubt, they should raise questions to clarify the doubt.

7. Implementation

Implementation is a stage in FRG research process where FRG research plan is put into action. It is a stage at which FRG trials, meetings, field days, field visits and trainings are conducted, data are collected and analysed and reports are produced. The following are the activities to be conducted under this stage.

7.1. Orientation

7.1.1. What is orientation?

Orientation is giving directions of the general procedures or steps of activities for the target farmers and extension workers about what, why, when, where, how and by who it is going to be done.

7.1.2. Why orientation

Orientation is meant to promote understanding of FRG approach among participating farmers and extension workers. It is also about making farmers aware of the necessary procedures to be followed before the start of actual field implementation.

7.1.3. How to carry out orientation?

Orient the target groups based on the formulated joint action plan on the following.

1) Clear procedures
2) Clear on term of cost sharing
3) Beginning of each season
4) Reconfirm what the farmers understand (Q&A session)
5) In the field
6) Face to face discussion
7) DA to be involved

7.2. Gender analysis

7.2.1. Why gender should be considered in FRG?

Men and women are important in agricultural activity. Gender in FRG research looks at the differences between men and women shaped by socio-economic determinants.

Women's contributions to the agricultural production tend to be overlooked and consequently their involvement in the research and development is considerably low. As agricultural production is done by both men and women, it is critical to consider gender roles and relationships for improving household productivity and profitability,

which will eventually lead to betterment of their livelihoods.

Gender analysis can be done in many ways. Gender division of roles session is one of the useful tools for making participating farmers, researchers and extension workers to be aware of gender difference within a research topic and a possibility to learn from each other.

Objective of the gender division of roles session is to raise awareness of men's and women's contributions to productive and reproductive activities in the research topic. It is important that both men and women, husbands and wives, attend the session, so as to facilitate the effective participation of women in FRG activities. For more details, refer to the 'Gender Sensitisation Session Guideline (FRG II: 2013).

7.2.2. How to organise gender analysis

1) Timing

Ideally, the workshop is to be conducted at the beginning of the FRG implementation so that critical gender issues related to the research topic are raised, which will bring about positive attitudes among researchers, DAs and member farmers towards male and female farmers participation in research activities.

2) Selection of target households

Male and female headed households as well as female members of male headed households are considered when selecting targeted farmers as members of FRG. There are two major reasons for this. Firstly, needs of male headed households and female headed households as well as between male and female household members often vary. Secondly, access to a new technology, which can be introduced and/or generated by your FRG activities should be balanced among them.

After selecting targeted households, both husbands and wives are registered as members of FRG and both are invited to all the activities.

3) Preparation for the workshop

Objectives and schedule are confirmed among the organisers.

The following flipcharts are prepared

(1) List of major activities related to the research topic/targeted commodity, (2)list of major productive and reproductive activities during the period, when targeted crops or animals are produced and marketed.

7.2.3. Exercise 1: Division of labour

The exercise aims for the participants to understand the roles and responsibilities of women and men in the targeted crops/animals production and marketing process.

Ask the groups to identify, which activities are done by women or men. If more than one person is involved in the activity, tick two in the column of a main contributor and tick one for those involved in the activity.

7.2.4. Exercise 2: Access to and control over resources

Identify who in the household has access to and control of particular resources.

Ask group which family members–women and men–have more access to each resource. If men and women have equal access, tick one in both columns. If both have an access but either has more access, tick two in the column for more access but one for less access.

After finishing all resources with access, continue with control.

7.2.5. Exercise 3: Daily activity calendar

To understand the roles of man and woman at household and the time spent to carry them out

Ask a women group to illustrate a typical day for a woman in the community and a men group for a man; a typical day in the peak as well as the slack season.

7.2.6. Exercise 4: Consolidate necessary gender consideration in FRG activities

Objective of the exercise is to incorporate identified problems in the discussion above in FRG activities.

Through the exercises 1, 2 and 3 above, the group should be clearly aware of the problems related to roles and responsibilities as well as the decision-making power between men and women. Discuss what needs to be done to maximize outputs and benefits from the FRG activities.

7.3. Establishment of trials

7.3.1. Selecting trial farmers

All group members should have equal opportunity to conduct trial. Trial farmer is selected with the group's full involvement and should not be selected based of one's financial capacity.

Criteria for selecting trial farmers

1) Representativeness
2) Willingness and capability of managing trial
3) Interest to topic
4) Willingness to share cost
5) Consensus among the members
6) Willingness to share information with other members

When consensus cannot be reached, use lottery though discussion is the mode.

7.3.2. Selecting trial sites

Criteria for selecting trial sites

1) Representativeness
2) Accessibility
3) Consensus among the group members

Defining the target area will have less value until a careful selection of trial site is made to represent the area and the people being affected. This will have strong connotation on the value and applicability of the output.

Representation needs to accommodate the potential variations of soil type, gender, amount of resource available to the farmer that may exist in the target area.

The sites should also strike a balance between being **accessible** (based on the facility available with research) and **strategically located** to provide for other farmers/target beneficiaries (even in a relatively remote areas) to observe, raise question, interact and learn. It is important to take note of excessive road side bias.

This has implication how geographically disperse the trials/ the farmers group members could be in relation to the potential cost implication

In some case, selection of trial sites can be done together with selecting trial farmers.

7.3.3. Field preparation

Field preparation is done by farmers selected for specific trial. Before field preparation, there are cases when it requires studying the cropping history of the field and its slope in order to minimize pest incidence. So, technical staff from research should verify such issues, take the measurement of the area and make general observation of the selected field and the neighbouring fields to see for crops grown, see if there are some pest (disease, insect and weed) incidences and tillage frequency.

