CRPET501

Extension Techniques

Competence

Apply Extension techniques

Credits: 6

Learning hours: 60

Sector: Agriculture and Food processing
Sub-sector: Crop Production

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Purpose statement

This moduledecribes the skills, knowledge and attutudes required by learner to apply extension techniques. For the Agricultural extensionist, this module will enable him/her to better perform his/ her professional work. At the end of this module the trainee will be able to:

- Prepare target group area

- Select extension methods

- Disseminate technology

- Follow up and report.

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General Introduction

Agricultural Extension is assistance to farmers to help them identify and analyze their production problems and become aware of the opportunities for improvement. Before you start reading this extension syllabus, it is necessary to clarify some terms. Thus, extension is putting knowledge or techniques normally reserved for minority of specialists, within the reach of many people, to enable them to understand and master the practical application that result from them.

Agricultural Extension is intended to explain farmers better techniques, to improve the way they work and thus their production. But extension does not aim at precisely explaining what the scientific reasons of these techniques, or how to adapt these techniques to other crops. It provides "acceptances" or processes already designed by experts. Extension is therefore ensuring that the techniques discovered by researchers are shown to farmers and adopted by interested farmers.

Extension is different from Sensitization: sensitization aims at attracting farmers to a new and accurate technique that would solve a specific problem (poster on the use of some selected seeds and some pesticides). Its goal is to encourage the farmer to take measures regarding those problems.

It should first sensitize the farmer on one given technique before disseminating it, for him/her to be interested. In extension, man "methods, approaches and systems" are described. The approach defines how to transmit knowledge to the public while the system defines the organization of extension services. Extension is an essential pillar both for rural community progress and as part of a strategy of agricultural research and development. Agricultural research remains an academic endeavour unless it is informed by real problems on the ground and efforts are made to deliver solutions to farmers by appropriate forms of extension.

Research institutions focus on the technical aspects for generating useful technologies, while extension focuses on the acceptance and adoption of those technologies by users. The two, research and extension, should be functionally linked.

Learning Unit 1: PREPARE TARGET GROUP AND AREA

LO.1. 1. – Identify existing problems in area of activity referring on target group

Target group refers to the group(s) of people that a program is designed to serve while problem identification is actually seeing the problem before trying to solve it. is the first step in successful problem resolution.

In general, a problem occurs when there is a difference between "what is" and what should be", between the ideal and actual situation.

During identifying the problem, first we can accept that there is a problem, identify it, then observe and reflect what is going on. Collect information that relate and begin working on solution.

❖ Some questions we should ask:
  ➢ What is the problem?
  ➢ What are the causes of problem?
  ➢ Can I solve it?

Problem analysis
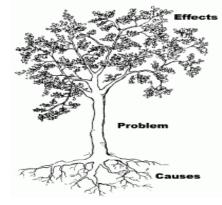
Analysing the problem is the step of verifying the existence of a problem ,and to identify who is affected, estimate the scale of problem, analyse its causes and effects.

Problem tree

Visualisation of the problems in form of a diagram.

A problem tree diagram is a way of visualizing the causes and effects relationship regarding particular problem situation. It is a graphical arrangement of problem according to causes and effects.

Figure 1: Problem tree

The analogy with a tree:

➢ Trunk represents core problem

➢ Roots represent causes

➢ Branches represent effects.

In such diagram the causes are represented at lower levels, the effects at upper levels, the core problem connects the two.

There is none correct way of formulating a tree diagram. Different individuals or groups given the same list of problems and causes will normally organize them differently in a tree diagram. This is due to different knowledge and experience of each person and amount of time available.

e.g: Sometimes, lack of sufficient clean water could either become a cause or effect.

Steps for designing a problem tree

a) List all the problems that come to mind.

b) Identify core problem

c) Determine which problems are cause and which are effects.
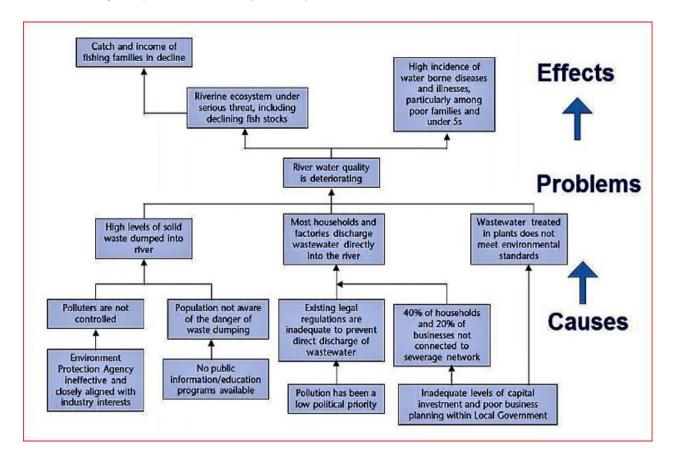
d) Arrange in hierarchy both causes and effects(i.e how do the causes relate to each other,which leads to other,etc.)

Creating a problem tree should ideally be undertaken as a participatory group event using visual techniques, such as flipcharts or colour cards, in which identified stakeholders can write their individual problem statements.

It is recommended that a workshop should involve not more than 25 participants, to provide for a fruitful learning environment. The first step of such workshops should be an open brainstorming about the problems that stakeholders consider to be a priority. From the problems identified, an individual "starter" problem should be selected. In consultation with the participants, a hierarchy of causes and effects has to be established: problems which are directly causing the starter problem are put below and problems which are direct effects of the starter problem are put above.

All problems are sorted in the same way (using the guiding question "what causes that?"). Once all the problems are in place, these should be connected with cause-effect arrows, clearly showing key links. After this process, the problem tree should be reviewed and validated by the participants.

The below digram present an example of a problem tree

Source: Europian commission,2004

Advantages of problem tree diagram

➢ Enables clear prioritization of factors and helps focus objectives.

➢ To understand better of the problem and causes

➢ It identifies the constituent issues and arguments and helps establish who and what the political actors are at each stage.

➢ Helps understanding purpose and action.

Disadvantages of problem tree

- ➢ It may be difficult to understand all effects and causes of a problem right from the beginning.
- ➢ It is time consuming

- • <mark>Content/Topic 1.Methods of questionnaire preparation</mark>
    - ✓ **Open and close questionnaires**
    - ♣ **Closed Questions**

Closed questions structure the answer by allowing only answers which fit into categories that have been decided in advanced by the researcher. Data that can be placed into a category is called nominal data.

The options can be restricted to as few as two (e.g. 'yes' or 'no', 'male' or 'female'), or include quite complex lists of alternatives from which the respondent can choose.

The respondent provides information which can be easily converted into quantitative data (e.g. count the number of 'yes' or 'no' answers).

Closed questions can also provide ordinal data (which can be ranked). This often involves using a rating scale to measure the strength of an attitudes or emotions.

For example, strongly agree/agree/neutral/disagree/strongly disagree/unable to answer.

For example:

- ❖ How old are you?
- ❖ Where do you live?

Characteristics of closed questions:

- ❖ They give you facts
- ❖ They are easy to answer and are quick to answer
- ❖ They keep control of the conversation with the questioner

    - ♣ **Open Questions**

Open questions allow people to express what they think in their own words.

Open-ended questions enable the respondent to answer in as much detail as they likes in their own words. For example: "can you tell me how happy you feel right now?"

If you want to gather more in-depth answers from your respondents then open questions will work better. These give no pre-set answer options and instead allow the respondents to put down exactly what they like in their own words.

Open questions are often used for complex questions that cannot be answered in a few simple categories but require more detail and discussion.

Characteristics of open questions:

- They ask respondent to think and reflect
- They will give you opinions and feelings
- They hand control of conversation of the respondent.

Open questions begin with words such as:

- What
- Why
- How
- Describe
- Tell me

✓ **Guided questionnaire**

The design of a questionnaire will depend on whether the researcher wishes to collect exploratory information (i.e. qualitative information for the purposes of better understanding or the generation of hypotheses on a subject) or quantitative information (to test specific hypotheses that have previously been generated).

Exploratory questionnaires: If the data to be collected is qualitative or is not to be statistically evaluated, it may be that no formal questionnaire is needed. For example, in interviewing the female head of the household to find out how decisions are made within the family when purchasing breakfast foodstuffs, a formal questionnaire may restrict the discussion and prevent a full exploration of the woman's views and processes. Instead one might prepare a brief guide, listing perhaps ten major open-ended questions, with appropriate probes/prompts listed under each.

Formal standardised questionnaires: If the researcher is looking to test and quantify hypotheses and the data is to be analysed statistically, a formal standardised questionnaire is designed.

Preliminary decisions in questionnaire design

There are nine steps involved in the development of a questionnaire:

1. Decide the information required.

2. Define the target respondents.

3. Choose the method(s) of reaching your target respondents.

4. Decide on question content.

5. Develop the question wording.

6. Put questions into a meaningful order and format.

7. Check the length of the questionnaire.

8. Pre-test the questionnaire.

9. Develop the final survey form.

- **Content/Topic2. Techniques of identification of socio-economic situation**

  ✓ **Focus group interviews**

Focus group interviews are a survey research instrument which can be used in addition to, or instead of, a personal interview approach. It has particular advantages for use in qualitative research applications. The central feature of this method of obtaining information from groups of people is that the interviewer strives to keep the discussion led by a moderator focused upon the issue of concern. The moderator behaves almost like a psycho-therapist who directs the group towards the focus of the researcher. In doing so, the moderator speaks very little, and encourages the group to generate the information required by stimulating discussion through terse provocative statements.

Characteristics of focus group interviews

The groups of individuals (e.g. housewives, farmers, manufacturers, etc.) are invited to attend an informal discussion. Usually between 6 and 8 participants are involved and the discussion would last between 1 and 2 hours. Small groups tend to lose the mutual stimulation among participants, whilst large groups can be difficult to manage and may prevent some participants having the opportunity to get fully involved in the discussion.

The researcher raises issues for discussion, following a 'guide list of topics' rather than a structured questionnaire. The participants are encouraged to discuss the issues amongst themselves and with the researcher in an informal and relaxed environment. The researcher records comments made by the participants (usually utilising a tape or video recorder).

✓ **Inteviews**

An interview is a conversation between two or more people where questions are asked by the interviewer to elicit facts or statements from the interviewee.

Types of Interviews
There are many types of interviews, which include:
- structured interviews,
- semi-structured interviews,
- unstructured interviews,
- non-directive interview.

This article discusses the aforementioned interviews and ethical issues involved in conducting interviews.

Structured Interviews
A structured interview is sometimes called a standardized interview. The same questions are asked of all respondents.
The strengths of structured interviews are that the researcher has control over the topics and the format of the interview. This is because a detailed interview guide is used. Consequently, there is a common format, which makes it easier to analyze, code and compare data.

Semi-structured Interviews

On the other hand, semi-structured interviews are non-standardized and are frequently used in qualitative analysis. The interviewer does not do the research to test a specific hypothesis . The researcher has a list of key themes, issues, and questions to be covered. In this type of interview the order of the questions can be changed depending on the direction of the interview. An interview guide is also used, but additional questions can be asked.

Additional questions can be asked and some may be questions that have not been anticipated in the beginning of the interview. Note taking or tape recording documents the interview. This type of interview gives the researcher opportunities to probe for views and opinions of the interviewee. Probing is a way for the interview to explore new paths which were not initially considered.

Unstructured Interviews
This type of interview is non-directed and is a flexible method. It is more casual than the aforementioned interviews. There is no need to follow a detailed interview guide. Each

interview is different. Interviewees are encouraged to speak openly, frankly and give as much detail as possible.

Usually the interviewer has received virtually little or no training or coaching about the interview process and has not prepared much. The interviewers ask questions that respondents would be able to express their opinions, knowledge and share their experience.

This can create some problems because the interviewer may not know what to look for or what direction to take the interview. The researcher may not obtain data that is relevant to the question of the study. The interviewer needs to think about what to ask and to ask questions carefully and phrase them properly and know when to probe and prompt.

⊞ Non-directive Interviews

The structured and semi-structured interviews are somewhat controlled by the researcher who has set the issues and questions. In non-directive interviews there are no preset topic to pursue. Questions are usually not pre-planned. The interviewer listens and does not take the lead. The interviewer follows what the interviewee has to say. The interviewee leads the conversation.
The interviewer has the objectives of the research in mind and what issues to cover during the interview. The interviewee is allowed to talk freely about the subject. The interviewer's role is to check on unclear points and to rephrase the answer to check for accuracy and understanding .

✓ Meeting

Calling the members of a group or the inhabitants of a local community together for a meeting is the commonest group extension method. Although there may be an air of informality about such meetings, they will nevertheless need to be carefully thought out and planned. The group or community meeting is a useful educational forum where the agent and farmers can come together, and ideas can be openly discussed and analysed. The agent will probably have information about a new government policy, or agricultural idea or practice. He will want to introduce this new information, to seek the opinions of community members and gain their support for extension activities. Indeed, there are a whole range of purposes for such community or group meetings.

Types of group meeting based on purpose.

a) Information meetings

The agent calls the group or community together to commumcate a specific piece of new information which he feels will benefit them and upon which he seeks their advice.

b) Planning meetings

The main purpose is to review a particular problem, suggest a number of solutions and decide upon a course of action.

c) Special interest meetings

Topics of specific interest to a particular group of farmers (e.g., horticulture, bee keeping, or dairy farming) are presented and discussed in detail at a level relevant to those participating.

d) General community meetings

Men, women and young farmers of a community are invited to attend to discuss issues of general community interest. It is important to hold such general meetings occasionally so as to avoid any community group feeling that it is excluded from extension activities.

Whatever the case, however, the agent should only call a meeting if he thinks that it can be useful. If farmers feel that their time has been wasted in coming to a meeting, they may refuse to come to subsequent meetings and thus frustrate the agent's work. Once he decides to hold a meeting, the agent should make careful preparations and check a number of important arrangements which will be necessary to ensure a successful meeting.

Form of the meeting

Depending upon the nature and purpose of the meeting, the agent must decide the most appropriate form for the meeting and how it can best be conducted. The agent should consider the appropriateness of the different forms the meeting could take and, in consultation with community members, decide accordingly. Ideally, the ingredients should be mixed to suit the occasion.

Smaller meetings are more likely to meet the specific needs of those who attend. When plans are to be made or decisions taken, a small number of representatives will usually achieve more than a large gathering of all community members. On other occasions, it will be important for the meeting to be open to as many farmers as possible.

A formal meeting, with chairman, agenda and written record of proceedings, is appropriate when specific business has to be dealt with or decisions reached. The chairman keeps the meeting to the central issues, and the decisions of the meeting are recorded accurately so that they cannot be disputed later. In an informal meeting, farmers feel more able to express their own point of view and less dominated by the structure and formality of the

proceedings. However, an open, unstructured discussion, although it allows all to participate, may result in a few farmersdominating the proceedings.

Planning the meeting

There are two important decisions to make regarding the time and location. A date and time for the meeting must be decided and announced. The time should be convenient to all concerned and should avoid clashes with other events or activities. The meeting-place should be well-known, easy to get to and appropriate for the form of meeting. The meeting-place should also be comfortable and have the facilities necessary for the meeting. An extension agent would never hold a meeting at midday, on a very hot day, in the open sun. Such a meeting could be disastrous, as well as cause considerable discomfort.

