



Food and Agriculture  
Organization of the  
United Nations



Federated States of Micronesia  
Department of Resources &  
Development

# AGRICULTURAL EXTENSION MANUAL FOR EXTENSION WORKERS



# AGRICULTURAL EXTENSION MANUAL FOR EXTENSION WORKERS

Compiled by  
Sayed Mohammad Naim Khalid  
and  
Shukrullah Sherzad

This manual is produced under FAO funded project - TCP/MIC/3601 “Strengthening the capacity of Farmers Associations to increase production and marketing of root crops, fruits and vegetables in FSM”

Sub Regional Office for the Pacific (SAP)  
Food and Agriculture Organization of the United Nations (FAO)  
Apia, 2019

Required citation:

FAO. 2019. *Agricultural Extension Manual*, by Khalid, S.M.N. & Sherzad, S. (eds). Apia.

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO, 2019



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original [Language] edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

**Third-party materials.** Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**Sales, rights and licensing.** FAO information products are available on the FAO website ([www.fao.org/publications](http://www.fao.org/publications)) and can be purchased through [publications-sales@fao.org](mailto:publications-sales@fao.org). Requests for commercial use should be submitted via: [www.fao.org/contact-us/licence-request](http://www.fao.org/contact-us/licence-request). Queries regarding rights and licensing should be submitted to: [copyright@fao.org](mailto:copyright@fao.org)

Cover photographs: © FAO/ S. Sherzad

## Contents

<b>Preface</b> .....	v
<b>Acknowledgements</b> .....	vi
<b>Chapter 1: Basic concepts of agricultural extension</b> .....	1
1.1. Why extension is important? .....	1
1.2. What is the meaning of extension? .....	1
1.3. What is the objective of extension? .....	1
1.4. Principles of extension .....	1
1.5. Who is an extension agent?.....	1
1.6. What are the functions of an extension agent? .....	2
1.7. Knowledge extension workers must have: .....	2
1.8. Necessary personal skills for extension workers .....	2
1.9. Key personal qualities for extension workers.....	2
1.10. Who are the target of agricultural extension workers? .....	2
1.11. What are basics on adult learning?.....	2
<b>Chapter 2: Agriculture extension planning and M&amp;E</b> .....	3
2.1. Introduction .....	3
2.2. Explain Events Planned in Advance?.....	3
2.3. What are Follow-up Events? .....	3
2.4. What steps are needed to prepare an annual plan? .....	4
2.5. Implementation and monitoring .....	4
2.6. Evaluating last year extension program.....	5
2.8. Developing estimated budgets .....	5
2.9. Preparing Annual Reports.....	5
<b>Chapter 3: Communication for extension</b> .....	6
3.1. What is Communication?.....	6
3.2. How communication for extension happens? .....	6
3.4. Extension communication system .....	6
3.5. Why is listening important for extension workers?.....	7
3.6. What is importance of Feedback in agricultural communication? .....	7
3.7. What is mass media? .....	7
3.8. What are types of mass media?.....	7
3.9. Why mass media is important for extension? .....	7
3.10. What are some tools of mass media used for extension?.....	7
<b>Chapter 4: Methods of extension</b> .....	9
4.1. What are key extension methods? .....	9
4.2. What are individual methods?.....	9
4.2.1. Farm Visit .....	9
4.2.2. Office calls .....	9
4.2.3. Letters .....	9
4.3. What are group methods of extension? .....	10
4.3.1. Group meetings .....	10
4.3.2. Demonstrations .....	10
4.3.3. FIELD DAYS .....	11
4.3.4. Methods demonstration .....	12
4.3.5. District/Island agricultural fairs.....	12
4.3.6. Farm walks .....	12
4.3.7. Farmers rallies.....	12
4.3.8. Folk media.....	13
4.3.9. Group meetings .....	13

4.3.10. Motivational tours .....	13
4.3.11. Participatory technology development .....	13
4.3.12. Formal training days .....	14
4.3.13. Farmer field schools.....	14
4.4. Mass extension .....	14
4.4.1. Village meetings .....	14
4.4.2. Field days .....	15
4.4.3. Extension campaigns.....	15
<b>Annex 1: Practical tools for the extension workers .....</b>	<b>16</b>
Tool 1: Guidelines for Successful meetings/workshops .....	16
Tool 2: Guidelines for resource mapping.....	17
Tool 3: Guidelines for farmers’ training/group discussions.....	18
Tool 4: Guidelines for cross-visits .....	19
Tool 5: Criteria for selecting ‘pilot farmers’ .....	19
Tool 6: Guidelines for farm and home visit.....	21
Tool 7: Guidelines for results demonstration .....	22
Tool 8: Guidelines for method demonstration .....	24
Tool 9: Guidelines for group meetings.....	25
Tool 10: Guidelines for small group training.....	26
Tool 11: Guidelines for a field day or farmers’ day.....	27
Tool 12: Guidelines for Farmers Field School (FFS).....	29
Tool 13: Sample job description of agricultural extension (AE) workers.....	31
Tool 14: Developing an agricultural extension program (an example) .....	32
Tool 15: Extension officer’s annual report (an example).....	33
<b>References and further information.....</b>	<b>34</b>

## Figures

Figure 1: Example of poster (prepared for Samoa under FAO funded project for extension purposes) .....	8
Figure 2: Farm visit organized under FAO funded project in the Solomon Islands .....	9
Figure 3: Demonstration plot – using keyhole garden concept (funded under FAO project in Samoa) .....	11
Figure 4: Vanilla farm in the Cook Islands – which could be also used for the extension purposes .....	15

## Preface

In the context of sustainable agricultural development, agricultural extension has a very crucial role to play. The tasks and responsibilities of extension service will need to be broadbased and holistic in contents and scope, thus beyond agricultural technology transfer. Its normal task of transferring and disseminating to farmers appropriate agricultural technologies and good farm practices would not be sufficient.