In vegetable crops seed bed preparation has to be attended by researchers at times

when the farmer is not well experienced. Because seedling establishment is a sensitive stage in vegetable production and highly affected by seedbed preparation and management. Hence, seed bed preparation and water supply need attention prior to planting.

7.3.4. Procure inputs

Once the trial is determined, it is necessary to list out required inputs and make preparation and arrangement to procure them. Inputs are provided by both research and farmers. These may include seeds, planting materials, fertilizers, farm implements, feeds, labour, etc.

7.4. Conduct trials

7.4.1. Data collection and on-spot analysis

Data collection sheets are prepared for researchers, extension workers and farmers separately according to their capacity. Farmers' literacy level and extension workers' capacity are important parameters in data sheet preparation. It is advisable to prepare the sheets in local language (Box 13 and 14).

Orientation on how to fill data sheet should be given to farmers and extension workers. Data recorded should be regularly monitored by researchers for ensuring the quality of data.

Information collected is regularly checked by looking at differences and trends, making comparisons and making discussions with the farmers for better understanding of the research to strengthen final analysis.

Box 13 Data sheet format for farmers (ATARC)

Research title: Participatory evaluation of community based forage seeds/cuttings production in central rift valley of Ethiopia

Village name: _____ Farmer Name: _____

Enumerator name: _____ Site: _____ Date: _____

Agronomic data collection sheet

Parameters	Penisitum	Alfalfa	Pigeon pea	Leucnea	Sesnania	Lablab	Remarks
Land size allocated							
Seed rate, number of cutting, seedling number							
Date of plantation							
Disease occurrence (type)							
Plants dead							
Plant survived							
Date of onset flowering							
Date of 50% flowering							
Date of peak flowering							
Seed yield							
Weight of crop residue after harvest							

Economic data collection sheet

Parameters	Penisitum	Alfalfa	Pigeon pea	Leucnea	Sesnania	Lablab	Remarks
Land size allocated							
Cost for land preparation							
Cost of plantation							
Cost of weeding 1 Cost of weeding 2 Cost of weeding 3							
Cost of chemical spray							
Cost of fertilizer							
Cost of seed							
Cost of harvesting							
Seed yield (kg)							
Selling price of seed per kg							
Herbage yield (kg)							
Cost of herbage per Kg							
Cost of herbage transportation							
Frequency of irrigation							
Fees (or cost) for irrigation							

Box 14 Data sheet for DAs on Gender Based Information (MARC)

Site:_____ Reporter: _____ Group name: _____

Production analysis

Enterprise activities	Household type												
	Better off				Middle				Poor				
	W	M	Others	Inputs used	W	M	Other	Inputs used	W	M	Other	Inputs used	Problems& solutions
Crop type: _____													
Site selection													
Land clearance													
Tillage – hand													
Tillage – oxen													
Seed selection													
Planting/sowing/													
Fertilising/ manuring													
Weeding													
Spraying													
Hiring labour													
Harvesting													
Threshing													
Winnowing													
Processing/ value added													
Storing													
fencing													
Main labour peak and coping mechanism													

Note *others to indicate children (CH), hired labour (HL), reciprocal exchange labour (REL) or festive work group (FWG),*

7.4.2. Physical activities in the fields

A physical activity includes several activities performed in the field to get intended benefit. These can be the works of different actors involved in the FRG. Box 15 shows

an example from MARC of responsibilities shared among farmers, extension workers and researchers. Box 16 is an activity schedule from ATARC.

Make sure that each activity is well understood by the farmers and extension workers.

Box 15 Responsible stakeholder for each activity of Vegetable FRG (MARC)

No	Activities	Responsible		
		Farmers	Researcher	DAs
1	Site selection	x	x	x
2	In put preparation	x	x	
3	Land preparation	x		
4	Making layouts for trials	x	x	x
5	Seed bed preparation	x	x	x
6	Planting on the seed bed	x	x	
7	Transplanting/planting	x	x	x
8	Cultivation	x		
9	Weeding	x		
10	Watering-irrigation water application	x		
11	Pesticide and insecticide application	x		
12	Putting sign board		x	x
13	Field monitoring	x	x	x
14	Field day organization		x	x
15	Harvesting	x		
16	Data collection at each step	x	x	x
17	Marketing	x		
18	Report writing		x	x
19	Presenting the result	x	x	x

7.5. Training

7.5.1. Why training in FRG research

Farmer training is one of the important components of the FRG approach. Training is meant to introduce a new way of doing things and/or to fill observed gaps in performance or undertaking some agricultural activity. Training is also given to farmers and extension workers when some basic knowledge and skills is required to carry out planned trials (We may need to say sth about TNA here). Training can be given at different times in the course of FRG research activities (see Box 10)

Orientation and training are different. Orientation is to explain what to do and create clear common understanding on research and development purpose and activities among farmers, extension workers and researchers.

Training can be given at different times in the course of joint activities. Training can be done mainly in villages for easy transport and simplifying logistic issues.