After the above two issues have been considered, it may be useful for the agent to draw up a list of other arrangements to be made in preparation for the meeting. Such a As important could include:

As important

o   Publicity for the meeting

o   Seating arrangements

o   Audio-visual equipment and material, or other educational aids

o   Agenda, and order of events

o   Guest speakers or other specialists who will contribute to the meeting

o   Chairman to take charge of the meeting, who should be elected by the community

o   Refreshments for speakers and, where necessary, other participants.

Conducting the meeting

Even the most carefully prepared meeting can fail if it is not conducted in the right manner.

While the above arrangements are important, the way the actual meeting proceeds will determine

whether it will be a success or not. The agent must be conscious that he is dealing with adults who do not want to sit for hours listening to a speaker talk endlessly. The agent should try to vary the agenda of the meeting: for example, a short talk, accompanied by visual aids, followed by comments and questions.

Variety of content, as well as a chance for the farmers to participate, will be important. In

addition, the meeting must not go on too long. One-and-a-half hours are probably sufficient for a group or community meeting. It is better to have a highly productive, short meeting than one which rambles on and loses effect.

As a guide to the proceedings of the meeting, the agent should keep the following points in mind.

He should start the meeting on time. Then he should welcome community members and special guests, explain the purpose of the meeting and the program/activity to be followed, and begin the program/activity. Later, the agent should encourage questions and discussion, and be prepared to summarize the main points and note important decisions. The meeting should be closed with thanks to all concerned.

As the most commonly used form of group extension method, the group or community meeting will be most effective if carefully thought out and planned. After each meeting, the agent should make a brief record of the proceedings and the principal decisions taken. He should also take any prompt follow-up action that has been decided.

Summary on group meeting technique

Description	Group meeting is a method of democratically arriving at a decision by a group of people, after taking into consideration the members point of view.
Objectives .	To prepare a favorable climate for discussion and better understanding the problem. To facilitate in-depth discussion by involving a small number of participants. To generate new ideas and methods involving useful traditional practices and conventional wisdom, and select the rational ones through group interaction. To develop a favorable attitude and commitment for action through group involvement.

Situation	When pooling of knowledge and experience of a number of persons is desired in arriving at collective decisions through shared opinion. To act as a safety valve for reducing tension that may arise as a result of local disputes or outside influences.
Procedure	**Planning and preparation** Prepare an agenda highlighting the topic to be discussed, decide who should be involved and the date and time for holding the meeting. Assemble relevant information. Contact subject matter specialists, researchers and resource persons for participation, if required. **Implementation** Start the meeting on the scheduled date and time. Introduce the topic to the group and initiate the discussion. Allow the members to talk and interact. Encourage the less vocal members to participate in the discussion. Assist the group to take decisions and keep record of the discussion. While facilitating the discussion, gentle guidance may be required to ensure that it does not stray away from the main topic of the meeting. **Follow-up** Remind members of the decision arrived and assist them to take action. Arrange for services consistent with the decisions
Advantage	Promotes collective decision making as well as individual decision making by using knowledge and experience of group members. The group process enhances peoples participation and facilitates program implementation It develops the capability of the people to face challenges and adverse

	situations.
Limitations	Requires understanding of group dynamics and skill of the extension agent.
	Village factions may hider successful use of this method
	Some self discipline among members is needed for the method to be successful.
	It is a slow process and may not be suitable in crisis or emergency situations

Learning Outcome1.2: Select the site and target group considering extension approach

Content/Topic1. **Methods of Identification of main stakeholders group/area**

Extension methods are the ways of communicating between the farmers and the extension agents. Through extension methods knowledge and skills are disseminated to the farmers. It is vital for the extension agent to completely be familiar with these methods since it is important for the agent to pick a certain method according to the situation.

✓ **Categorization based on nature of contact, extension methods**

Based on nature of contact, extension methods can be categorized into three different groups:

❖ Individual/household extension

❖ Group methods

❖ Mass media.

🞣 **The individual/household extension**

In individual methods, the extension agent meets the farmer face-to-face, and gives him/her information and advice. In these methods the farmer gets the agent's full attention which will benefit the farmer.

These methods are likely to be the most essential part in extension work. Some examples of individual methods are farm visits, office calls and letters. Although direct contact with the farmer is important, individual methods require a lot of time and resources, and they only make contact with limited number of people.

This approach is most effective for activities undertaken by or within the full control of the individual farmer or household. In this regard, discussion with the whole family highlights more problems, and more experience is brought to the discussion.

Advantages

• Unclear messages that have not been fully understood can easily be clarified;

• The extension officer is able to secure cooperation and inspire confidence in the family through personal contact;

• It facilitates immediate feedback on the effectiveness of the measures discussed;

• It may be the best way to ensure that everyone in the family participates in decision making.

Disadvantages

• It is expensive in terms of time and transport;

• Only a few farmers may be visited, and sometimes they may be mainly the extension worker's friends;

• The area covered is small since all the effort is concentrated on a few farmers.

Group methods

In group methods, the agent meets the farmers in a group to conduct the extension work; therefore, he/she reaches more people than in individual methods. In group methods, the farmers can learn on each other for advice, and the group helps to form a supportive environment. However, forming a farmer group is a difficult procedure which requires a lot of time. In addition, extension agent has to consider many factors about farmer groups before starting the work consist of farmers with similar interests and problems which will help in reaching to the purpose.

This approach involves working with groups or the community at large. It is suitable when discussing matters related to the whole community (e.g. post-harvest grazing, animal vaccination) and when there are activities to be undertaken by a group (e.g. group nurseries).

The direct target group may be a women's group, a church organization, a cooperative society or the community in general. Extension work can be carried out at meetings, either organized specifically for the selected purpose or by making use of meetings that were already organized for some other purpose.

Meetings are effective venues for receiving information from the community, for discussing issues of communal or individual interest and for spreading new ideas. Field days and demonstration are best organized on individual farms.

Two kinds of demonstration can be used: Result and Method demonstration. Result demonstration shows farmers the results of a practice that has been in use for some time and is intended to arouse the farmers' interest in the practice. This can also be used to compare older practices or techniques with new ones. Method demonstrations show farmers how a particular activity or task is carried out. It is among the oldest and effective methods of teaching since farmers can practice, see, hear, and discuss during the demonstration.

Under the group approach five different methods are used: the catchment approach, Training and Visit, the school approach, the mass media approach, and Farmer Field Schools.

❖ The catchment approach

All farmers within a certain area, normally some 200–400 ha, are mobilized and trained for conservation efforts. A catchment committee consisting of, and elected by, the local farmers assists the extension staff in awareness creation, layout of contours, implementation and follow up. The group approach is combined with the individual approach since each farm is subject to specific advice and layout.

❖ The school approach

In this approach, the extension work can be in the form of lectures, support for clubs, demonstration plots or discussions held during parents' days. Schools can be approached through headmasters or teachers. The pupils can be used as a channel for reaching the community and will also be influenced themselves, thus changing the behaviour and attitudes of the new generation. Pupils can also be used to trigger discussion in their families.

Advantages

• Schools can afford to make demonstration plots available and these be seen by many people;

• It is possible to reach large numbers of people within a short time at minimal cost;

• Pupils can be reached easily and are often very receptive to new ideas.

Disadvantages

• Children are not decision-makers in the home;

• It will be a considerable time before the children become influential in their society.

🞣 Mass media

Mass communication methods can make contact at the same time with numerous amounts of people.

This method involves the use of the mass media (e.g. radio, posters, drama, television, newspapers, films, slide shows) to inform the public. Mass media are mainly used to create awareness.

Advantages

• These methods can increase the impact of extension staff through rapid spread of information;

• Many people can be reached within a short time, even in remote areas.

Disadvantages

• The amount of information that can be transmitted is limited;

• Radio and television reception is poor in some areas and the target group may not own sets,

• It is difficult to evaluate the impact since there is no immediate feedback;

• Production of both programs and printed materials is costly and requires special skills.

None of these methods can be singled out as the best one: all of them have their advantages and disadvantages. The choice of methods depends on various factors such as the tenure system in the area, community organization, and resources available for extension.

A combination of extension methods is more effective than just one method. For example, in an area where tenure is communal, or land management is based on communal efforts, a group approach is likely to be more effective than an individual approach. Meetings, field days and approaches to schools may also be good options.

Selection criteria of extension area

a) Geographic situation

Geography sets the barriers such as climatic variability and distance. It is a big problem to adopt technologies or innovations across different latitudes and varying ecological conditions.

For example: In Rwanda we have different districts and sectors that can have different ecological conditions and latitudes that is to say the type of innovation used can be different according to the district or sector.

b) Economic factor

Economic environment affects extension in many ways:

➢ Country's stage of economic development.
➢ Level of government investment in public extension sector.

This is influenced by absence or presence of structural adjustment programme, the degree of economic dependence on agriculture and the proportion of population economically active in agriculture.

The percentage of farmers 'resource influences the type of technology to be transferred.

c) Administrative factor

Extension in many countries has its roots In assisting farmers in changing production, agriculture practices. The majority of extension systems are based on the countries ministry of agriculture or department of agriculture.

Extension administrators or leadership members have questions on what is the best extension administrative model and what are administrative practices which make a successful extension system.

Administrative system in many agriculture sector may have a negative impact on the extension system in many ways.

e.g: Long administrative procedures,…

d) Transportation

Many areas cannot be reached by road, or transport vehicles may be in short supply. Farmers under these conditions are difficult to reach with improved technology and they will have problem in transporting their inputs and agricultural products.

e.g: Inputs supply can be far apart, and excessive transport distance can make it difficult and/or impossible for traditional farmers to adopt improved technology.

e) Adhesion, belief and culture

People's adhesion/belonging in religion/belief in environment protection association such as ecologist or environment activist, etc.

Examples:

➢ The muslims cannot be sensitized on pig farming.
➢ Some protestants cannot wish to be helped in alcoholic drinks entrepreneurial.
➢ Other people belonging in agriculture cooperatives (rice, coffee, tea, beans) associations…As the group can be reached together and group members can sensitize each other.

f) Social factor

Social builds community-based responses that address underlying social problems on an individual, institutional, community, national and/or international level. Social can change attitudes, behaviours, laws, policies and institutions to better reflect values of inclusion,

fairness, diversity and opportunity. Social involves a collective action of individuals who are closest to the social problems to develop solutions that address social issues.

- **Target group categorization**

There are five(5) categories of people according to the time and speed of reaction to change. Those categories are:

➢ Innovators
➢ Early adopters
➢ Early majority
➢ Late majority
➢ And laggards

The following are characteristics of each category:

a. Innovators(2.5%)

➢ They are the first individual to adopt an innovation.
➢ They are willing to take risk.
➢ They are youngest in age.
➢ They have the highest social class.
➢ They are very social and have close contact to scientific source and interaction with other innovators.
➢ Risk tolerance has allowed them to adopt technologies which may ultimately fail.

b. Early adopters(13.5%)

➢ These individuals have the highest degree of opinion leadership among the other adopter categories
➢ This is the second fastest category of individuals who adopt an innovation.
➢ They are typically younger in age.
➢ They have a higher social status.
➢ Advanced education.
➢ They are more socially forward than late adopters.
➢ They are more discrete in adoption choices than late adopters.
➢ They are able to take limited risks with their land,trees…

c. Early majority (34%)

➢ The individuals in this category adopt an innovation after a varying degree of time.

➢ This time of adoption is significantly longer than the innovators and early adopters.

➢ Early majority tend to be slower in the adoption process.

➢ They have average social status

➢ They contact with early adopters.

➢ Seldom hold position of opinion leadership in system.

d. Late majority (34%)

➢ Individuals in this category will adopt an innovation after the average members of the society.

➢ They are typically skeptical about an innovation.

➢ They have below average social status.

➢ They have very little financial lucidity and very little opinion leadership.

e. Laggards(16%)

➢ Individuals in this category are the latest to adopt an innovation.

➢ Unlike some of the previous categories they show little to no opinion leadership.

➢ They typically have an aversion to change agents and tend to be advanced in age.

➢ Laggards typically tend to be focused on traditions, likely to have lowest social status ,lowest financial fluidity.

➢ Be oldest of all other adopters in contact with only family and close relatives.

- Content/Topic2.Training process of identified group on problem solving

Problem solving

Firstly the problem can be defined broadly for better knowing it and in order to know how to solve it in achieving what we want to achieve.

The stages of problem solving

The problem solving can be divided in different ways and stages. To be successful problem solver you need understand what are the stages involved and follow them methodically whenever you encounter a problem. Those stages are:

a) Recognizing and defining the problem.

b) Finding possible solutions.

c) Choosing the best solution.

d) Implementing the solution.

a) Recognizing and defining the problem.

Before Any action can be taken to solve a problem, you need to recognize that the problem exists. Once you have recognized a problem, you need to give it a label(a tentative definition).

b) Finding possible solutions

Generally the closed problems have one or a limited number of possible solutions, while open problems usually can be solved in a large number of ways.

The most effective solution to open problem is found by selecting the best from a large wide range of possibilities.

Finding solutions involves analyzing the problem to ensure that you fully understand it then constructing courses of action that will achieve your objective.

Constructing courses of action to solve the problem involves discovering what actions will deal with any obstacles and achieve your objective.

c) Choosing the best solution.

This is the stage at which you evaluate the possible solutions and select that which will be most effective in solving the problem. It is a process of decision making based on comparison of the potential outcome of alternative solutions.

This involves:

➢ Identifying all the feature of an ideal solution including the constraints it has to meet.

➢ Eliminating the solutions which do not meet the constraints.

➢ Evaluating the remaining solutions against the outcome required.

➢ Assessing the risks associated with the best solution.

➢ Making the decision to implement this solution.

A problem is only solved when a solution is implemented.

d) Implementing the solution

This involves three (3) separate stages:

➢ Planning and preparing to implement the solution.

➢ Taking the appropriate action and monitoring its effects.

➢ Reviewing the ultimate success of the action.

Implementing your solution requires all your effort and careful planning. The plan describes the sequence of actions required to achieve the objective ,the time scale and the resources required at each stage. Once the plan is put to effects ,the situation has to be monitored to ensure that things are running smoothly.

When the action is completed it is necessary to measure its success both to estimate its usefulness for solving future problems.

At any stage in solving problem it may be necessary to go back and adapt the work done at an earlier stage. A variety of techniques and strategies are available to help you.

The skills of solving problem are:

     a)   Identify the problem.

     b)   Collect information.

     c)   Decide causes.

     d)   Identify possible solutions.

     e)   Select best solution.

     f)   Plan for implementation.

     g)   Implementation and test.

     h)   Review.

L.O.1.3. Sample target group and area according to existing problem

- **Content/Topic1. Sample definition and delimitation**

A sample can be defined as a representative part or a single item from a large whole or group especially when presented for inspection or shown as evidence of quality: **Specimen.**

It can also be defined as a finite part of a statistical population whose properties are studied to gain information about the whole.

The sample must be followed by an explanation of its delimitation(Sample size).This will help the scope of the study and it also explains why definite aspects of a subject were chosen and why others were excluded.

- Content/Topic2**. Sampling Techniques**

Sampling method is a procedure for selecting sample members from a population.

a. Random sampling

This is the purest form of probability sampling.Each member of the population has an equal and known chance of being selected.When there are very large populations,it is often difficult or impoissible to identify every member of the population,so the pool of available subjects becomes biased.

b. Stratified sampling

With stratified sampling the population is divided into groups(strata),based on some characteristics,then within each group a probability sample(often a simple random sample)is selected.

c. Cluster sampling

Cluster sampling refers to a sampling method that has the following properties:

➢ The population is divided into N groups called clusters.

➢ The researcher randomly choose n clusters to include in the sample.

➢ The number of observation within each cluster **Mi** is known and
$M=M_1+M_2+M_3+...+M_{N-1}+M_N$

➢ Each element of the population can be assigned to one,and only one cluster.

This tutorial covers two types of cluster sampling methods:

d. One-stage sampling

All of the elements within selected clusters are included in the sample.

e. Two- stage sampling

A subset of elements within selected clusters are randomly selected for inclusion in the sample.

✓ **Advantage of cluster sampling:** Its cost per sample point is less for cluster sampling than for other sampling methods.

✓ **Disadvantage:** It provides less precision than either simple random sampling or stratified sampling

NOTE : Strata and clusters differ in several ways:

✓ All strata are represented in the sample but only a subset of clusters are in the sample.

✓ With stratified sampling, the best survey results occur when elements within strata are internally homogeneous. However, with cluster sampling the best results occur when elements within clusters are internally heterogeneous.

Learning Outcome 1.4: Register target group according to the standards

When you register a groups examples as targets, you must ensure that the security groups for your instances allow the load balancer to communicate with your cases on both the listener port and the health check port.

The following table present a sample registration form

District	Sector	Cell	Village	Name	Id Number	Telephone	Code of the group

Leaning Unit 2: Select Extension Methods

L.O.2.1. Prepare the materials to be used referring on extension method

- **Content/Topic1.**Types of extension materials

The extension materials (**Communication Channel**) are anything which carries sender's message to the receiver. In Extension Education, generally, there are a number of communication channels such as **radio, television, telephone, meetings, talking exhibition books, bulletins, posters, newspaper, leaflets, and postal-letters.**

Communication channel works as physical bridge between communication source (the sender) and receiver.

There are several channels of communications available to the extension communicator. It is defined that a single channel cannot be effective or best for all situations.

At the time of selecting the channels of communications, the following points must be taken into account :

- The value of the communication medium; for example the particular channel should not be of such a high cost that there may be difficulty in using it.
- Availability of the channel to the communicator i.e., it must be available easily.
- From the communication channels the maximum senses (hearing, taste, touch, sight and smell) of the person, may be utilized.
- Suitability of the channel for audience and message.
- Considering the main object of the message, the communication channel must be selected.

Instruction sheet development

⬚ For meeting

⬚ Letter

Appointment

L.O. 2.2. Select communication ways considering target group and area

- Content/Topic1. Individual methods of extension

Individual extension method is teaching a technical topic to a single farmer, previously selected and not a whole village or an entire district. This type of extension is effective for activities that exclusively depend on the farmer or his household. Normally, it is recommended that the topics covered in this type of extension should be discussed with the family of the farmer. This gives more chance of achieving the desired results.

Advantages individual methods of extension:

   a) Helps the Extension Agent in elaborating report.

   b) Facilitates gaining first-hand knowledge of farm and home.

   c) Helps in selecting demonstrators and local leaders.

   d) Helps in changing attitude of people.

   e) Helps in teaching complex practices.

   f) Facilitates transfer of technology.

   g) Enhances effectiveness of mass and group methods.

   h) Facilitates getting feedback information.

Limitations individual methods of extension:

   a) Time consuming and relatively expensive.

   b) Has low coverage of audience.

   c) Extension Agent may develop favoritism or bias towards some persons.

The individual extension method should be used in various ways:

   ❖ Farm and home visit

   ❖ Training a model farmer

   ❖ Personal letter

   ❖ Phone call

   ❖ Informal contact

   ✓ **Visit to the farm and the household**

During such visits, the extension worker visits the farm with the farmer with or without the members of his family who explain him/her all the constraints in agricultural activities. This

visit also gives the extension worker the opportunity to provide advices on issues poorly handled by the farmer.

It is very important for the agricultural extension worker to greet the farmer first before saying anything.

Farm visits allow contacts between the farmer and the extension worker face-to-face.

These visits require a lot of time from the extension officer that is the reason why they should be done only when their goals have been well clarified.

Since agriculture is often a family activity, it is important for the extension worker to go in the household before leaving the farm in order to share with the other members (if they have not been able to visit the farm with him) all the suggestions about improving their farming activities.

Farm visits can:

✓ Familiarize the extension agent with the farmer and his family;
✓ Enable him to give specific advice or information to the farmer;
✓ Build up the agent's knowledge of the area, and of the kinds of problems which farmers face;
✓ Permit him to explain a new recommended practice or follow up and observe results to date;
✓ Arouse general interest among the farmers and stimulate their involvement in extension activities.

a. Planning the visit

First, it is important to be very clear about the purpose of the visit. Before a visit, the extension agent should review the file on the farm to be visited and consult any other information available on the farmer. He must be fully informed on the relevant details of the farm he is visiting and should summarize the situation in a few notes before setting off.

He must try to avoid showing ignorance of the farmer and his farming activities, or the need to consult his file during the visit.

❖ **As important:**

    a. Make an appointment if possible.

    b. Decide the purpose of the visit.

    c. Review previous records and information.

    d. Prepare specialist subject matter that might be required.

    e. Schedule the visit into the overall work plan.

b. Making the visit

The agent must always remember the basic educational purpose of extension and his role in this process. The agent's role is not just one of transmitting new knowledge or recommendations; he must also devote time during visits to building up the farmer's confidence and interest. One of the first points to think about when making a farm visit is how to start a conversation.

The first few minutes of contact are extremely important for establishing a good relationship, particularly if it is the first meeting. Methods of establishing rapport and of initiating conversation differ from culture to culture. Small talk in order to break the ice is often an important first step, and gives both sides a chance to relax and to get to know each other a little before more serious matters are discussed. Time must be spent in greeting the farmer and his family and an informal chat will not be wasted. Similarly, local customs should be followed as regards accepting hospitality. If visitors are expected to drink tea or coffee with the host, then the agent should do so, while taking care not to acquire a reputation of one who spends all his time drinking tea or coffee during visits.

The agent should then choose the moment when more formal business can be discussed. The choice of the discussion topic is also an important decision for the extension worker. If he is sensitive to the farmer's needs, he will discuss matters relevant to these needs. Moreover, he will discuss these topics at the farmer's level and in language that the farmer is accustomed to use. In this respect, the agent should be a good listener as well as a good talker, and he should encourage farmers to explain and discuss issues at their own pace and in their own words.

It is important for the agent to find a reason to praise farmers for some aspect of farm management in order to encourage their involvement and make them feel that they also have knowledge to contribute.

As important

- ❖ Be punctual for the visit.
- ❖ Greet the farmer and this family.
- ❖ Praise the farmer's work.
- ❖ Encourage the farmer to explain and discuss any problems.
- ❖ Provide any technical or other information required.
- ❖ Record the details of the visit.
- ❖ Plan with the farmer the time and purpose of the next meeting.

c. Recording and follow-up

The purpose of any farm visit will be lost if its content and conclusion are not recorded and no follow-up action taken. During the visit, the agent will almost certainly make a series of notes and observations. On the first available office day, these notes should be neatly transcribed on an individual card kept at the extension office. After each visit, the agent should record the date, the purpose, the conclusions or recommendations arising from the visit, as well as any other additional information or observations which he feels will be helpful. The agent must not store this information in his head, since, if he is transferred, the incoming agent will be left with a gap in information and will find it difficult to catch up with the situation.

As important

- ✓ Record purpose of and decision resulting from visit.
- ✓ Arrange for any follow-up information or advice to be sent.
- ✓ Schedule the next visit to the farmer.

Farm visits are perhaps the single most important aspect of the agent's work in terms of establishing report with the farmers in his area and of building the trust and confidence that are vital to the success of his work. However, farm visits take up a lot of time and only a few farmers can be reached. Farm visits are, therefore, a costly extension method and for this reason they must be carefully thought out and planned. The visits must make an impact and must lead to positive agricultural development if they are to justify their cost. Finally, the agent should beware of visiting some farmers repeatedly. This would not only severely limit the range of his activities, but could also arouse the resentment of other farmers who might feel excluded.

Table 1: Summary on farm/home visit

Description	It is a direct, face-to-face contact by the extension agent with a farmer or homemaker at their farm or home for extension work. The extension agent communicates with the people individually maintaining a separate identity of each person
Objectives	To get acquainted with and gain confidence of farmers and homemakers. To obtain and/or give firsthand information on matters relating to farm and home. To advice and assist in solving specific problems, and teach skills. To sustain interest.
Situation	People to be contacted are few in number. Farmers are conveniently located close to the extension agent Sufficient time is available for communication

Procedure	**Planning for preparation** Decide on the audience and the objectives – whom to meet and what for? Get adequate information about the topic. Collect relevant publications and materials to be handed over. Make a schedule of visits to save time and money. If possible, send advance information. **Implementation** • Visit on the scheduled date or according to convenience of the farmer and when the person is likely to listen. Create interest of the farmer and allow the individual to talk first. • Present the message or points of view and explain up to the satisfaction of the farmer. Answer to questions raised and clarify doubts. Hand over publications, if any. Try to get some assurance for action. **Follow-up** Keep appropriate record of visit Send committed information or material Make subsequent visits as and when necessary
Advantages	Helps to build a rapport with farmers Helps to identify local leadership. Helps to change attitude of people. Helps in teaching complex practices Enhances effectiveness of group and mass media methods. Facilitates getting feedback information.
Limitations	Only a limited number of contacts may be made. Time consuming and relatively expensive. Favoritism may develop towards some farmers.

✓ **Office calls**

Just as the extension agent visits the farmer, so he can expect that from time to time the farmer will visit him at his office. Such a visit is often a reflection of the interest which the agent may have aroused among the local farmers. The more confidence local farmers have in the extension agent, the more likely they are to visit him.

As with farm visits, office visits similarly have to be prepared. Although the agent may not know when a farmer is likely to drop in, he can at least arrange the extension office in such a way that the visitor feels at ease and can understand the activities of the office.

The arrangement could include:

✓ Ensuring that access to the extension office is adequately posted and the agent's name displayed;

✓ Having a notice-board clearly displayed upon which useful, up-to-date information can be pinned;

✓ Having one or two chairs where visitors can wait for appointments;

✓ Displaying any bulletins, circulars or other written extension literature that the visitor can read.

For some farmers, a visit to the extension office may be a difficult experience. The agent should, therefore, try to put the farmer at ease, asking a few questions in order to get the farmer to explain his problems. The agent should be polite but purposeful, and try to find out the reason for the visit as quickly as possible. The outline of an extension office is important.

Table 2:Summary on office call techniques

Description	The farmers call is a call made by a farmer or homemaker at the working place (office) of the extension agent for obtaining information and assistance.
Objectives	To provide advice and information urgently required by the farmers in solving specific field problems faced by them. To get specimens for examination and proper identification of the problem. To ensure timely supply of inputs and other services if such services are

	sourced through the extension office.
Situation	Farm is difficult to reach due to poor road access or it is located far away from the extension office.
	When urgent attention and solution is required for farm problems such as outbreak of a new pest or disease
Procedure	**Planning for preparation**
	Place the extension office in a convenient location
	Keep the office neat, orderly and attractive.
	Maintain an up-to-date bulletin board displaying current leaflets, photographs, charts, etc, as well as posters relating to important information and current extension activities and events in the area.
	Be available in office on fixed days and hours each week, which have been communicated to the farmers in advance.
	Implementation
	• Make a special effort to put the visitor at ease, especially if he appears to be shy in the unfamiliar environment.
	• Allow the visitor to talk and make the point. It may be necessary to ask the questions in order to determine the visitor's concerns and problems.
	Discuss the problems and issues and suggest solution
	Let the visitor leave the office satisfied.
	Follow-up
	Keep appropriate record of the call
	• If necessary, refer the problem to subject matter specialist for appropriate advice and/or solution
	Supply further information and material if such commitment has been made
Advantages	Builds up farmer's confidence in extension agent.
	Helps to build up a good rapport with the farmer.
	Helps to change attitude of the people.
Limitations	• The extension agent may find it difficult to understand the field problem through farmer's verbal description.

	It is not possible for the extension agent to be available in office all the time.

✓ Training a model farmer

➢ The extension worker may not have frequent contact with all farmers. This is the reason why he is often focused on model farmers who help him in the extension of selected topics.

➢ The selected model farmer must have farming practices and attitudes superior to those of ether farmers. He must be competent.

➢ A model farmer helps extension worker in demonstrating the advantages of good agricultural practice and persuading the others to adopt them in their turn.

➢ When the extension worker meets a model farmer in his field, he should invite other farmers to come and participate in discussions and make recommendations.

➢ The model farmer should be encouraged by extension worker to explain the recommendations to others.

❖ Advantages of training a model farmer

➢ The message reaches much more farmers in short time.
➢ Farmers are easily convinced of the importance of the method because they see one of them benefiting from those advantages.
➢ Extension worker use little time and resources comparing with individual.

❖ Disadvantages of training a model farmer

➢ The extension worker may choose a model farmer in whom the other farmers are not confident.
➢ The selected model farmer may not represent all categories of farmers.
➢ The farmer may not be able to explain the technique to others.

✓ Other individual methods

a. Telephone calls

Telephone calls and office visits serve a very similar purpose. It is improbable that the extension worker will deal with many of the farmers in his area (if at all) by telephone. If the telephone is used, however, it will not be for long discussion but for passing on specific advice or information.

b. Informal contacts

Informal contacts will occur continually during the agent's stay in a particular area. Market days, holiday celebrations or religious events will bring him into contact with the farmers with whom he is working who will inevitably talk about their problems. By attending such events, the agent can become well acquainted with the area where he works and with the farmers and their problems, and he will be able to pass on ideas and information on an informal basis.

- Content/Topic2. Group methods of extension

A group may be defined as an aggregate of small number of people in reciprocal communication and interaction around some common interest. In this method, the Extension Agent communicates with the people in groups and not as individual persons. The method is used when it is necessary to communicate with a number of people simultaneously, who are located not too far off from the communicator and time available for communication is reasonably adequate.

Purpose of group methods

The agent should be aware of two main purposes in his work with groups. First, he should try to develop the group, to encourage its members to continue to meet and to establish the group on a permanent basis. In this way, the agent will be developing a base from which group members can continue their development efforts.

Second, the agent should use the group to transmit new ideas, information and knowledge that will assist the farmers in their agricultural activities. While the second use of groups is more common, it is important that the agent consider the initial development of the group as an equally vital extension activity.

Size of group methods

The most suitable size for groups in rural extension is between 20 and 40 members. Smaller groups allow closer contact, a better chance of involvement and more opportunity for strengthening bonds of friendship and support among members. One common determinant of group size is geographical location: its membership will be restricted to those living within a particular area.

Membership of group methods

Since the extension agent's job is to help farmers identify and tackle problems, it is better to have groups of farmers with common problems. If the agent is working with a group made up of different types of farmers, ranging, for example, from big landowners to small, tenant farmers, it may be difficult for him to achieve a common purpose within the group. The agent, therefore, should pay careful attention to group membership and try to ensure that its members share a common interest and problems.

The extension agent should consider the use of the group approach in his work with farmers. The use of groups in extension has become more common over the past decade, and indeed a number of new ideas have emerged about how groups may be used most effectively.

Advantages of group methods

It has been seen that individual extension methods can be costly in both terms of time and scarce extension resources, and that they reach only a limited number of farmers. There is also the danger that too much emphasis upon individuals can lead to undue concentration on progressive farmers to the detriment of the poorer farmers.