Box 16 Field activity schedule of groundnut FRG (ATARC)

Participated by: farmers, DAs, experts and researchers

Major activities	Detailed activities	Time frame			Responsible actors	Roles
		Month	Week	Day		
Field management	Weeding	July	2nd	Mon & Thur.	Farmers DAs	-DAs monitor day to day activities -Trial farmers mobilize group members to participate
	Pest inspection	July-Nov.	All the week	All the day	Farmers DAs	-Farmers have to record the incidence of diseases& report to DAs and take action -if sever problem DAs report to researchers
	Earthing up	July-Nov.	All week	Mon & Thur.	Farmers DAs	-Farmers do earthing up -DAs show them how earthing up is to be made -DAs check active involvement of member farmers
Field days	-Selection of participants -field arrangements -poster & leaflet preparation -conduct field day	Nov.	2nd	Thur.	Farmers MoARD DAs NGOs Researchers & others	-farmers explain all the activities they are doing up to the end & DAs provide g guidance -All the participants share their experience & expected to reflect their feelings & learn -DAs & researchers make arrangement, support farmers explaining all production practice, importance of the crop (general background of crop for attendant) and also involve in leaflet and poster preparation.
Field evaluation	-Germination rate -Flowering rate -Tolerance to weeds	July-Nov.	Once per week	Thur.	Researchers DAs Farmers	-meet together & evaluate the performance of each varieties -set criterions for selection
Data collection	-rain fall distribution -Germination rate -flowering stage(rate) -yield etc.	July-Nov.	All the week	At all time	Researchers DAs Farmers	-researchers prepare data recording sheets for all and distribute before July to farmers and DAs -Researchers give orientation on how and what to record for farmers & DAs -farmers, Das & researchers collect data, give their own judgments, see at differences & trend, and document the data

7.5.2. How to plan training

It is always advisable to have a training plan with purpose/objectives, outputs, method of training, trainer and schedule. Farmer training is ideally carried out at farmers' field and/or FTC unless there is a specific necessity to hold it at the research centre. This considers those who have difficulties finding time to come to the research centre.

The following are necessary points to be included in training plan (see Useful form 14, 15 and 16).

Having clear Training topic: introduction to the training, objective (what gaps to be filled), outputs, methodology and schedule.

Setting training contents

Organizing Logistics: Budget estimation and requests, space arrangement, refreshments.

Informing persons involved in the training: Trainees, resources persons and supporting staff.

Materials required for the training: Practical training, teaching aids (Picture, specimen and model).

Session plan: Instructor who is responsible for each subject prepares a session plan. After the session, the plan is used for self evaluation. These exercises effectively accumulate experiences and lessons learnt for subsequent training activities.

7.5.3. Implementation of training

Arrangement: confirmation of participants, trainers, schedule, training materials, equipment

Monitoring: attendance sheet, Picture (group on training)

Action plan/assignment: at the end of the training, the participants list up what they are going to do.

7.5.4. Evaluation, certification and follow up of training

Evaluation: Evaluation of training is necessary for future improvement. Evaluation can take the following different forms.

Evaluation of Participants' performance

By simple test

Evaluation by participants:

Each session

Entire training programme

Evaluation by researchers/organiser:

Each session by the instructor

Peer-review of each session

Entire training by the organiser (research team).

Certificate: paper of recognition can be distributed to the farmers depending on the intensity of the training and expected performance to motivate farmers. The recognition may take different form. This can be appreciation in front of people, some

material awards, etc. However, this can be an optional activity when necessary.

Follow up: Training is meant for improvement in a future performance. It needs follow up from the training organizing institution or team. In the follow up, the following points are considered. (1) Reconfirm the action plan made by the participants (what a trainee is going to do by him/her or their group after the training). (2) Evaluate whether the trainee applied what he/she trained on?

Figure 4 shows the cycle of training. Training at each time takes up relevant topics of the time. Topics can be fixed before the season and/or specific ones raised during the season. At the end of training, assignments to be completed by the next training are agreed by the participants. Target of each training should be set accordingly.

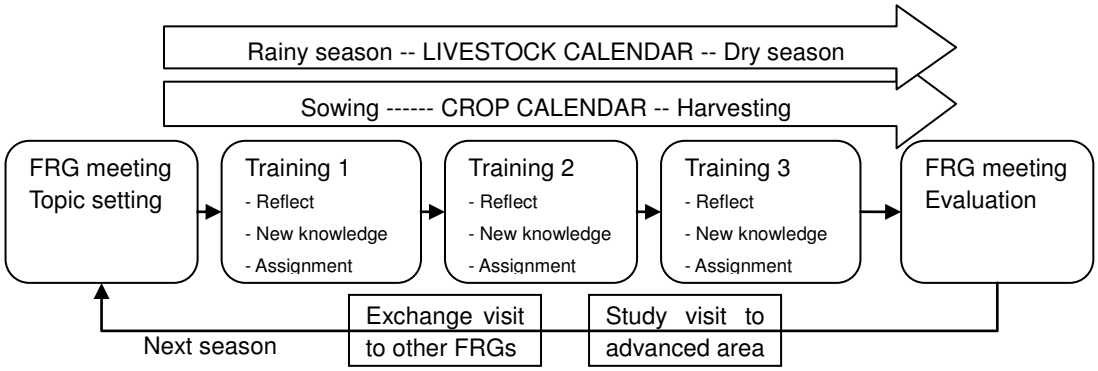


Figure 4 Timing of farmer training

7.6. Field day

7.6.1. What is field day?

Field day is an event on which better as well as worse examples of farmers' practice are open for people, such as non FRG member farmers within and outside of the community, other stakeholders particularly who are working in extension, to visit and learn.

7.6.2. Why field day?

Field day can exhibit good technologies side by side with local practices to relatively large number of people. By observing the technology with the way it is being managed, interacting with hosting farmers and among participants, it is expected to achieve the following outputs.

1) Participants learn new technologies by observing personally and ask about successful farming practices.
2) Participants interact with each other fostering linkages necessary for scaling up

the technology.

For a field day held on farm, the host farmer should play a prominent role in the discussion and explanation about technologies and practices. While the facilitators' work is clarify the technical points. Field day needs a thorough preparation.

7.6.3. Steps of planning and implementing field day

1) Defining the purpose of field day

By answering the following questions about the field day, it will be clear about the issues which are handled during the field day.

- What farming practice to be exhibited on the field day?
- What do you want to achieve by the field day?
- How are you going to achieve the target?