✓ Enables Extension Agent to have face-to-face contact with a number of people at a time.
✓ Enables the Extension Agent to reach a selected part of the target group.
✓ Facilitates sharing of knowledge and experience and thereby strengthen learning of the group members.
✓ Reach fewer people, but offer more opportunities for interaction and feedback.
✓ Satisfies the basic urge of people for social contacts,
✓ Motivate people to accept change due to group influence.
✓ More effective than mass method in stimulating action.
✓ Less expensive than individual method owing to wider coverage.

Limitations of group methods

✓ Wide diversity in the interest of group members may create a difficult learning situation.

✓ Holding the meeting may be regarded as an objective itself.

✓ Vested interests, power groups and village factions may hinder free interaction and decision making by group members.

✓ Individual problem are not well examined in a group.

Coverage of group methods

The group method offers the possibility of greater extension coverage, and is therefore more cost-effective. Using the group method, the extension worker can reach more farmers and in this way make contact with many more farmers who have had no previous contact with extension activities.

Learning environment of group methods

Extension groups offer a more reflective learning environment in which the farmer can listen, discuss and decide upon his involvement in the extension activity. The support of the group helps an individual farmer to make decisions and determine a course of action. The group creates a supportive atmosphere, and individual farmers can gain greater self-confidence by joining others to discuss new ideas and try out new practices.

Action of group methods

The group method brings together farmers with similar problems. Often, these problems demand concerted action (tackling the erosion of a hillside, for example), and such action can be taken more effectively by a group rather than by an individual, who may be overwhelmed by the enormity of certain problems.

Techniques of group extension methods

1. **Group meetings .**

Calling the members of a group or the inhabitants of a local community together for a meeting is the commonest group extension method. Although there may be an air of informality about such meetings, they will nevertheless need to be carefully thought out and planned. The group or community meeting is a useful educational forum where the agent and farmers can come together, and ideas can be openly discussed and analysed.

The agent will probably have information about a new government policy, or agricultural idea or practice. He will want to introduce this new information, to seek the opinions of community members and gain their support for extension activities. Indeed, there are a whole range of purposes for such community or group meetings.

Types of group meeting based on purpose.

a) **Information meetings**

The agent calls the group or community together to communicate a specific piece of new information which he feels will benefit them and upon which he seeks their advice.

b) **Planning meetings**

The main purpose is to review a particular problem, suggest a number of solutions and decide upon a course of action.

c) **Special interest meetings**

Topics of specific interest to a particular group of farmers (e.g., horticulture, bee keeping, or dairy farming) are presented and discussed in detail at a level relevant to those participating.

d) **General community meetings**

Men, women and young farmers of a community are invited to attend to discuss issues of general community interest. It is important to hold such general meetings occasionally so as to avoid any community group feeling that it is excluded from extension activities.

Whatever the case, however, the agent should only call a meeting if he thinks that it can be useful. If farmers feel that their time has been wasted in coming to a meeting, they may refuse to come to subsequent meetings and thus frustrate the agent's work. Once he decides to hold a meeting, the agent should make careful preparations and check a number of important arrangements which will be necessary to ensure a successful meeting.

Form of the meeting

Depending upon the nature and purpose of the meeting, the agent must decide the most appropriate form for the meeting and how it can best be conducted. The agent should consider the appropriateness of the different forms the meeting could take and, in consultation with community members, decide accordingly. Ideally, the ingredients should be mixed to suit the occasion.

Smaller meetings are more likely to meet the specific needs of those who attend. When plans are to be made or decisions taken, a small number of representatives will usually achieve more than a large gathering of all community members. On other occasions, it will be important for the meeting to be open to as many farmers as possible.

A formal meeting, with chairman, agenda and written record of proceedings, is appropriate when specific business has to be dealt with or decisions reached. The chairman keeps the meeting to the central issues, and the decisions of the meeting are recorded accurately so that they cannot be disputed later. In an informal meeting, farmers feel more able to express their own point of view and less dominated by the structure and formality of the proceedings. However, an open, unstructured discussion, although it allows all to participate, may result in a few farmers dominating the proceedings.

Planning the meeting

There are two important decisions to make regarding the time and location. A date and time for the meeting must be decided and announced. The time should be convenient to all concerned and should avoid clashes with other events or activities.

The meeting-place should be well-known, easy to get to and appropriate for the form of meeting. The meeting-place should also be comfortable and have the facilities necessary for the meeting. An extension agent would never hold a meeting at midday, on a very hot day, in the open sun. Such a meeting could be disastrous, as well as cause considerable discomfort.

After the above two issues have been considered, it may be useful for the agent to draw up a list of other arrangements to be made in preparation for the meeting. Such a As important could include:

As important

> ➢ Publicity for the meeting,
> ➢ Seating arrangements
> ➢ Audio-visual equipment and material, or other educational aids
> ➢ Agenda, and order of events
> ➢ Guest speakers or other specialists who will contribute to the meeting
> ➢ Chairman to take charge of the meeting, who should be elected by the community
> ➢ Refreshments for speakers and, where necessary, other participants.

Conducting the meeting

Even the most carefully prepared meeting can fail if it is not conducted in the right manner. While the above arrangements are important, the way the actual meeting proceeds will determine whether it will be a success or not. The agent must be conscious that he is dealing with adults who do not want to sit for hours listening to a speaker talk endlessly. The agent should try to vary the agenda of the meeting: for example, a short talk, accompanied by visual aids, followed by comments and questions.

Variety of content, as well as a chance for the farmers to participate, will be important. In addition, the meeting must not go on too long. One-and-a-half hours are probably sufficient for a group or community meeting. It is better to have a highly productive, short meeting than one which rambles on and loses effect.

As a guide to the proceedings of the meeting, the agent should keep the following points in mind. He should start the meeting on time. Then he should welcome community members and special guests, explain the purpose of the meeting and the program/activity to be followed, and begin the program/activity. Later, the agent should encourage questions and

discussion, and be prepared to summarize the main points and note important decisions. The meeting should be closed with thanks to all concerned.

As the most commonly used form of group extension method, the group or community meeting will be most effective if carefully thought out and planned. After each meeting, the agent should make a brief record of the proceedings and the principal decisions taken. He should also take any prompt follow-up action that has been decided.

Table 3: Summary on group meeting technique

Description	Group meeting is a method of democratically arriving at a decision by a group of people, after taking into consideration the members point of view.
Objectives	To prepare a favorable climate for discussion and better understanding the problem.
	To facilitate in-depth discussion by involving a small number of participants.
	To generate new ideas and methods involving useful traditional practices and conventional wisdom, and select the rational ones through group interaction.
	To develop a favorable attitude and commitment for action through group involvement.
Situation	When pooling of knowledge and experience of a number of persons is desired in arriving at collective decisions through shared opinion.
	To act as a safety valve for reducing tension that may arise as a result of local disputes or outside influences.
Procedure	**Planning and preparation**
	Prepare an agenda highlighting the topic to be discussed, decide who should be involved and the date and time for holding the meeting.
	Assemble relevant information. Contact subject matter specialists, researchers and resource persons for participation, if required.
	Implementation
	Start the meeting on the scheduled date and time.
	Introduce the topic to the group and initiate the discussion.

	Allow the members to talk and interact.
	Encourage the less vocal members to participate in the discussion.
	Assist the group to take decisions and keep record of the discussion.
	While facilitating the discussion, gentle guidance may be required to ensure that it does not stray away from the main topic of the meeting.
	Follow-up
	Remind members of the decision arrived and assist them to take action.
	Arrange for services consistent with the decisions
Advantages	Promotes collective decision making as well as individual decision making by using knowledge and experience of group members.
	The group process enhances people's participation and facilitates program implementation
	It develops the capability of the people to face challenges and adverse situations.
Limitations	Requires understanding of group dynamics and skill of the extension agent.
	Village factions may hider successful use of this method
	Some self-discipline among members is needed for the method to be successful.
	It is a slow process and may not be suitable in crisis or emergency situations.

2. Demonstrations

Farmers like to see how a new idea works, and also what effect it can have on increasing their crop production. Both purposes can be achieved by means of a farm demonstration. A good, practical demonstration is an invaluable method in extension work. The demonstration is a particularly powerful method to use with farmers who do not read easily.

A demonstration will give such farmers the opportunity to observe, at first hand, the differences between a recommended new crop practice and traditional practices. The strength of the demonstration should lie in its simplicity and its ability to present the farmers with concrete results.

There are two principal types of demonstration used by extension agents - method demonstration and result demonstration.

a. Method demonstration

Method demonstrations basically show farmers how to do something. In the method demonstration, the farmer is shown step by step how, for example, to plant seeds in line, to use a mechanical duster to control insects, or to top tobacco. The agent will probably be dealing with farmers who have already accepted the particular practice being demonstrated, but who now want to know how to do it themselves.

The main advantage of the method demonstration is that the extension agent can explain simple farming skills to a large number of farmers, thus increasing the impact of his extension work. Moreover, as farmers are able to participate, there is a greater chance that they will benefit from the demonstration than if they were passively hearing it in a lecture.

The main limitation of a method demonstration is that, if there are too many farmers present, only a few get a chance to see, hear and do. The agent must be conscious that the demonstration is a learning experience and prepare the event accordingly. It is also vital that the demonstration be well thought out and competently conducted.

Table 4: Summary on method demonstration

Method Demonstration	
Description	The method demonstration shows a group of people how an entirely new technique or an old practice in an improved way is carried out step-by step. It is sometimes used to complement result demonstration.
Objectives	To teach skills and stimulate people to action To discard ineffective or inefficient practices To improve the final result by doing a job in a better way. To build up learners confidence and satisfaction on the practice
Situation	When skills development is emphasized to carry out a job more effectively as means of improving the final result.

Procedure	*Planning for preparation*
	Identify the problems giving due consideration and involving the local clientele
	Select the skill which is important and needed by the farmers for immediate use
	Ensure the participation of subject matter specialists.
	Assemble the relevant information, materials and equipment.
	• Plan the presentation step-by-step including an introduction and summery, and practice the demonstration.
	• Decide on the date and time for the demonstration in consultation with the farmer leaders and relevant subject matter specialists, and give timely intimation to all concerned.
	Display diagrams, photographs, charts, etc., at the demonstration site.
	Implementation
	• Start the demonstration on the scheduled date and time in the presence of those who will be present.
	Welcome the attending farmers and explain the objectives of the demonstration.
	Show each operation step-by-step, explaining clearly why and how it is done.
	Ensure that all the participants have seen the demonstration and have understood it.
	Repeat difficult steps if required.
	• Invite the participants one by one or in small batches to practice the skill.
	• Clarify doubts and answer their questions.
	• After the participants have completed practicing the skill, summarize the proceedings highlighting the key points.
	Hand over relevant publications.
	Follow-up
	Keep a record of the participants and maintain contact with then

	Assist participants to acquire the required material and equipment.
Advantages	It involves seeing, hearing, participation and practicing in a group which stimulate interest and action.
	As the results of method demonstration are known within a relatively short time, it is very effective in persuading people to acquire the skill.
Limitations	Suitable mainly for practices involving skills
	Require good deal of preparation, equipment and skill of the extension agent.
	Not all the participants may get the opportunity to practice the skill depending on the size of the gathering and time available.

Source:

b. Result demonstration

- **Introduction**

Result demonstration is a method of motivating the people for adoption of a new practice by showing its distinctly superior result, or a result demonstration is a method of teaching designed to show by example the practical application of an established fact, or group of related facts. It is a way of showing people the value or worth of an improved practice whose success has already been established on the research station, followed by district trails or observation plots.

The main purpose of a result demonstration is to show local farmers that a particular new recommendation is practicable under local conditions. Comparison is the important element in a result demonstration: comparison between compost and no compost, between poor seed and selected seed, or between use of fertilizer and no fertilizer. "Seeing is believing" is an age-old expression, but one appropriate to a result demonstration. Until a farmer has actually seen the results of, for example, the application of a fertilizer, he will not be convinced by the agent's recommendation. By showing tangible results of a new practice recommended by the extension service, the agent can help to create confidence among the farmers and can greatly encourage them to try the practice themselves.

A result demonstration is an ideal way to present to farmers a comparison between traditional and new practices. It can also help to establish confidence in more scientific farming methods and increase the farmers' confidence in ideas originating from research stations. It shows proof of the value of a new practice. A result demonstration is also a useful tool that an agent can use to establish confidence among farmers in a new area.

Its major limitation is that it takes a long time to mature and is thus a costly use of extension resources. If, in the end, for whatever reason, the new practice should fail, it could have disastrous consequences. Often such failures (for example, because of lack of rain) are outside the control of the agent.

- **Basic principles for demonstrations**

Before the agent begins to plan and prepare for a demonstration, he should be clear about a number of key points that will guide his preparation and handling of the demonstration.

✓ **Participation**

Where possible, demonstrations should be carried out on local farms with farmers' participation rather than on an extension plot or research station.

✓ **Simplicity**

Simple, clear-cut demonstrations of a single practice or new idea will be far more effective than ambitious and over-complex demonstrations that demand too much of the farmer. It is better to proceed step by step with a number of demonstrations than to try do to everything at once.

✓ **Learning**

The demonstration is a learning environment and should be run in such a way that the farmers do in fact learn something. A demonstration is a type of class-room, and the agent must be conscious of classroom requirements in terms of space, time, equipment and the teaching method to use.

✓ **Preparation**

An extension agent should never contemplate holding a demonstration without careful planning and preparation. A demonstration hastily given could have disastrous consequences.

- **Planning the demonstration**

When the agent decides that a demonstration would be useful at a particular time, he must then dedicate some time to planning and preparing for it. In this respect, he must ask himself a number of questions.

a) What is the objective of the demonstration?

b) Why is the demonstration the most suitable extension method, and what would be the usefulness of the new idea to be demonstrated?

c) When should the demonstration be held? When is the most convenient date and time both for the farmers and in terms of the application of the new idea?

d) Where is the demonstration to be held? Which suitable location is the most convenient for the farmers?

The agent should work out in some detail his answers to the above questions before proceeding any further. It is very important that the reasons for the demonstration be appropriate and clearly understood and that there is a realistic expectation that the demonstration will be of benefit to the farmers involved.

- **Preparing the demonstration**

The more carefully the agent can prepare all the details of the demonstration, the more chance he will have of it running smoothly. The following are the key areas of preparation:

- Consult the local farmers and seek their help and advice in the preparation of the demonstration.

- Prepare a detailed plan of the demonstration, the main issues to be covered, the sequence of events, the resources needed and the contributions required from other farmers.

- Collect information and material available on the new idea or practice to be demonstrated, and make sure that the topic is familiar and that questions can be answered.

- Check that all the support material is ready (e.g., audio-visual aids, implements)

- Select those farmers who will take part in the demonstration and brief them on the outline of events.

- Ensure that the demonstration has been publicized and that the farmers know exactly when and where it is to take place.

- Visit the demonstration site beforehand to make sure that all is in order and that the site is appropriate.

- **Supervising the demonstration**

During the demonstration, the agent's role should be to supervise but not to dominate. He should actively support the farmer who may be assisting in the demonstration, and encourage the others to participate as much as they can. The agent should be keen to ensure that all those present benefit from the demonstration. During the demonstration, therefore, the agent should:

➢ *Welcome* the participants, make them feel at ease and ensure that they have all they require to benefit fully from the demonstration.

➢ *Explain* the purpose of the demonstration, what it is hoped to achieve and what the various stages are that will be followed. Distribute any literature or other material which may have been prepared as a guide for the participants.

➢ *Conduct* the demonstration in person or be ready to help the demonstrator farmer. Proceed at a pace the farmers can follow, and be prepared to explain again or answer questions from participants. Emphasize key points and explain the practice step by step in simple words. In a method demonstration, ensure that all those who wish to do so have a chance to practice the demonstration themselves.

> ***Summarize*** the main issues or points which have arisen, encourage questions from the farmers and make sure that the participants have had every opportunity to try out or examine the practice being demonstrated.

> ***Conclude*** the demonstration with a vote of thanks to all concerned, and with a few comments about any follow-up activities planned.

- **Follow-up**

It is important that any interest generated by, or decisions taken at, the demonstration be followed up. Farmers will feel let down if the agent does not do so. This follow-up will be useful for the agent as well. Demonstrations can often result in good contacts with local farmers, and the agent may be able to enlist their support for future activities. It is also important that the agent reflect upon the demonstration and evaluate its effectiveness. The agent should, therefore, write a report and prepare a record of the demonstration, noting the names of the participants, the effect achieved and personal impressions of the usefulness of the demonstration.

Table 5: Summary of results demonstration

Result Demonstration	
Description	Result demonstration is a method of motivating people for adoption of a new practice by showing its distinct superior results.
Objectives	To show the advantages and applicability of a newly recommended practice in farmer's own situation. To motivate groups of people in the community to adopt a new practice by showing its results. To develop innovative leadership
Situation	When it is necessary to communicate with a group of people, rather than individuals, to show the benefits of a new innovation. When the probable results of the demonstration trial is known beforehand through research findings, experience in its application in other areas and its potential adaptability to the conditions prevailing in the local area.

Procedure	**Planning and preparation**
	Analyze farmer's situations and select relevant beneficial practices, in consultation with subject matter specialists and researchers.
	Select few responsible, innovative and cooperating farmers who posses adequate resources and facilities, and having acceptance in the local community, with consensus of the farmer leaders, for conducting the demonstration. This, however, does not imply that big farmers are to be selected.
	Select representative locations for conducting the demonstrations where it will be easily visible to a large number of people in the community.
	Develop a complete plan of work clearly identifying each individual step and who has the responsibility each task, along with a time schedule.
	Discuss with the selected farmer and work with him to make sure that he understands the purpose of the demonstration and how it will be implemented.
	Organize materials and equipment required for conducting the demonstration.
	Give adequate publicity about the demonstration highlighting the date and time as well as the topic and its relevance. For example, by means of displaying a colorful signboard, for each demonstration plot, put up in prominent and visible places.
	Implementation
	Put up suitable signboard for each demonstration site
	• Start the demonstration on the scheduled date and time in the presence of those who will be present.
	Welcome the attending farmers and explain the objectives of the demonstration.
	• Ensure that all critical operations are done in time and try to supervise them personally.
	• Motivate as many farmers as possible to be present at the time of final assessment of the results.

	• Make frequent visits to monitor the demonstration plots closely during their entire trial period and make sure that they are progressing well.
	• Take photographs for record and help the demonstrating farmers to maintain records
	Arrange method demonstrations where a new skill is involved.
	Conduct field days and farmers' days around successful demonstrations.
	• Encourage the demonstrating farmers to explain the procedures and experiences to visiting farmers as much as possible.
	• Analyze and interpret the results and compare them with those under the existing farming practice.
	• Motivate the farmers to accept the new practices by emphasizing its applicability under the farmers own situation and the financial benefits that could be realized.
	Follow-up
	Use the results of the demonstration in future extension work and also release on to mass media for further dissemination.
	Prepare extension material, particularly visual aids such as photographs, charts, videos, etc, on the demonstrations for future use in extension programs.
	Engage the demonstration farmers in farmers' meetings and training programs.
Advantages	It helps to produce positive results for extension worker by creating confidence in their judgement and ability.
	• It helps to open way for further interaction with the farmers.
	• Hands-on participation in the trial will train and encourage the farmers to act in a more systematic and scientific manner.
Limitations	Unsuccessful demonstrations may cause some setback to extension work.
	It can be costly in terms of time, energy and funds for the extension work.

3. Field days or farmer's day

Field days are usually opportunities to hold method or result demonstrations on a slightly larger scale, and are usually run in a more informal and less highly structured manner. The purpose is often to introduce a new idea and a new crop, and to stimulate the interest of as many farmers as possible. Experimental stations or other government centres may be used for field days, but it is more usual and profitable for them to be held on the land of a local farmer. There is a greater chance of making an impact if the field day is held on a farmer's land, and if the farmer plays a part in running it and explaining the purpose.

Field days can range in size from a small group to annual events attracting hundreds of farmers. Since the aim is a general introduction to some new idea, there is less need to be concerned about limiting the numbers. The extension agent's role on the field day is to support the farmer on whose land it is being held, to offer general guidance to ensure that things run smoothly and to be available to answer questions and queries.

It is probably better not to over organize the field day but to try to create an atmosphere in which visiting farmers can inspect, inquire, question and generally get to know what is available.

It may be useful, however, to bear a few additional points in mind.

- **Limit** the numbers to the capacity of the field, to avoid overcrowding.
- **Ensure** a good layout of field-day activities, with easy access and facility of movement around the field.
- **Encourage** the demonstrator farmer to take most of the initiative; give him support but do not take over the field day from him.
- **Provide** suitably large visual material and also, if necessary, a loudspeaker, to ensure that all can hear. Check that extension literature and other material are available for consultation.
- **Conclude** the field day by bringing all the participants together, reviewing the day's proceedings and the main items seen and discussed, and explain any future relevant extension activities.

A field day is a day out for farmers and is often a welcome relief from their daily hard work. The agent should, therefore, provide an interesting and well-presented exhibition, suitable refreshments and points of rest, and generally create an atmosphere in which the farmers will feel at ease and will be eager to know what is going on.

Table 6: Summary on field days' technique

Description	It is a method of motivating the people to adopt a new practice by showing them what has actually been achieved by applying the practice under field conditions.
Objectives	To convince the farmers about applicability of the practice in their own situation. To motivate them to adopt the practice by showing its performance and profitability under field conditions. To remove doubts and unfavorable attitude about the new practice. To reinforce previous learning about the practice.
Situation	Field days or farmers' days can be held in research and demonstration farms, farmer's field or home. It can be used to the show results achieved with mini-kits or method demonstration plots laid down by selected farmers to the community.
Procedure	*Planning for preparation* Decide about the practice, the location, date, time and the participants. Contact Subject Matter Specialists and fellow extension agents serving in surrounding areas to ensure participation. Arrange a meeting place close to the location where the practice has been applied. Make a written program identifying the activities and responsibilities of suitable persons Involve the farmers and youth to assist in the preparations at all stages from programming to preparation of displays including charts, exhibits, diagrams, etc., and in organizing and decorating the site.

	Collect relevant publications and prepare a handout for the occasion. Arrange public address system, required materials and equipment, vehicles, etc. Inform invitees, farmers and, depending on the scale of the event, mass media personnel. Make arrangement to register participants. **Implementation** Welcome the participants on arrival, assemble them to meeting place and register attendance. • Start the meeting at scheduled time giving a brief introduction on the purpose of the field day and how the group should move. • Station capable Subject Matter Specialist or Extension Agents to man each important point and explain the practice and answer farmers' questions. If a demonstrating farmer is involved, he should also play an active role, and may be assisted by the Subject Matter Officers. • On completion of the field visit, invite all participants to the meeting place and distribute publications or handouts. A short time may be allotted to formal addresses followed by emphasizing of important points of the practice again. Invite few participants to present their observations and answer the questions that may be raised. End the meeting by thanking the participants for their attendance and the people who have helped in various ways. *Follow-up* Maintain contact with the participants to keep their interest and promote adoption of the practice Reinforce learning about the practice through use of mass media.
Advantages	The method gives the participants to visually observe the benefits that

	can be gained by application of the practice. Helps the farmers to socialize and to acquaint themselves with outside persons like Subject Matter Specialists. • Builds confidence of demonstrating farmers to continue with the practice and help in the extension effort to spread its wider application in the farming community
Limitations	Field days cannot be held frequently Does not facilitate in-depth learning

4. Tours

Farmers like to visit farms in other districts to see how they work, what they grow and what kinds of problems the farmers there are facing. A tour is a series of field demonstrations on different farms, or at different centers, and can often attract a lot of interest from local farmers. The tour should give local farmers a chance to see how other farmers cultivate their land, and to exchange ideas and experiences with them. It is important, therefore, that the area to be visited be in some way similar agriculturally to that of the visiting farmers.

As with all other forms of extension, tours have to be well thought out, planned, prepared and conducted. The five stages of determining the objective, planning the content, preparing the arrangements, conducting the tour and arranging for appropriate follow-up will be a guide to the extension agent.

However, it may be useful to add these points:

➢ *Visit* the area first to become familiar with local conditions, the farms to be visited, the route and road conditions.
➢ *Limit* the tour to what is possible. It is better to do a short tour in which visitors can have a good look at local farms than to arrange an ambitious tour and be pushed for time. Don't tire the visitors out.
➢ *Encourage* the host farmers to do all the explaining and to take charge of the tour.

> ➤ *Arrange* for food and drink during the tour.

> ➤ *Conclude* the tour with a short summary of the main events and note any comments or conclusions.

A field tour is an ideal method of involving farmers and of stimulating genuine interest in extension activities. It is also very useful in bringing farmers together to discuss common problems, and to gain useful experience of other areas.

Farmers Field School

In a radical departure from the earlier agricultural extension programs, a group based learning process is adopted in the Farmers Field School (FFS) approach. In the FFS, farmers carried out experimental learning activities that helped to understand the ecology of their crop fields. Knowledge gained through these activities enabled farmers to make their own locally-specific decisions rather than adopt generalized recommendations that had been formulated from outside the community

Farmer Field School (FFS) is a season-long training activity that takes place in the field. It is season-long so that it covers all the different developmental stages of the crop and their related management practices. The training process is always learner-centered, participatory and relying on an experiential learning approach.

Changes expected in use of FFS approach

Farmers as Experts

Farmers 'learn-by-doing' i.e. they carry out for themselves the various activities related to the particular farming/forestry practice they want to study and learn about. This could be related to annual crops, or livestock/fodder production. The key thing is that farmers conduct their own field studies. Their training is based on comparison studies (of different treatments) and field studies that they conduct(not the extension/research staff). In so doing they become experts on the particular practice they are investigating.

The Field is the Learning Place

 All learning is based in the field. The maize field, banana plantation, or grazing area is where farmers learn. Working in small subgroups they collect data in the field, analyze the

data, make action decisions based on the analyses of the data, and present their decisions to the other farmers in the field school for discussion, questioning and refinement.

Extension Workers as Facilitators Not Teachers

The role of the extension worker is very much that of a facilitator rather than a conventional teacher. Once the farmers know what they have to do, and what they can observe in their field, the extension worker takes a back seat role, only offering help and guidance when asked to do so.

Presentations during group meetings are the work of the farmers not the extension worker, with the members of each working group assuming responsibility for presenting their findings in turn to their fellow farmers. The extension worker may take part in the subsequent discussion sessions but as a contributor, rather than leaders, in arriving at an agreed consensus on what action needs to be taken at that time.

Scientists/Subject Matter Specialists Work with Rather than Lecture Farmers.

The role of scientists and subject matter specialists is to provide backstopping support to the members of the FFS and in so doing to learn to work in a consultative capacity with farmers. Instead of lecturing farmers their role is that of colleagues and advisers who can be consulted for advice on solving specific problems, and who can serve as a source of new ideas and/or information on locally unknown technologies.

The Curriculum is integrated.

The curriculum is integrated. Crop husbandry, animal husbandry, horticulture, land husbandry are considered together with ecology, economics, sociology and education to form a holistic approach. Problems confronted in the field are the integrating principle.

Training Follows the Seasonal Cycle.

Training is related to the seasonal cycle of the practice being investigated. For annual crops this would extend from land preparation to harvesting. For fodder production would include the dry season to evaluate the quantity and quality at a time of year when livestock feeds are commonly in short supply. For tree production, and conservation measures

such as hedgerows and grass strips, training would need to continue over several years for farmers to see for themselves the full range of costs and benefits.

Regular group Meetings.

Farmers meet at agreed regular intervals. For annual crops such meetings may be every 1 or 2 weeks during the cropping season. For other farm/forestry management practices the time between each meeting would depend on what specific activities need to be done, or be related to critical periods of the year when there are key issues to observe and discuss in the field.

Learning Materials are Learner Generated.

Farmers generate their own learning materials, from drawings of what they observe, to the field trials themselves. These materials are always consistent with local conditions, are less expensive to develop, are controlled by the learners and can thus be discussed by the learners with others.

Learners know the meaning of the materials because they have created the materials. Even illiterate farmers can prepare and fuse simple diagrams to illustrate the points they want to make.

Group Dynamics/Team Building.

Training includes communication skills building, problem solving, and leadership and discussion methods. Farmers require these skills. Successful activities at the community level require that farmers can apply effective leadership skills and have the ability to communicate their findings to others.

Table 7: Summary on FFS technique

Description	FFS is a season-long group-based training/learning program conducted in a designated field, where farmers carry out experimental learning activities that help them to understand the ecology of their farms through simple experiments, regular field observations and group analysis. The method has been used mainly for Integrated Pest and Crop Management (IPCM) programs, but may well adopted to other

	farming systems, e.g., soil and water, animal production and health, plant production, etc.
Objectives	To enable participating farmers to make their own locally specified decisions about crop management practices. To transfer part of the Government cost on extension to the community.
Situation	When mass mobilization of the farming community is required for a change in the currently operating farming systems.
Procedure	*Planning and preparation* Select suitable locations to establish the FFSs. It is better if the selected sites are close to the location of Extension Agent or the Facilitator. Discuss and finalize the terms and conditions with the owner farmer, on compensation, logistics, etc., and maintain proper communication channels. Carry out a baseline assessment. Select participating farmers who are interested, motivated, ready to learn, cooperative, full-time farmers growing the FFS crop for the FFS. Form farmer groups for FFS by gathering participants from a similar crop production background. Plan and conduct an introductory meeting to each group to explain objectives, benefits, farmer contribution (e.g., time and labor), distinctiveness of the system, and meeting schedules of FFS. Involve SMSs and relevant outside organizations. Register the willing group members Design the FFS curriculum through a study of problem identification and needs assessment to stating objectives, field activities and learning subjects of FFS. Prepare meeting schedules and detailed activity plans Procure materials and stationery including forms for data collections, etc. in time. **Prepare FFS budget**

	Implementation (the procedures will vary with the program and crop)
	Conduct the meetings and field activities as scheduled. Invite resource persons as and when required.
	Facilitate farmers to carry out field observation and sampling, charting the development of the crop, grouping the field data, analyzing the agro-ecosystem and present the results for discussion.
	Take care of the administrative obligations and maintain constructive communication with local authorities, NGOs and other organizations in the area.
	Evaluate the FFS during the season for training quality
	Evaluate the FFS at the end of FFS training – Impact evaluation
	Follow-up
	Set up farmer studies by providing specific training on field study skills to promote continuation by themselves independently
	Support farmer-to farmer extension by graduates of FFS offering to training to new groups
	Encourage the trained group to repeat activity on a different crop.
Advantages	Provide means to develop expertise among farmers in a farmers community and thereby promote good management practices and possible increase in profits
	Provide opportunities for farmer work group formation for related activities such as marketing (Global GAP) and community action on related topics.
	Provides an opportunity to integrate farmers' knowledge and experiences into the program through experimentation in FFS fields without personal risks.
	The basic knowledge acquired through FFS makes trainees better clients for research and extension systems as they have more scientific questions and demands,

Limitations	Assumes that the Extension Agent possesses all the required skills in growing of the crop selected for FFS. • This makes it necessary to train Extension Agents or the Facilitators in 'Farmer Respect Course' for at least one full season before commencement of FFS. • Finding a suitable FFS plot may not always possible due to reluctance of the land owner farmers (it differs from 'traditional demonstration' plots) • Cost per trained farmer is high.