2) Planning field day

A plan of the field day/visit is made using following format.

- Date
- Site
- Organisers (Names of FRG member farmers, extension workers and Researchers)
- Role of each organiser
- Main target (other farmers in the community)
- Other invited guests (*Wareda* officials, NGOs, etc.)
- Objective
- Expected outputs
- Methods used
- Materials/logistics prepared
- Method of evaluation
- Schedule of the day (s)

3) Conducting field day

The following information is recorded so that evaluation of the field day and its follow up is carried out. Recording can be done by writing and/or audio-visual.

- Date
- Site (villages, site descriptions)
- Participants (at each site, male/female, young/old, where they are from [villages or institutions])

Researchers
Extension workers
FRG member farmers
Other farmers
Others (NGOs, CBOs, private, etc.)

- What was explained? (by who?)
- What was commented? (by who?)
- What was replied? (by who?)
- What was agreed?
- What was not agreed?

4) Evaluation

At the end of the field day, the organiser, either researchers or extension workers or both together, conduct an evaluation of the event based on what they have observed and information recorded. The following questions are useful for the evaluation.

- How was the plan?
- How was the logistics?
- How was the general reaction of the participants?
- What difficulties did we have during the programme?
- What lessons have we learnt this time and how can we improve them next time?

7.7. Exchange visit

7.7.1. What is exchange visit?

Exchange visit is one of the experience sharing and learning tools by farmers visiting each others' farms where good, as well as worse practices, is observed and discussions are made.

7.7.2. Why exchange visit and study tour?

A trial usually conducted with more than one trial farmers placed at different locations within a given village or district. Experiences with trial performance, therefore, may not be the same as it is determined by locations, farmers' experience and so on. Hence, it is very important to enable farmers learn from each other and share different experiences through arranging exchange visits.

7.7.3. How they are carried out?

Defining the purpose of the exchange visit

In defining the purpose of your exchange visit, it is important to be clear with points

like; why the exchange visit is to be prepared and what to achieve.

Making plan

In making the plan, consider the following points: date, site, name of hosting farmers, extension workers and researchers, objective of the visit, expected outputs, method used, materials prepared, roles of each organiser, methods of evaluation and schedule of the day.

Recording

Collect and record information of date, site, participants (at each site, male/female, young/old, FRG/non FRG, DAs, researchers and others), where they are from, and issues discussed among participants.

Evaluation

At end, conduct evaluation on how were the plan, logistics, and general reactions of the participants, difficulties and lessons learnt for improvement.

7.7.4. Follow up

Focusing on lessons learnt for improvement, important comments will be documented for proper follow up of improvement in the trial farmers' field condition.

8. Monitoring and evaluation

8.1. Regular meetings

Regular meetings at different levels are organised to share information and discuss the issues and problems raised during trials.

Tips: Conducting a good team meeting

1) Keep meeting short, not longer than one hour.
2) Listen to one another and build on consensus.
3) Regularly share the field reports among team members, keep updated.

8.1.1. Individual team meetings

Each research team meets regularly to share the up-to-date information of the trial.

1) Set discussion agenda. It usually includes progress made, challenges encountered, measures taken and future plan.
2) Schedule and inform team members ahead of time.
3) Circulate discussion agenda ahead of time.
4) Record the minutes of the meeting (Box 17)
5) Conduct meeting with available members and share the outputs with missing members

Box 17 Guideline for FRG Research Team Meeting Report (MARC)

Date:
FRG team name:
Research title
Research objective:

1. Monitoring FRG team activities
    a. Activity Plan, actions and achievements
    b. Budget plan and achievement :
    Plan: Utilized: Balance:
    c. Record keeping by research team and farmers
2. Joint action plan and roles played by each stakeholder
    a. Researchers
    b. Farmers (FRG and Non-FRG)
    c. DAs and Experts
    d. NGOs staffs, if any
3. Gender considerations
4. Problems encountered and measures taken
5. Follow up actions

8.1.2. General FRG research team meetings

Monthly and quarterly meetings are organised among FRG research teams at each research centre. The purpose of the meeting is to report progress, share experience to improve each other's activities, help each other if there is problem.

Frequency of the meeting depends on the necessity, though, once a month is recommended.

8.1.3. Farmer-extension worker-researcher meetings

It is recommended that farmers, extension workers and researchers hold regular meetings for having common understanding and finding gaps if any to fill. Frequency depends on FRG topics.

- Date
- Site (village, site description)
- Participants (list of participants with male/female, young/old, FRG/non-FRG, occupation/organisation)
- What was explained and by who?
- What was commented and by who?
- What was replied and by who?
- What was agreed?
- What was not agreed?

8.2. Joint monitoring and evaluation visit

Joint monitoring and evaluation visit is aimed at evaluating the activity objectively by inviting observers. It is recommended to organise the visit at least twice a season.

1) Identify participants. Participants are usually team leaders, senior researchers, supervisors from BoA.
2) Prepare plan and visit schedule.
3) Prepare feedback form in advance.
4) Inform hosting farmer groups/farmers to make them ready a head of time.
5) Inform participants.
6) Conduct the visit.
7) Collect feedback from participants. Collected comments are summarised and presented at the next general FRG team meeting.

8.3. Farmer and extension worker evaluation meetings

At the end of each cropping season, a meeting with farmers and extension agents is organised to reflect how the FRG research is carried out, what is gained by each

stakeholder and what needs to be improved for better way of conducting the FRG research. It is also an opportunity to share the outputs among the stakeholders and discuss how it is going to be scaled up.

1) Preparation of the meeting schedule
2) Informing the schedule to responsible researchers
3) Inviting farmers and extension workers
4) Conducting the meeting
5) Compile results of the meeting in a report and present at the next general FRG team meeting.