Table 8: Summary on Small group training

Description	It is a technique of imparting specific skills to a group of people who need them by creating an appropriate learning situation
Objectives	To impart the needed skills to a small group of people. To motivate people to adopt new practices through skills training
Situation	Facilities for holding several sessions spreading over more than one day may be required. Useful where transfer of technology (e.g., post harvest technology for marketing, etc) is an important aspect .
Procedure	**Planning and preparation** Identify a technology for which there is a need in the community. Decide on the location, date, time and duration of the training program. • Select trainers having both theoretical knowledge and practical experience about the technology. They should have the ability to speak well and at the level of the farmers. • Prepare a written program allocating topics and time duration to different trainers. Discuss the program with the trainers to finalize the presentations schedule.

	Collect relevant materials, publications and audio-visual aids.
	Inform all concerned in time.
	• Make arrangements for refreshments, food, accommodation, transport and other facilities according to the needs of the program.
	Allocate responsibilities to suitable persons.
	Make arrangements for registration of participants.
	Implementation
	Start the training program on the appointed date and time.
	• Distribute publications and materials for taking down notes at the time of registration.
	Keep the inauguration function and other formalities to a minimum.
	• Invite the trainers as per the program. Give enough time for discussion and the trainees to react.
	• Explain the relevant technology and state clearly why and how it should be done.
	• Use visual aids such as chalk or white board, flip-chart, models, projector, computer, etc, as appropriate.
	• Arrange practical demonstrations and give enough time to each trainee for practicing the skill.
	Clarify doubts and answer to their questions.
	• Arrange for film/video show on the topic and/or visit to a location nearby where they can see a successful demonstration of the practice.
	Follow-up
	Maintain contact with the trainees.
	Encourage and assist them to apply the new practice and remove hindrances.
Advantages	In-depth learning of skills is possible.
Limitations	Only a small number of people can be trained at a time.
	Follow-up requires more staff and time

- **Content/Topic3.Mass Method of extension**

In this method, the Extension Agent communicates with a vast and heterogeneous mass of people, without taking into consideration their individual and group identity.

The method is used when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators and Subject Matter Specialists involved. The size of the audience may vary depending on the technique used.

a) Advantages

- ✓ Suitable for creating general awareness amongst people.
- ✓ Helps in transferring knowledge , forming and changing opinions.
- ✓ Large number of people may be communicated within a short time.
- ✓ Facilitates quick communication in times of emergency.
- ✓ Reinforces previous learning.
- ✓ Cost effective due to large coverage.

b) **Limitations**

- ✓ Less intensive method.
- ✓ Little scope for personal contact with the audience.
- ✓ Little opportunity for interaction with and amongst the audience.
- ✓ Generalized recommendations hinder their application by individuals.
- ✓ Little control over the responses of audience.
- ✓ Difficulty in getting feedback information and evaluation of results.

- **Types mass method of extension**
  a. **Farm Publication**

Farm publication is a class of publications prepared by the extension agency in printed form, containing information relating to the improvement of farm and home. Farm publications can be of various types and they may be used singly or in combination with other extension methods.

Leaflet: usually a single printed sheet of paper of small size, containing preliminary information relating to a topic.

✓ **Folder**

A single sheet of printed sheet of paper of big size, that is folded once or few times, giving essential information relating to a particular topic.

✓ **Bulletin**

A printed, bound booklet with a number of pages, containing comprehensive information about a topic

✓ **Newsletter**

A miniature newspaper printed in good quality paper, containing information relating to the activities and achievements of the organization. It has a fixed periodicity of publication.

✓ **Journal, Magazine**

Periodicals containing information related to various topics of interest not only for the farmers but also for the extension agents.

Farm publications are extremely useful to the literate farmers. Even illiterate farmers can make use of them with the help of literate members of their family. They may be used in most of the individual, group and mass methods.

b. Exhibition

An exhibition is a systematic display of models, specimens, charts, photographs, pictures, posters, information, etc., in a sequence around a theme to create awareness and interest in the community. They are held at many different levels, ranging from village to international.

Table 9: Presentation of Extension Methods and their respective techniques

Individual methods	Group methods	Mass methods
1. Farm and home visits	1. Group meeting	1. Broadcast media, Radio, and TV
2. Farmers call or office call	2. Result demonstration	2. Print media
3. Personal letter/telephone call.	3. Method demonstration	3. Farm publication on: Leaflet, folder, bulletin, newsletter, magazine
4. Informal contact	4. Small group training	4. Projected media, Film, video
5. Farm clinic	5. Field day or farmers day	5. Others
	6. Study tour	Exhibition, campaign, mass meeting, Agricultural festival
	7. Farmers Field School	

c) AUDIO-VISUAL AIDS

Audio-visual aids are instructional devises which are used to communicate messages more effectively through sound and visuals. The aids help in stimulating the sensory organs like ears and eyes, and facilitate quick comprehension of the message by the audience. These may be used for literate as well as illiterate people and has the following advantages:

➢ Capture audience interest and arouse their interest.

➢ Highlight the points of the message clearly.

➢ Possibility of misinterpreting concepts is reduced.

➢ Structure the learning process more clearly.

➢ Messages perceived with several senses are understood and retained better.

➢ Help more people irrespective of their level of literacy and language.

➢ Speed up learning process.

➢ Save time for the communicator and receiver

a) Classification of Audio-visual Aids

Instructional devises can be classified into **audio aids** – message can only be heard, visual aids – message can only be visualized, and audio-visual aids – message can be heard and seen simultaneously.

Classification of Audio-visual Aids

Audio Aids	Visual Aids	Audio-visual Aids
➤ Tape recorder ➤ Public address system ➤ Telephone	**Non-projected** ➤ Chalk/white board ➤ Bulletin board ➤ Picture and photograph ➤ Flash card, flip chart ➤ Poster ➤ Diagram, map, chart, graph ➤ Specimen, model	**Non-projected** Drama, puppet show
	Projected ➤ Slide ➤ Overhead projection ➤ Use of computer	**Projected** ➤ Documentary cinema ➤ Video

b) Choice of Audio-visual Aids

Audio-visual aids are used singly or in combination with other aids and extension methods. The Extension Agent should be well conversant about the audio-visual aids and acquire sufficient skill in handling them before using the in extension programs. The choice of audio-visual aids shall depend on a number of considerations.

a. **Teaching objective**: whether to give information, to impart skill or bring about change in attitude, etc.
b. **Nature of subject being taught**: Particular aspect of the technology and whether understanding depends on seeing or not.
c. **Nature of audience**: Their age, education, interest, experience, knowledge, intelligence, etc.
d. **Size of the audience:** Small or large.
e. **Availability of equipment, materials and funds**.
f. **Skill and experience of the extension agent** in preparation and use of audio-visual aides.

Learning Outcome 2.3: Develop instruction sheet based on area and target group

<mark>Content/Topic1.Instruction sheet template</mark>

Your first consideration must be the users: e.g.

how much do they know in advance?

Do they know the terms I use?

How many details will be necessary?

Any statements on safety must be written at the beginning of the instruction. If they are not necessary for the whole procedure, they should be repeated just before the step where precaution is necessary.

Users may be able to follow an instruction better if they are given some background information. Explanations should be given in front of the instruction, as it may be confusing to have them in between the description of the individual steps of the procedure.

Each step should be described in strict order of performance. Each step should appear in a new sentence, and the steps should preferably be numbered.

e.g.

> a) add 50 g salt
>
> b) stir until the salt is dissolved
>
> c) boil the mixture for two minutes.

It should be checked that all steps, even the smallest, are included in the manual.

 Check that the whole instruction can be understood and that the procedure can be carried through by the help of the instruction.

The draft instruction should be tried out in practice and revised a number of times until eventually everything is all right.

 It may be a good idea to let the potential users take part in the preparation of the manual.

- <mark>Content/Topic2.Formulation of instruction</mark>

When formulating instructions you should :

- Divide the topic into steps
- Start each step with an action word
- Follow logical
- Use positive actions

- Include alternatives
- Use graphics where helpful
- Be brief

✓ **Preparation of the extension campaign**

Agricultural extension campaign is coordinated efforts of various information and teaching methods for focusing attention on a specific agricultural problem and the solution to be made , during a specified period. It is the whole of the activities to be conducted in rural areas with farmers to achieve significant improvement in the agricultural techniques they apply. Those activities range from identifying problems in rural areas to the final assessment of the impact of the campaign.

In general, we say extension program if only one extension technique is used, and we talk about agricultural campaign if we mix various extension techniques at the same time (for example, demonstration plots and organize guided tours for beneficiary farmers are applied in one program).

Extension topic analysis

In analyzing the extension topic, the extensionists must ask themselves the following questions:

- To what extent is the topic know by the target audience?

The answer to this question helps understanding the explanation level and the media to use to explain the topic to farmers. For example, if we find that the topic is totally new, as for example if we want to introduce animal traction in Rwanda, it will be necessary for example to use movies to get farmers to understand the topic in question. If in the either case we find that this is a topic which is particular to them and that what is important is to remind them, like for example the exploitation of fields in time; the radio will be a useful tool to remind farmers.

- Is it easy to see and describe?

   when it is easy to see, study tours are a good tool but if seeing is not possible like for example if one wants to explain to farmers that a disease is caused by a bacteria, pictures or movies are good tools. We must also well understand at the start if the description of the topic is easy. As an example , describing to the farmers how is made mechanical milking seems much more difficult than describing for them how the cows are fed in housing.

- Are they ready for demonstration?

With this issue, the extension officer will know whether or not he/she will provide for demonstration in his/her campaign.

- To what extent is it compatible or incompatible with the scale of public values and with its lifestyle?

  The answer to this question allows the extension worker to better explain the topic in question. For example, in Rwanda where people rarely eat maize, bringing farmers to apply this crop requires first sensitizing them how to about eating maize or showing them other benefits of maize like for example the income they may have in growing that cereal.

- what use does it has for the public?

  with this the extension officer will know how to get farmers to adopt the topic and the level of required investment.

✛ Definition of the objectives of the extension campaign

While the situation analysis is used to determine "what is, "the definition of the objectives of extension expresses what "should be". Three criteria should govern this definition:

- Specify the type and degree of the desired change: we must see if we want people to become aware of the existence of such technology or if we want them to put into practice the technique in question,

- Identify the audience you want to talk to: we must know if we want to talk to women farmers only, for example.

- Determine the operation duration: it is important to define an objective limited in time.

ASSOPTHE is a farmers' cooperative located in Rulindo District, KINIHIRA sector and it is engaged   in tea production. In last two years, the farmers of this Cooperative faced a decrease of yield in tea crop due to poor quality of planting material and inappropriate maintenance practices. ASSOPTHE has decided to assist technically those farmers. Suppose that you are ASSOPTHE agronomist and you are requested to perform three cultural practices (pegging,planting ,pruning and fertilizer application) on tea plot of 10m2

and preparation of tea planting material.   The task will be achieved within 2 hours

This Formula Implies a Change in Knowledge and Technique, but occasionally specialized campaigns we could choose among six types of change at least the following:

- ❖ What people know (awareness, understanding)
- ❖ What people can do (technical skills)
- ❖ What people feel (attitudes, interests, values)
- ❖ What people think they should do
- ❖ What people propose to do (intentions)
- ❖ What people actually do (behavior)

🔱 Organisation of the extension campaign

Selection of an extension method is based on analysis and objectives to achieve.

The objectives to achieve in a campaign bring about the choice an extension method:

- It will be recalled that an extension method can be individual, in group or mass.
- Selecting and making teaching aids.

The selection of aids to use during an extension campaign will depend on the method chosen and the goal of the extension activity. The lines below show the type of aids that can be used depending on the chosen methods:

- For technical demonstrations, whether by individual or group extension, aids used will consist of agricultural tools, inputs, etc. We may use flip charts to draw the techniques used. Those flip charts will be supported by a support or a mobile tripod, to get made.
- For a result demonstration, will be used primary tape measures, bags, weighing devices and scales.
- In the case of mass extension, we use radio, movies, tapes, so overhead projectors on battery or radio recorders, posters.

➢ **Development of the activity calendar**

During a campaign, because many extension methods are used, it is good to develop an activity schedule to ensure that the activities are followed in an organized order. For example, in general, mass extension precedes demonstrations but individual and mass extension can be done simultaneously.

➢ **Preparing one's field note book**

A field book is an important tool managed by the extension worker in which he records all information collected in the field. It means that a field book is an indispensable tool in which we record all collected information on the field, day after day, and performed activities.

➢ **Task distribution within the extension department**

In an extension service, responsibilities should be well established since a single person cannot accomplish all the tasks of the campaign alone and often he/she does not even have the capacity to accomplish everything.

In extension service it is also important to properly separate tasks that must be done locally and those that must be achieved by the higher level.

Normally, the extension worker of the village for example will mainly deal with the activities related to the meeting organization of farmers, for example, the preparation of demonstration sites, the contribution in the selection of contact farmers, while the higher level extension worker will help in the implementation of the campaign by bring his/her know-how such as the explanation on the radio of the significance of the new variety.

➢ **Determination of internal control methods for conducting the campaign**

When conducting a campaign, he/she must have a system of internal control to see if the activities are taking place as planned. Thus, the transmission and processing system of reports should be clear.

A standard reporting form should be developed and may appear as follows:

Planned activities	Achieved activities	Reasons for not achieving planned activities
Visiting 10 farmers in their field	Only 3 were visited	The 7 days devoted to visiting others were used to support the Mayor in the visits he made in the district sectors.
Contacting 3 contact farmers	Only 1 was contacted	Lack of transportation (motorcycle crash)
Buying weighing devices	None has been purchased	The check is not yet signed
Explaining 3 times at the radio the significance of the variety	Only one broadcast was made	The radio officials said they cannot book 3 broadcasts per week for the campaign activities.

Such a report allows extension agents readjusting their program, changing it and taking other required measures.

Thus, for example :

-In the case of visits, it may be decided that the may or be informed not to no longer go with the extension worker on the ground before the end of the campaign.
-For the case of weighing devices, managers may be requested to expedite procedures for signing checks .
-For the case of radio broadcasting, it may be decided to no longer provide three shows on the radio, but rather to pass one per week.

✚ Selection of the communication channel and methods

"Rural communication is an interactive process in which information, knowledge and skills, relevant for development are exchanged between farmers, extension/advisory services, information providers and research either personally or through media such as radio, print and more recently the new 'Information and Communication Technologies' (ICTs). In this process all actors may be innovators, intermediaries and receivers of information and knowledge.

As part of the communication process, the sender must identify the type of message to be sent. Is the message a one-time message, or does it involve a series of messages that lead to a greater understanding? It is critical to know whether the intent is to communicate information, skills, training or education. ICT interventions need to be designed for the specific type of communication.

Communication technologies involve people and telecommunications technologies including radio, television and the Internet. The media used can be the same technologies but may also include telephones (land and mobile), computers and smaller devices such as smart phones, which combine features of telephones and computers using the Internet. Increasingly, tablets, including iPads, are also becoming prevalent. The growth and ubiquity of the Internet lie at the heart of the ICT revolution in development.

❖ **Integrating Extension Functions into ICT**

Designing an effective ICT strategy requires a thorough understanding of the functions of extension. According to Bell, Payne and Bohn (2011), the functions of extension are to: link farmers to markets; raise general awareness of opportunities; provide technical information, demonstrate or train; diagnose problems and recommend solutions; respond to follow-up questions raised by clients; provide mass advisories; facilitate access to credit and inputs; assist with business planning; and conduct surveys, monitoring and evaluation, and enumerations. Those functions require different ICT strategies and options.

❖ **Broadcast and Voice-based Technologies**

Broadcast technologies are very useful for extension strategies. Broadcast tools generally have limited audience participation, but many radio programs targeted to farmers often include questions and answers through call-in. Still, there is less audience participation than would occur with one-to-one mobile or even well-designed Internet training or DVD/CD training. Coupling broadcast tools with interaction can enhance the impact. Broadcast is aimed at serving large groups of people through radio, television or production of video.

Digital video could be used today on site for small trainings through television, through video players and online, often through satellite feeds (on a monitor or projected on a screen).

🔸 Perform the extension campaign

During campaign design workshops, radio producers, presenters, farmers, extension workers, local NGOs and others, contributed to campaign outlines, which summarized the key elements of the campaign, including the following: the specific improvements chosen, key audiences, key messages, ideal broadcast times, potential measures of success, links with extension workers in the region, use of other ICTs in the campaign, and potential feedback mechanisms (phone-ins, call-outs, SMS, letters, etc.).

Learning Outcome 2.4: Selection of technology/innovation to be disseminated

- **Content/Topic1. Characteristics of good topic/ innovation specific**

✓ Measurable

It can be observed or counted during or after the training session (How you will know what has been done meets the required standards).(Quality & Quantity)

✓ Achievable

Achievable/Attainable/Action oriented: It is about the feasibility of the task minding about the resources, and time frame it may take to achieve the objective. (Is the task feasible?)

Can the objective be accomplished in the proposed time frame with the available resources and support

✓ Realistic

Realistic/Reasonable/Relevant: (Are the sufficient resources available?), Is the objective aligned with the implementation plan of the session?

- Does the objective address the goal?

- Will the objective have an impact on the goal?

✓ Time bond Time-bound/ Time-restricted

It is appropriate to the time and scope can be achieved by the end of the training.

Does the objective propose a timeline ; when the objective will be met?

✓ **Marketing oriented technology.**

The global changes of rapid population growth, urbanization and market liberalization, impact directly on farming making it more market-oriented and competitive. These trends have an effect on farmers who need to develop their management skills and competencies to cope with this changing farming environment. For farmers to be better managers and to run their businesses for profit, they need assistance from extension workers. For many extension workers, however, business management is often a challenge as their experience and practice has largely been focused on agricultural production and technology transfer. To provide support it is critical that extension workers understand some of the concepts and practices of farm business management as applied to their day-to-day extension work.

LEARNING UNIT 3: Disseminate Technology

In agriculture, the role of technology generation system and technology transfer system is equally important. Traditionally dissemination of technological innovations is done by three methods viz; personal contact method, group contact method and mass contact method by using result and method demonstration methods. Farmers are enterprise owners in agriculture, and it is the responsibility of the Agricultural Extension System (AES) to transform the knowledge, skill and attitude of the farmers with the aim to enhance their farm productivity, production and profitability. An effective extension service makes for efficient Extension is an empowering system of sharing information, knowledge, technology, skills, risk & farm management practices, across agricultural sub sectors and along all aspects of the agricultural supply chain, so as to enable the farmers to realise higher net income from their enterprise on a sustainable basis.

L.O.3.1. Plan daily activity referring on area and target group

- **Content/Topic1.**Characteristics of guidance committee.

✓ **Progressive**

The culture of farmers undergoes change while doing extension work. There will be change

without extension work also, as change is necessary for the growth and development of society.

To change the behaviour of the farmers through extension, the extension worker should gain theconfidence of the rural farmers.

They should believe that what the extension worker says has relevance to their daily life. To start with, the extension worker should demonstrate the beneficial results of the useful ideas on the fields of some farmers so that they will have faith in him. Those who see the demonstrations would tell others and all of them could realize that the extension worker has really something useful to contribute. They would discuss their difficulties with the extensive workers. The level of education of the farmers would rise from such simple events.

First, the extension worker has to help the farmer in increasing his yields, then he can concentrate on proper marketing of these increased yields. Depending of the changes in the needs of rural farmers, the extension worker has to change his area of work.

✓ **Aware of problems**

Extension work must be based on the needs and interests of the farmers. These needs and interests differ from individual to individual, from village to village, from block to block and from state to state and therefore, there cannot be one program/activity for all farmers. The rural farmers should voluntarily participate in the extension work. To be effective it should start from the interests and need of the rural family.

The extension education should fulfill these needs of the farmers and create interest among them for extension programs/activities. Many times the needs of the farmers and extension programs/activities are quite different.

Sometimes, the extension workers clearly see the important needs of the community but the farmers hold some other needs to be more important. In such cases, the extension\worker should give priority to the felt needs of the farmers. While doing this, he should create an atmosphere of confidence, which would help in converting the unfelt needs of the farmers into the felt needs in future.

✓ **Willing to attend the meeting**

Extension helps farmers to help themselves. Good extension work helps the rural farmers in

identifying their problems. It is directed towards assisting rural families to workout their own problems rather than giving them ready-made solutions. Many things are learned while doing a particular work.

Actual participation and experience of farmers in these programs/activities creates self

confidence in them. If the farmers participate in any project, they develop a sense of belonging towards that project. This also develops leadership in the village and extension worker can obtain participation of the farmers by requesting the social leader to preside at a meeting.The leadership qualities are developed in rural farmers, if they participate in extension programs/activities. Confidently they come forward to undertake future programs/activities.

✓ **Good leadership**

Extension work is based on the full utilization of local leadership. After identifying the local

leaders, they should be trained and encouraged to do extension work. Many farmers never know they had any ability in this direction until extension workers gave them the opportunity.The selection and training of local leaders to enable them to help to carry out extension work is essential to the success of the programs/activities, Extension worker should utilize these leaders for increasing the speed of extension work.

Content/Topic2. Working schedule (time table)

Approach Methods (Teaching approach mtds)

Different extension educational systems or approaches are used in the extension programs. These

systems can be grouped under four main headings:

1. **The extension approach**

The extension approach uses the extension teaching methods for educating the farmers. It

believes that the extension service can transform static economy into a dynamic economy. While improving the quality of family and community lives, it emphasizes the communication of information about recent technical practices

a. Objective of this approach

The main objective is to persuade and help farmers in increasing agricultural production by adopting improved agricultural practices.

b. Organization in this approach

The extension service is mostly under the Ministry of rural development or Department of agriculture (MINAGRI in case of Rwanda). It operates within the broad framework of national agricultural policies and objectives. It has a network of trained field workers at the base supervised and guided by more highly qualified administrators and specialists at each of the three or more tiers (ex. village, block, district and national levels).

c. Educational contents

The emphasis is on transfer of production technologies. It also helps in farm planning and management, use of credit, procurement of inputs and marketing of produce. The technical messages are given to local agents from the experts in the form of recommended practices for dissemination among the farmers.

2. Phase of training

The training approach is considered to be related to the extension approach. It emphasizes more systematic and deeper learning of specific basic skills and related knowledge. Training programs involve assembling learners in a training centre for a specific period of instruction.

a. Objectives

The Training and Visit system co-ordinates the research, training and extension activities effectively. It makes the research more effective by catering to the local needs and situation. It evolves an intensive training program on a systematic basis for extension workers and farmers 9 and ensure effective supervision and technical support to village extension workers and agricultural development officers.

b. Organization

This extension service is mostly under the Department of agriculture. The trained persons are posted at each level starting from the village level to the national level which is diagrammatically shown here in the box.

c. Educational contents

The Training & Visit system resulted in the following.

❖ The cultivated area under high yielding varieties has increased.

❖ Disseminated the new knowledge of farming for increasing the cropping intensity.

❖ The utilization of family labour increased.

❖ The extent of adoption of recommended practices accelerated

3. Co-operative self-help approach

The cooperative self-help approach starts with the assumption that the complex process of rural transformation must begin with changes in the rural farmers themselves. This change may be in their attitudes, and aspirations for improvement and in their perceptions of themselves. Farmersshould express their needs and based on that various kinds of help can be provided.

a. Objectives

In this project the village farmers choose one of their own members to serve as their education with the outside services of knowledge relevant to their needs. This procedure was developed by the local co-operative societies and the academy of Rural Development.

Under this protocol, the villagers are agreed to:

❖ Organize themselves, choose a chairman and become a registered society,

❖ Hold weekly meetings with compulsory attendance of all members,

❖ Select a man from the group and send him to the academy once a week for training so that he could be the organizer and teacher of the group.

❖ Keep proper and complete records,

❖ Use supervised production credit,

- ❖ Adopt improved agricultural practices and skills,

- ❖ Make regular savings,

- ❖ Join the central co-operative association and

- ❖ Hold regular member education sessions.

b. Organization

The village co-operative thus became one of the prime agencies for agricultural education and rural education. The organizers become the key agricultural teacher in his own community, rather than the outside extension worker.

Their representatives come regularly for training to the academy and receives expert advice and assistance on problems identified through discussions in the village cooperative society.

The cooperatives became more organized and the operations became more complex.

c. Educational contents

Initially training was restricted to the organizer but after- wards it provided skilled training in

response to specific needs. For instance school teachers and other literate villagers were trained to maintain the accounts of the village co-operatives. To facilitate the organization of cooperative joint farming societies on a voluntary basis surplus land is allotted to cooperative societies formed by landless agricultural labors.

4. Integrated development approach

Most of the programs for agricultural development have lacked a totality of approach and have been concerned with one or only a few aspects of a given agricultural situations.

a. Objectives

In this program, there was more emphasis on package approach. The objectives included in this are:

- ❖ Adequate farm credit through strengthened co-operatives,

- ❖ Adequate supplies of fertilizers, pesticides, improved seeds, implements and other essential

- ❖ production needs through strengthened service co-operatives,

- ❖ Price incentives to participating farmers through assured price agreement for rice, wheat and millet,

- ❖ Marketing arrangements and services to enable farmers to obtain a full market price for their marketed surplus,

- ❖ Intensive educational, technical and farm management assistance made available in every

- ❖ village,

- ❖ Participation of all interested farmers in farm planning for increased production,

- ❖ Village planning for increased production and village improvement programs by

- ❖ strengthening village organizations and leadership,

- ❖ A public works program using local labour and development works contributing directly to increased production,

- ❖ Analysis and evaluation of the program from its inception, and

- ❖ Co-ordination of all essential resources for maximum speed and effectiveness.

b. Organization

In order to increase the production efforts and the available resources, several programs were undertaken by our Government.

a) Intensive Agricultural District Program (IADP)

Based on the principles of both management of resources and efforts in potential and responsive areas, with assured water supply

The scheme not only involves the adoption of a package of new practices, but also ensures the availability of credit, production inputs, adequate research information, training of the farmers 11 and extension personnel, storage and marketing managements and price assurance which would encourage the farmers to adopt scientific methods of farming.

The in-charge of IADP at the district level is a project officer. He is assisted by an assistant

project officer, four to five subject matter specialists and other supporting staff. At block level, besides a block development officer, there are four agricultural extension officers, two cooperative extension officers and a few officials from other fields.

b) High Yielding Varieties Program (HYVP)

An agricultural production program known as the High Yielding Varieties Program of wheat, Irish potatoes, cassava, Banana, beans, Rice, and hybrids of maize evolved and introduced in the country.

c) Multiple Cropping Program (MCP)

Multiple cropping program aims at maximizing production per unit of land and per unit of time by taking three or four crops from the same piece of land in a year.

d) Small Farmers Development Agency (SFDA)

The aims of SFDA are to identify the problems of the small farmers, to prepare appropriate program to overcome them and ensure the availability of inputs and credit.

e) Marginal Farmers and Agricultural Labors Program (MFALP)

The principle objective of MFALP is to assist the marginal cultivars in making the maximum productive use of their small holding by undertaking horticulture, animal husbandry and dairying.

- **Content/Topic 3.Characteristics of appropriate manual**

A manual is a technical communication document intended to give assistance to people using a particular system. It is usually written by a technical writer. It helps an extension worker to easily transmit new agricultural practice

An appropriate Manuel must be:

- ✓ **Technical feasible,**
- ✓ **Economically feasible**
- ✓ **social acceptable**

L.O.3.2. Transmit innovation to the target group according to extension method

Modern agriculture is a synonym of knowledge and skill. In recent years there has been a tremendous change in agriculture and it is shifting from traditional to modern and from modern to high-tech agriculture.

In hi-tech agriculture proper knowledge and skill is the pre requisite to make it a profitable venture as it requires heavy investment. Now protected cultivation in green house require lot of cultivation skills, harvesting skills and ultimately marketing skills.

If cultivation is done with formation of groups then bulk purchase of critical inputs such as seed, fertilizer, plant protection chemicals can be done at cheaper rates. Pulling of all farm produce and selling it in large volume can be done at a much higher price.

- **Content/Topic1 .**Differenciation of stakeholders characteristics

  ✓ **Target group characteristics**

1. Knowledge level

A level of description of the knowledge of an agent that is independent of the agent's internal symbol-level representation. Knowledge can be attributed to agents by observing their actions. An agent "knows" something if it acts as if it had the information and is acting rationally to achieve its goals. The "actions" of agents, including knowledge base servers and knowledge-based systems, can be seen through a "tell and ask" functional interface, where a client interacts with an agent by making logical assertions (tell), and posing queries (ask). Four levels of depth of knowledge are used :

A.Level 1: Recall of Information

Level 1 asks farmers to recall facts, terms, concepts, trends, generalizations and theories or to recognize or identify specific information contained in graphics. This level generally requires farmers to identify, list, or define. The items at this level usually ask the farmers to recall who, what, when and where.

B. Level 2: Basic Reasoning

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response. A Level 2 "describe or explain" would require farmers to go beyond

a description or explanation of recalled information to describe or explain a result or "how" or "why."

C.Level 3: Complex Reasoning

Level 3 requires reasoning, using evidence, and a higher level of thinking than the previous two levels. farmers would go beyond explaining or describing "how and why" to justifying the "how and why" through application and evidence.

D.Level 4 Extended Reasoning

Level 4 requires the complex reasoning of Level 3 with the addition of planning, investigating, or developing that will most likely require an extended period of time. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking.

2.Cultural practice

People culture have to be taken into consideration where sensitizing people. In one hand the cultural attributes/components can help the extensionist to control his behaviour while on the field. The farmers have the values and taboos that they are observing, when sown in the transgression of these values, the extensionist will no longer have any influence on the farmers he is supposed to guide.