8.4. Evaluation reports

Record keeping and report writing are integral part of FRG research process. Hence, it is important to record all the events including activities, participants, achievements, targets not achieved, comments made by participants, points agreed upon during discussions, etc. The information to be collected should include both qualitative and numerical information such as number of participants in sex, number of participants for pros and cons, etc. Evaluation reports are compiled and communicated to the stakeholders regularly.

9. Communicating FRG outputs

9.1. Sharing FRG outputs at different forums

Technical information produced from the FRG outputs is expected to be used efficiently in the process of extension activities for scale up/out. Major users of the information are those who are operating in agricultural development and extension at different levels. Agricultural Development Partners Linkage Advisory Council (ADPLAC) is one of the forums where such users have regular contacts and a good opportunity for the research centres to distribute the information. Practically, the information is used at field day, consultation workshop, experience sharing, training, day to day extension activities and further research activities. Therefore, the information produced from the FRG outputs need to be in various forms. Table 4 shows how FRG outputs are conveyed to different potential users.

Table 4 Kinds and means of conveying FRG outputs to different users

Users	Information on:	Information in:	Communicate at/by:
Extension workers	Field management practices, operation, source of information, how to explain farmers	Technical manuals, leaflets, case studies and various extension aid	NGOs, BoAs, ADPLAC, training
Farmers	How to manage, use, obtain, utilise, sale, store	Posters, leaflets	Extension workers, field days, training, demonstration
Private sectors	Cost, specifications, size of demand	Research reports	Contact with researchers
Researchers	Remaining issues	Research reports	Review meetings
Policy makers	Potential impact on the mass, necessary policies	Recommendations	Field day, ADPLAC

9.2. Contribution of FRG research for technology scale up/out

Continuity in supply of technologies and making follow up is important to sustain innovation at farmers' level. The contribution of FRG research for technology scale up/out can be secured by joint and well coordinated activities between research and extension as well as with other stakeholders and is more fundamental to the FRG research.

The following sections explain some of the important points for writing scientific papers and developing extension materials.

9.3. Research report writing

9.3.1. Analysing and synthesising of results

All the biological and socio economic results including farmers' observation and opinions are consolidated to reach conclusions of the trial and draw recommendations.

Research activity conducted with FRG deals with wide discipline areas. So, all these issues should be covered. During preparation of the result the organization of the activities accomplished and arrangements made with institution and farmers should be presented. The physical outputs have to be presented in common units with reasonable level of scientific analysis using common statistical parameters, and employing presentation tools (graphs, charts).

Socio-economic parameters (profitability and acceptability) should be included to improve the worthiness of the results. The result has to include farmers' observations and opinions in a systematic way. Finally there should be conclusions and recommendations from the farmer participatory research conducted as lesson for research and development.

9.3.2. Information sharing at different levels: interpreting research outputs

Collected data are not the property of researchers alone but they belong also to farmers, extension workers and any others who are involved in the research. It is therefore a principle that the data are disclosed to the stakeholders. However, it is necessary that raw data are processed so that the stakeholders, particularly farmers, can understand what they mean.

There are different forms of presenting research results, which help farmers and extension workers to understand.

1) Pictures comparing the result of different treatments
2) Data are summarised in tables.
3) Data are plotted in graphs

Research data cannot be understood directly by farmers and they should be interpreted into simpler form. For example, use of farmers' quantification methods is easiest way to translate research results into practical use.

9.3.3. Seminar

Organising seminars at research centre level is encouraged for hearing findings and seeking additional views from researchers before finalising the research results. The

seminar can also invite outsiders if it is appropriate. It is desirable that the seminars are initiated by the multi-disciplinary teams. Each research centre can regularise such seminars.

9.3.4. Scientific paper for scientific community

Leader of each FRG research team is responsible to coordinate the team members to compile a completed report for the respective research topic.

The most important feature of the FRG approach is that researchers carry out technology development activities in collaboration with farmers. Therefore the papers and presentations should emphasise how the collaboration is created and managed, what contributions the researchers and farmers make, what is the output and what it means to the farmers, and what are farmers opinions about the output.

The scientific paper should include information as indicated in Box 18.

Box 18 Contents of scientific research report

1) Project title
2) Authors *(research centre and division for each author and co-author at footnote)*
3) Abstract
4) Problem statement
5) Objectives and expected outputs
6) Methodology
   - Framework of experiment *(period, sites, FRG member farmers and their background)*
   - Technical *(experimental design, treatments, materials used)*
   - Organisational *(arrangement of the farmer group, roles of trial farmers and other member farmers, linkage with DA and agricultural office, scheduled meetings, trainings, field visits and field days)*
7) Implementation process *(what it actually happened)*
8) Outputs *(data/information collected, analysis of the data which correspond to your expected outputs and objectives. Special emphasis should be given to farmers' opinion and appropriateness of the technology in farmers' situation. Costs, expected return, manageability and availability of the technology are good indicator for the appropriateness.)*
9) Important lessons drawn
10) Future focus, emerging challenges and opportunities
    - On technical aspects
    - On participatory research
11) References

9.4. Extension material development

9.4.1. Why extension materials are important?

Unless technologies are reached and used by farmers, they mean nothing. Therefore, verified technologies must be extended to end users. One of the simplest and effective methods of extension is through extension materials in local language if they are prepared well and meet clients' need.

9.4.2. Technical manual for extension workers and Subject Matter Specialists

Technical manual for extension workers and subject matter specialists includes technical instruction, operational instruction, guidance and/or technical package with necessary data, illustrations. Technical manual enables extension workers and subject matter specialists to clearly understand and demonstrate specific technology.

9.4.3. Developing extension materials

Extension Material is one of the basic methods to disseminate and up-scale outputs of FRG research outputs.

The following are criteria for a good extension material development. Please see the "Guideline of Extension Material Development for Researchers" (FRG II 2014) for more detailed instructions.

1) It is either half fold/three fold pamphlet with a size which fit into a pocket.
2) Local language is used.
3) It contains selected information which is essential for farmers to practice the technology.
4) Pictures or drawings are used for describing the technologies and its impact.
5) It indicates inputs required and expected outputs in terms of volume of produce or economic term at a reasonable level (not too exaggerated but not too conservative).

Some of the basic information extension materials need to contain are:

1) Background (brief explanation of the problem and measures being recommended)
2) Description of the technology
   - Required inputs and conditions
   - Work sequence
   - Variation if any
   - Risk if any
   - Expected outputs (in quantity or in economic gain)
3) Trial sites and trial farmers

4) Contact researcher, DA or farmers for further information

Low literacy rate is one of the constraints of disseminating improved technologies to larger number of farmers. Extension material for farmers needs, instead of stuffing up a lot of technical information in it, reducing text and using visuals which explain concepts and/or steps. Such materials are effective when extension workers provide technical information orally.

Develop extension materials with range of interested groups such as farmers, extension workers, researchers from other disciplines and other stakeholders to make sure the materials are more appropriate and practical to the specific situation.

The following is a plan for extension material development.

1) **Aim of material**

Describe background, target problem and necessity of the material.

2) **Target audience**

Analyse target group, their characteristics, their size and learning style.

3) **Objective of material**

"The material helps farmers to understand _____ and apply _____ for better _____.

4) **Type of materials**

Type: flip chart/pamphlet/poster. Etc
Size: A4, A3. etc.
Language: English/Amhalic/Afaan Oromo
Quantity:
Colour: black and white/colour

5) **Key message of the material**

Important messages the material is intending to convey to the target group.

6) **Contents of material**

Contents need to attract attention and interest of the target group. The technical information contained should be practical and easy to understand for users, extension workers and/or farmers.

7) **How to use the material (5W1H)**

- When is the material used?
- Where is the material used?
- Who is the material used by?
- What is the material used for?
- How is the material used?

8) **Produce materials**

9) **Pre-test**

Before make distribution, the developed extension material needs to be pre-tested to make sure that appropriate language, style, flow of text and others are used.

10) **Distribution plan**

A plan should be made for who and how the produced materials are distributed.

Annexes

Annex 1: Seasonal calendar

Seasonal calendar lets farmers to recall the activities through out the year. It will demonstrate farmers' ability to convey useful information that are understandable for both literate and illiterate. Examples are shown in Box 5 and 6.

Objective: Together with farmers, to grasp the farming system, its changes over the course of a year, discover correlations and connections between different seasonal patterns and analyse constraints and opportunities.

Materials: Locally available materials (stones, sticks, leaves, etc.)

Time: 1-2 hours

Procedure

1) Divide the farmers into small groups of around 5 people composed of men and women.
2) Select, either by you or by farmers themselves, a key informant. Ask the key informant to create a calendar of cropping pattern of major crops, diseases to start with.
3) The remaining farmers provide additional information to help the key informant.
4) Informant can be changed in turn among the participants.
5) Information drawn on the calendar is to illustrate trend and changes in activities, events, environment over the course of a year.
6) Based on the calendar, farmers identify constraints and potentials.

Checklist for seasonal calendar

1) Weather (rainfall pattern, temperature)
2) Availability of water,
3) Availability of inputs
4) Disasters and prevention activities,
5) Time management,
6) Market prices,
7) Cropping pattern,
8) Pest and diseases,
9) Problems in crop husbandry,
10) Extension activities/plan,
11) Workload of men and women,
12) Labour requirement,
13) Community events,
14) Control of cash,

15) Diet,

16) Income generation activities, etc.

Example: A seasonal calendar, Wake Tiyo, August 2007 (MARC)

Activity/Occasion	F	M	A	M	J	J	A	S	O	N	D	J	Who do*			
													M	F	Mc	Fc
Land Preparation													●			
Seedling raising													●			
Planting/transplanting													●	●	●	●
Weeding													●	●	●	●
Harvesting													●	●	●	●
Collecting and Transporting													●		●	
Threshing													●	●		
Marketing													●			
Heap the straw and Fencing(Maintain fence)													●			
Labour Shortage													●	●	●	●
Food Shortage													●	●	●	●
Livestock diseases																
Rain fall distribution																

Maize
Haricot bean
Onion/Tomato
Tef
Barey

M: adult male (husband), F: adult female (wife), Mc: male child and Fc: female child of the a house hold

Example: Crop-Livestock mixed farming calendar (ATARC)

No	Major activities/resource	Months in a year											
		Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1.	Rain fall	▮	▮	▮	▮	▮	▮	▬	▬				
2.	Availability of water	▮	▮	▮	▮	▮	▮	▮	▮	▮	▮	▮	▮
Maize													
	Land preparation	**X**											
	Obtaining seed		**X**										
	Plantation		**X**	**X**									
	Weeding			*	***								
	Harvest and									**X**	**X**		
	Marketing										**X**	**X**	
	Market price		▬	▬	▮	▮	▮	▮					
	Disease and/ or	*	*	***	*	*							*
Dairy													
	Availability of			▮	▮	▮	▮	▮	▮	▮			
	Availability of crop	▬	▬	▬					▮	▮	▮	▮	▮
	Feed collection								*	**	**		
	Time of feed												
	Milk price												
	Butter price	▮	▮	▮	▬	▬	▬	▬	▮	▮	▮	▮	▮
	Cheese price	▮	▮	▬	▬	▬	▬	▬	▮	▮	▮	▮	▮
Cattle fattening													
	Fattening period						**X**	**X**	**X**				
	Selling time	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	Market price	▮	▮	▮	▮	▬	▬	▬	▬	▬	▮	▮	▮
Goat fattening													
	Fattening period	▮	▮	▮	▮	▮	▮	▮	▮	▮	▮	▮	▮
	Selling time	▬	▬	▬	▬	▬	▬	▮	▮	▮	▮	▮	▬
	Selling price												
Livestock Diseases													
	Cattle			**	*								
	Small Ruminant			**	**	*							
	Off Farm Activities								**	**	**		
	Labour												
Work load													
	Men	**	**	**	**	**	**	**	**	**	**	*	*
	Women	*	*	*	*	*	*	*	***	***	***	*	*