One other hand, the culture traits/aspects will show the extensionist where to put the focus and how to organize his sensitization. Few examples: if there is the wedding ceremonies in the region and he schedules to meet the farmer this wedding day, he has to realize that the attendance could be low (in Rwanda, but in Europe it may be different), again if there is a program to help people adopt cash crops while they are growing the sorghum, make sure that not only the economic aspects but also the cultural aspects have to be understood as banana wine, sorghum beers are not sold but also given as friendship gifts in the wedding ceremonies and in casual/mutual family visits.

3.Organization

Farmer organizations can be grouped into two types:

- The community-based and resource-orientated organization
- The commodity-based and market-orientated organization.

A. **Community-Based, Resource-Orientated Farmer Organizations***:*

This type could be a village level cooperative or association dealing with inputs needed by the members, the resource owners, to enhance the productivity of their businesses based on land, water, or animals. These organizations are generally small, have well-defined geographical areas, and are predominantly concerned about inputs. However, the client group is highly diversified in terms of crops and commodities.

B. **Commodity-Based, Market-Orientated Farmer Organization**:

These organizations specialize in a single commodity and opt for value-added products which have expanded markets. They are designated as output-dominated organizations. Not specific to any single community, they can obtain members from among the regional growers of that commodity who are interested in investing some share capital to acquire the most recent processing technology and professional manpower.

4. Influence of the environment

People can be powerfully influenced by the environment in which they find themselves,

There are 8 influences:

- Mental processes(**"The way we think about things")**
- Conflicting goals & desires : Everyone has multiple goals, desires or preferences, some of which may outweigh others in importance or urgency.
- Physical environment(**"The way things look and operate")**
- Social rules & norms(*"What are they doing?")*
- Legal rules(*"It's the law"):* Rules that the community recognises as regulating its member's actions and which may be enforced by the use of penalties.
- Perceived risks: People make judgements about the likely risks associated with a behaviour.
- Behavioural momentum / habit("I've always done it this way"): Behaviour that is highly reinforced, repeated lots of times and therefore may be resistant to

change. A well entrenched habit may be more likely to change if it's easy and the downside is small.

- World view: Groups in the community share certain ways of looking at the world. Shared values and feelings predispose them to pay attention to some things and ignore others. They may therefore behave differently.

5.customs

Customs is a habitual practice; the usual way of acting in given circumstances.

Customs is an authority or agency in a country responsible for collecting tariffs and for controlling the flow of goods, including animals, transports, personal effects, and hazardous items, into and out of a country.

The word authority can be used to mean power given by the state (in the form of government, judges, police officers, etc.) or by academic knowledge of an area (someone can be an authority on a subject).

When the word Authority is used in the name of an organization, this name usually refers to the governing body upon which such authority is vested. It is also the permission to act.

A government or state agency, often an appointed commission, is a permanent or semi-permanent organization in the machinery of government that is responsible for the oversight and administration of specific functions, such as an intelligence agency.

There is a notable variety of agency types. Although usage differs, a government agency is normally distinct both from a department or ministry, and other types of public body established by government. The functions of an agency are normally executive in character, since different types of organizations (such as commissions) are most often constituted in an advisory role, this distinction is often blurred in practice however.

A government agency may be established by either a national government or a state government within a federal system. The term is not normally used for an organization created by the powers of a local government body. Agencies can be established by

legislation or by executive powers. The autonomy, independence and accountability of government agencies also vary widely.

- **Content/ Topic2. Ways of manage stakeholders**

The extension worker should demonstrate innovation in area of activity thought ways that allows him/her to manage the stakeholders so that the latter can contribute to the achievement of extension objectives.

- **Content/ Topic3.The following are the approach methods of deconstruction of the innovation:**

✓ **Farmer field school(FFS)**

Farmer field school(FFS) is a participatory approach for agriculture innovation transmission based on learning by discovery. The farmers learn from the demonstrations and discussions performed on the field. For the Farmer field school to become successful and sustainable, the following conditions must be fulfilled:

i. **Long training session**

The training session has to be given enough time to extension. From the land preparation to the harvesting of the commodity each step must be seriously considered and make sure that is very well understood by most of the stakeholders.

ii. **Agro-ecosystem analyses (AESA)**

Agro-Ecosystems Analysis is an established methodology for the analysis of agricultural livelihood systems and for planning and prioritizing research and development activities. It can be used for planning purposes and for matching and expanding proven agricultural technologies.

From this prospect, analysing the interaction of crop, livestock, biotic and abiotic factors coexisting I the field.

During AESA, the following activities have to be done:

➢ Observation
➢ Group discussion and analysis
➢ Conclusion and action plan.

iii.   Special topics

There are topics that talk about what are needed by farmers, that is which solve their problem in agriculture. They must be characterised by the features of a good topic which are: concise, clear, not boring, emphatic, use active voice).

iv.   Group dynamics

Group dynamics deals with the attitudes and behavioural patterns of a group. Group dynamics concern how groups are formed, what is their structure and which processes are followed in their functioning. Thus, it is concerned with the interactions and forces operating between groups. A variety of team building exercises employed during training. Therefore, different group will raise more idea and analysis allowing discussions that bring the stakeholders to a common understanding.

The following are characteristics of group:

a. 2 or more persons (if it is one person, it is not a group)
b. Formal social structure (the rules of the game are defined)
c. Common fate (they will swim together)
d. Common goals (the destiny is the same and emotionally connected)
e. Face-to-face interaction (they will talk with each other)
f. Interdependence (each one is complimentary to the other).

✓ **Cooperative self-helped approach(CSHA)**

This approach is based on voluntary involvement of members who form homogenous groups; agree on their own by-laws and receive number of practical trainings.

The members of the cooperative invite one member or choose someone to the training for acquiring the skills and knowledge required to train the cooperative members.

✓ **Integrated development approach**

This system of extension concerns the regrouping of the agricultural producers in different clusters according to the crop chosen for their considerable economic value in the society. The agriculturists once regrouped in clusters can benefit comfortably from relevant trains on agricultural issues and at the same time, once organized they can get powerful and

benefit from the financial loans. Apart from that they can also constitute a kind of pressure group that aim to claim for some advantages in the society as the elaboration of fair regulations and laws in favour to them, because, as we know, the union makes strength, according a French saying.

The major issues in this case is about convincing the farmers that once regrouped in clusters according to their main crops of their own choice, they could benefit easily from specific services of agricultural extension (freely through NGOs/state services) or by sharing the global cost if necessary. After the clusters are set up to form these agricultural organizations, like cooperatives it becomes easy to contact the authority in charge of extension asking them to send a specialist technician (ST) in order to help them to solve some problems that can be of technical order, like the provision in agricultural inputs or the marketing of their products. These agriculturists, once associated, they can easily benefit from the new research findings of the sector, especially those provided by research centres.

Basic principles to integrated crop-crop based system:
- The basic idea behind this system is to clustering crops growers so that they could be able to promote their agricultural produces themselves and so reaching their self-sufficiency in matter of the agricultural products, briefly to render them economically more autonomous;
- According to BELONCLE, this system is founded on an approach of village's people who are committed in growing certain staple or cash crop. Thus, there is no matter of the pilot peasant nor even the contact peasant here;
- The extension agent may address his messages to a group of farmers, although rarely he /she can also address it separately to the individuals;
- The extension agent, in addition to his /her main task to popularize, he/she can also be charged of other activities as the provision of agricultural loans, marketing of agricultural produces and organizing villagers into Associations or Cooperatives (grouping villagers)
- This system often leads to three major elements, as following:

  -Intensive growing of crop

  -Trainings provided to the Cooperatives or Associations' members

Strengthen ties agriculturists, extensions and researchers.

N.B. This kind of extension system goes from the land preparation, in order to grow a certain crop, to its consumption without forgetting the transformation or the processing phase under the plant/machinery activities.

Learning Unit 4: Follow up and Report

LO.4.1. Assessment of new technology adoption based of type of innovation

The appropriate assessment of new technology adoption should be based on type of innovation to be evaluated. The core monitoring and evaluation methods are: stakeholder's analysis, documentation review, direct observation, questionnaire and surveys, semi-structured interviews, case-study.

Simply, Monitoring and Evaluation are two states of analysis from the point of view of the progress related with purposes of a firm or a venture. These two states of analysis differ by their way of approach. Monitoring is the systematic analysis of information made from time to time to become familiar with the changes over a particular period.

Monitoring can be defined as the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. Contrary to many definitions that treat monitoring as merely reviewing progress made in implementing actions or activities, the definition used in this Handbook focuses on reviewing progress against achieving goals. In other words, monitoring in this context is not only concerned with asking "Are we taking the actions we said we would take?" but also "Are we making progress on achieving the results that we said we wanted to achieve with extension techniques?" The difference between these two approaches is extremely important. In the more limited approach, monitoring may focus on tracking projects and the use of the agency's resources. In the broader approach, monitoring also involves tracking strategies and actions being taken by partners and non-partners, and figuring out what new strategies and actions need to be taken to ensure progress towards the most important results.

Evaluation is a rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making. Evaluations, like monitoring, can apply to many things,

including an activity, project, programme, strategy, policy, topic, theme, sector or organization.

The key distinction between the two is that evaluations are done independently to provide managers and staff with an objective assessment of whether or not they are on track. They are also more rigorous in their procedures, design and methodology, and generally involve more extensive analysis.

However, the aims of both monitoring and evaluation are very similar: to provide information that can help inform decisions, improve performance and achieve planned results.

For the monitoring ad evaluation to be efficient and effective the following factors should be considered:

a. Stakeholder analysis:

Stakeholder analysis typically refers to the range of techniques or tools to identify and understand the needs and expectations of major interests inside and outside the project environment. Understanding the attributes, interrelationships, interfaces among and between project advocates and opponents, assists us in strategically planning our project. Herein lies a large portion of our project risk and viability, and ultimately the support that we must effectively obtain and retain.

The process of stakeholder analysis consists of identifying who is the stakeholder and when is that critical time? Typically, very little time is taken to:

➢ Clarify who the project stakeholders are,

➢ Discover and align their expectations and individual impact on the project,

➢ Outline a requirements change processes; knowing that their requirements (i.e., needs and expectations) will likely change,

➢ Relate needs and expectations to risk planning and risk response activities,

➢ Conscientiously plan the project communication strategies.

b. Documentation review

The documentation is a critical assessment of public recorded information related to the subject under investigation. The consultation of the published and unpublished materials such as books, reports, journals, novels on extension to produce the present report and use them as reference in producing presents follow up and report.

c. Direct observation

Direct observation is the collection of information using your senses. By observing, you can document activities, behaviour, and physical aspects of a situation without having to depend on peoples' willingness or ability to respond accurately to questions. Observation is useful when:

a. You are trying to understand an ongoing process or behaviour, or an unfolding situation or event.
b. There is physical evidence, or products or outcomes that can be seen.
c. Written or other data collection methods seem inappropriate. Observation can occur in public situations, such as observing peoples' participation in a training or documenting how people use a community garden. Observation can also occur in more private settings like observing a farmer in his/her field.

d. Questionnaire and surveys

A questionnaire is any written set of questions, while a survey is both the set of questions and the process of collecting, aggregating, and analysing the responses from those questions. Any set of questions, no matter how personal or general the subject matter, is a questionnaire. Whether your questionnaire stands on its own or is part of a survey, to get great results you need to ask great questions.

e. Semi-structured interviews

A semi-structured interview is a meeting in which the interviewer does not strictly follow a formalized list of questions. They will ask more open-ended questions, allowing for a discussion with the interviewee rather than a straightforward question and answer format.

f. Case-study

A case study has also been described as an intensive, systematic investigation of a single individual, group, community or some other unit in which the researcher examines in-depth data relating to several variables.

Thus the monitoring and evaluation are done on: inputs, activities, output, outcome, and impact.

Learning Outcome 4.2: Make decision due to innovation adoption

Content/ Topic 1. Making decision due to innovation adoption

Decision making is the process of making choices by identifying a decision, gathering information, and assessing alternative resolutions. Using a step-by-step decision-making process can help you make more deliberate, thoughtful decisions by organizing relevant information and defining alternatives. This approach increases the chances that you will choose the most satisfying alternative possible.

Making effective decision affect various unities of an institution. Bad decisions affect negatively the technology, resources mobilisation, outputs, outcome and impact intended while good decisions facilitate actors to reach on intended results.

For the decision making the following process must be followed:

Step1: Identification of the problem

You realize that you need to make a decision. Try to clearly define the nature of the decision you must make. This first step is very important. Here you define the intention of extension and activities that brought you to make a decision, the nature of the problem and ways to put forward to mitigate the effects of the problem.

Step 2: Gather relevant information

Collect some pertinent information before you make your decision: what information is needed, the best sources of information, and how to get it. This step involves both internal and external "work." Some information is internal: you'll seek it through a process of self-assessment. Other information is external: you'll find it online, in books, from other people, and from other sources.Do consider the nature and characteristics of the problem that need the decision.

Step3: Evaluating alternatives

As you collect information, you will probably identify several possible paths of action, or alternatives. You can also use your imagination and additional information to construct new alternatives. In this step, you will list all possible and desirable alternatives.

Step 4: Choosing some alternatives

Draw on your information and emotions to imagine what it would be like if you carried out each of the alternatives to the end. Evaluate whether the need identified in Step 1 would be met or resolved through the use of each alternative.

As you go through this difficult internal process, you'll begin to favor certain alternatives: those that seem to have a higher potential for reaching your goal. Finally, place the alternatives in a priority order, based upon your own value system.

Step 5: Implement decision

Once you have weighed all the evidences, you are ready to select the alternative that seems to be best one for you. You may even choose a combination of alternatives. Your choice in Step 5 may very likely be the same or similar to the alternative you placed at the top of your list at the end of Step 4.

Step 6: Evaluating decision effectiveness

In this final step, consider the results of your decision and evaluate whether or not it has resolved the need you identified in Step 1. If the decision has *not* met the identified need, you may want to repeat certain steps of the process to make a new decision. For example, you might want to gather more detailed or somewhat different information or explore additional alternatives.

LO. 4.3. Write Report according to standards

Content/Topic 1. Characteristics of report

A report is essentially, a report is a short, sharp, concise document which is written for a particular purpose and audience**.** It generally sets outs and analyses a situation or problem, often making recommendations for future action. It is a factual paper, and needs to be clear and well-structured. Requirements for the precise form and content of a report will vary between organisation and departments and in study between courses, from tutor to tutor, as well as between subjects, so it's worth finding out if there are any specific guidelines before you start.

A good report must have the following charachretistics: clear, precise, concise.

a. **Clear**: A good report is easy to understand, or easy to see or hear.
b. **Precise**: A good report must be exact and accurate in form, time, detail, or description.

Concise: a good report should be short and clear, expressing what needs to be said without unnecessary words.

Content/Topic 2. Different parts of the report

The report has the following main part: Introduction, development, and conclusion.

a. Introduction

The introduction sets out what you plan to say and provides a brief summary of the problem under discussion. It should also touch briefly on your conclusions.

b. Development

The main body of the report being the development should be carefully structured in a way that leads the reader through the issue. Reporter should split it into sections using numbered sub-headings relating to themes or areas for consideration. For each theme, reporter should aim to set out clearly and concisely the main issue under discussion and any areas of difficulty or disagreement. It may also include experimental results. All the information that you present should be related back to the brief and the precise subject under discussion.

c. Conclusion and recommendations

The conclusion sets out what inferences to be drawn from the information, including any experimental results. It may include recommendations, or these may be included in a separate section. Recommendations suggest how you think the situation could be improved, and should be specific, achievable and measurable. If your recommendations have financial implications, you should set these out clearly, with estimated costs if possible.

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