Annex 2: Resource mapping

Resource mapping is taken to identify activities taken and resource available at different areas. An example is shown in Box 7.

Objective: Farmers will grasp the farming system over geographical areas, and discover trend and differences and correlations between different areas. It will help farmers to identify constraints and potentials in their farming systems. It will also demonstrate farmers' ability to convey useful information that are understandable for both literate and illiterate.

Materials: Locally available materials (stones, leaves, sticks, etc.)

Time: 1 hour

Procedure:

1) Divide the farmers into small groups of around 5 people.
2) Select, either by you or by farmers themselves, a key informant.
3) Ask the key informant to start drawing boundaries, main road, and main water stream at first.
4) Add other features. Remaining farmers help key informant to draw map. Informant can be changed in turn.

Checklist for resource mapping

Boundaries, roads, rivers, crop fields, common land, houses, forests, market, soil types, soil degradation, source of water (irrigation/domestic), community facilities (schools, dispensary, churches and mosques, market place, shops), etc.

Example: Resource map of Awash Bishola, April 2005 (MARC)

A map was first drawn on the ground by farmers and transferred to a paper later by the extension worker.

Useful forms

1 Monthly reporting sheet

Name	Date
FRG research title and research objective	
FRG team activity (plan, action and achievement of month: date, major activities, number of participants, results/outputs, etc.)	
Budget plan and achievement Plan: Utilized: Balance:	
Joint action plan and roles played by each stakeholder (Farmers, extension workers, NGOs staffs, etc.)	
Any lessons learnt which are better to be shared with other teams, major constraints, measures taken, result obtained	
Gender considerations	
Follow up actions	

2 Quarterly monitoring sheet

Date		Period		Reporter	
Topic					
Expected outputs of the topic					
Activities (methods, materials, tools used)		Achievement (outputs, impact)		Constraints	
Budget			Planned	Expenditure of the quarter	Balance
1. Materials purchased ( ) 2. Transportation 3. Per diem 4.Others ( )					
Activities necessary for next quarter			Target		

3: Record of situation and problems analysis

FRG no	*Wareda*	Kabele	Villages	Date
Participants Farmers, extension workers, researchers, others	Past activities, group compositions, major crops, issues identified during the past farmers' meeting, etc.			
Venue				
Farming system				
Major commodities produced		Major technical practices		
Identification of the problem and prioritisation				
Major problems		Ranking		
Analysis of the selected problem				
Selected problems	Causes of the problem	Possible technical options	Conditions required for the options	

4 Schedule for multidisciplinary team meeting

Mon	Tues	Wed	Thru	Fri

*NB. Each team leader present progresses and all FRG research team members have to attend

5 Weekly arrangement of vehicle at MARC

	Centre manager	Head AE-RE
Signature		

Period: from to

Date and day		Vehicle 1	Vehicle 2
Monday	Morning		
	After noon		
Tuesday	Morning		
	After noon		
Wednesday	Morning		
	After noon		
Thursday	Morning		
	After noon		
Friday	Morning		
	After noon		
Saturday			
Sunday			

6 Background of FRG (for farmers meeting)

FRG Topic	*Wareda*(s)	*Kebele*(s)	Date
Background of the groups	Past activities, group compositions, major crops, issues identified during the past farmers' meeting, etc.		
Description of core problems			
Stakeholders	No. of FRG members (a list attached) Names of trial farmers Names of extension workers Names of researchers Other stakeholders		

7 Summary of the past activities

1st year	2nd year	3rd year
Problems worked	Problems for the year	Problem for the year
Remaining problems Emerged problems	Remaining problems Emerged problems	

8 Problems, options and trial activities

Problems	Technical options available	Expected outputs	Trial activities	Materials needed	Feasibility
Problem 1	Option 1	Output 1	Activity 1		
			Activity 2		
		Output 2	Activity 4		
			Activity 5		
	Option 2	Output 3	Activity 5		
			Activity 6		
		Output 4	Activity 7		
			Activity 8		
Problem 2	Option 2	Output 5	Activity 9		
			Activity 10		
		Output 6	Activity 11		
			Activity 12		
	Option 2	Output 7	Activity 13		
			Activity 14		
		Output 8	Activity 15		
			Activity 16		

9 Responsibility sharing

	Responsibility
Trial farmers	
Other member farmers	
extension workers	
Researchers	
Others	

10 Selection of trial farmers

Trial farmers names	Village and location of plots	Other background of the farmer

11Tentative Research Design

(Detailed design is made later by researchers)

Treatments			
Number & size of plots			
Parameters collected			

12 Joint Action Plan

(Research topic: Period: Planned by:)

Major steps	Detailed activities	Target	Time				Materials and costs	Responsible person
1.Planning and monitoring Farmers meeting Stakeholder meeting M&E								
2. Field activities Material preparation Plot preparation Sowing Weeding D&P identification Harvesting Group activity								
3.Farmers and DA training Training (1st, 2nd, 3rd) Field day Exchange visit								
4.Data collection By farmers By extension workers By researchers								
5.Monitoring & evaluation								
6. Data analysis Evaluation meeting Research result sharing and discussion								
7.Report writing and extension material development								
8. Others								

13 Training Plan

Training programme organizer: _____

FRG Research title:_____

Training topic:

_____

Target groups: (farmers, extension workers, farmers + extension workers, researchers, etc.)

Training objective

This training is intended to ……...

Expected outputs

At the end of this training the participants should be able to:

1.

2.

3.

Training contents

Topic 1

Sub topics

Instructor

Material needed

Method used in the session (lecture, practical, visit)

Topic 2

Sub topics

Instructor

Material needed

Method used in the session (lecture, practical, visit)

Evaluation

Method of evaluation

Schedule

(As attached sheet)

14 Training session schedule

Day/time	Subject/sub topic	Lecturer/instructor/ Facilitator/observer*	Venue	Materials

15 Plan and evaluation of training session

<table>
<tr><td colspan="2">Name of Trainer</td><td colspan="2">Organisation:</td></tr>
<tr><td rowspan="2">Date:

Time of session:</td><td colspan="3">Training topic:</td></tr>
<tr><td colspan="3">Name of the session:</td></tr>
<tr><td colspan="3">Lecture/Practical/Visit/Discussion/others ( )</td><td>Language:</td></tr>
<tr><td colspan="2">Plan of the session</td><td colspan="2">Result of the session (self evaluation)</td></tr>
<tr><td colspan="2">Objective of the session</td><td colspan="2">Was the plan of the session/contents alright?</td></tr>
<tr><td colspan="2">Contents of the session:</td><td colspan="2">Was your handling of the session alright?</td></tr>
<tr><td colspan="2" rowspan="2">Materials should be prepared in advance by the lecturer/instructor:

1 Handout/PPT/Slide films/Video

2 Other materials</td><td colspan="2">Was the preparation/use of training materials alright?</td></tr>
<tr><td colspan="2">Measures to be taken to improve the future session:</td></tr>
<tr><td colspan="4">Comments by the course organiser:</td></tr>
</table>

*Result of the session and feedback is filled after the session

16 Evaluation of session

Training session Evaluation Form

Name of the trainer:_____ Date:_____

Subject:_____

Overall score_____ out of 100

1: very poor, 2: poor, 3: satisfactory, 4: good, 5: excellent

A. Content					(_____/ 40)
Introduction					
The purpose is clear	1	2	3	4	5
The organisation of the presentation is clear	1	2	3	4	5
The introduction catch the participants' interest	1	2	3	4	5
Analysis/description					
Is the situation or background clear?	1	2	3	4	5
Are causes and effects clearly presented?	1	2	3	4	5
Is the subtopics relevant to participants?	1	2	3	4	5
Conclusion					
Are ideas/topics effectively summarised?	1	2	3	4	5
Is the conclusion persuasive?	1	2	3	4	5
B. Delivery					(_____/ 45)
Eye-contact	1	2	3	4	5
Gestures, body language	1	2	3	4	5
The voice is heard and clear	1	2	3	4	5
The term/language used easy to understand	1	2	3	4	5
The question properly answered	1	2	3	4	5
There is enough interactions with the participants	1	2	3	4	5
Using of visual aid/samples/spacemen	1	2	3	4	5
Hand-outs	1	2	3	4	5
Time management	1	2	3	4	5
C. Attitude					(_____/ 15)
Confident	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Gender consideration	1	2	3	4	5

Comments

17 Plan of FRG field day

Date of plan made:	Name of planner:
FRG topic:	
Site(s)	
Date of field day	
Organiser	Roles
Researchers: (names)	
extension workers: (Names)	
FRG member farmers: (Names)	
Objective of the FIELD DAY/VISIT	
Expected outputs (End of the day, you want the participants to be able to…)	
Materials required	
Evaluation (prepare questions according to the objectives)	
Schedule (As '**Schedule of field day**')	
Remarks	

18 Schedule of field day

Day/Time	Activity	Responsible person	Materials needed

19 Field visit plan and record

<table>
<tr><td colspan="6">Plan for site visit</td></tr>
<tr><td rowspan="2">Purpose of the visit</td><td rowspan="2"></td><td>Plan prepared by</td><td></td><td>Appointment</td><td></td></tr>
<tr><td>Planned date of visit</td><td></td><td>Material preparation</td><td></td></tr>
<tr><td colspan="6">Record of site visit</td></tr>
<tr><td>Date</td><td></td><td>Reporter</td><td></td><td rowspan="2">Farmers & extension workers contacted</td><td rowspan="2"></td></tr>
<tr><td>Site visited</td><td></td><td>Researchers accompanied</td><td></td></tr>
<tr><td colspan="2">Researchers’ activities (methods, materials, tools used)</td><td colspan="2">Activities and response of farmers and extension workers</td><td colspan="2">Other stakeholder</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="6">Remarks (constraints/problems, counter measures/action to be taken, major learning)</td></tr>
</table>

20 Evaluation of field visit

(by farmers, extension workers and researchers)

Name of the FRG: Name of the village:

Date: Reported by:

Day's outputs (collected information):

Day 's evaluation

What did I do today?

What did farmers do today?

What difficulties did you have today?

What lessons have I leant today?

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Feedback sheet

Your comments are submitted to Director, Agricultural Economics, Extension and Gender Research, EIAR using the format below.

Comment based on your experience will be incorporated into next version of the guideline.

Your name:

Your FRG topics:

Your FRG sites:

Comments: (background, your actual cases, modifications, additions with your examples [pictures, flip chart, data, etc])


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