Extension agencies, services, and workers will need to exercise a more proactive and participatory role and serve as knowledge/information "brokers", initiating and facilitating mutually meaningful and equitable knowledge-based transactions among agricultural researchers, trainers, and primary producers.

To improve its cost-effectiveness, proper strategies to advocate favorable and explicit agricultural extension policies are needed. Modern strategic planning and quality management tools and approaches should be utilized in developing or restructuring extension organizations or institutions.

More innovative methods must be developed to identify systematically farmer's problems and felt needs, and to help formulate and set agricultural research agenda based on such needs and problems. In short, there is a need to develop and improve the conceptual, technical, and operational methods and tools in order to strategically plan, efficiently manage, and scientifically evaluate a problem-solving, demand-driven and needs-based agricultural extension programs.

This manual is a practical guide for extension workers in agriculture. It contains simple, easy to follow tools on the commonly used extension methods and an outline of how extension may be planned and implemented. Most of sources of each subjected listed in the further reading section at the end of the manual. Those interested in reading more should find most of the references reasonably accessible.

Not everyone will agree with all the points made in this manual regarding extension methods, but we hope the opinions given will help stimulate debate among extension workers.

## Acknowledgements

The following individual contributed to conceptualization, writing, reviewing, editing, and improving technical accuracy of this manual. Their valuable contributions are hereby gratefully acknowledged.

- Mr. Adelino Lorens - Chief of Agriculture Pohnpei, FSM
- Ms. Marlyter Silbanuz – National Project Coordinator, FSM
- Mr. Tamdad Sulag – Chief of Agriculture Yap, FSM
- Dr. Nacanieli (Nat) Tuivavalagi – Agronomy Researcher, College of Micronesia, FSM
- Mr. Konrad Englberger – Volunteer Plant Protection Expert, FSM
- Mr. Jackson Phillip – Program Coordinator, College of Micronesia FSM
- Mr. Sawdey, Sharon – Resource Conservationist, NRCS/USDA - FSM
- Dr. Leon Numaco – Horticulture Consultant, FAO
- Mr. Gumercindo Tumbali – Farm Management & Marketing Consultant, FAO
- Mr. Kadalino Lorens - Director of Pohnpei Economic Affairs, FSM
- Mr. Santos, Gibson – Soil Conservation Technician, NRCS/USDA, FSM
- Mr. Nicholson Solomon – Director, Department of Resources & Development, Pohnpei, FSM

# Chapter 1: Basic concepts of agricultural extension

## 1.1. Why extension is important?

Extension is essentially the means by which new knowledge and ideas are introduced into rural areas in order to bring about change and improve the lives of farmers and their families. Extension, therefore, is of critical importance. Without agricultural extension, farmers would lack access to the support and services required to improve their agriculture and other productive activities. The critical importance of extension can be understood better if its three main elements are considered:

Knowledge ⇔ Communication ⇔ Farm Family

## 1.2. What is the meaning of extension?

Extension is an informal educational process directed toward the rural population. This process offers advice and information to help them solve their problems. Extension also aims to increase the efficiency of the family farm, increase production and generally increase the standard of living of the farm family.

## 1.3. What is the objective of extension?

The objective of extension is to change farmers' outlook toward their difficulties. Extension is concerned not just with physical and economic achievements but also with the development of the rural people themselves. Extension agents, therefore, discuss matters with the rural people; help them to gain a clearer insight into their problems and to decide how to overcome these problems.

## 1.4. Principles of extension

- Extension works with people, not for them
- Extension is accountable to its clients
- Extension is a two-way link
- Extension works with different target groups
- Extension cooperates with other rural development organizations
- Equitable Services delivery to farmers
- Efficient/Effective Services Delivery
- Decentralization, Local Decision Making
- Demand Led Extension Services
- Working primarily with Farmers Groups
- Strong Extension Research Linkage
- Capacitating Extension Personnel
- Appropriate Extension Methodology
- Integrated Extension Support Services
- Coordinated Agric. Extension Services
- Improved Environmental Support

## 1.5. Who is an extension agent?

The whole extension process is dependent upon the extension agent, who is the critical element in all extension activities. If the extension agent is not able to respond to a given situation and function effectively, it does not matter how imaginative the extension approach is or how impressive is the supply of inputs and resources for extension work. Indeed, the effectiveness of the extension agent can often determine the success or failure of an extension program. The extension agent has to work with people in a variety of different ways. It is often an intimate relationship and one, which demands much tact and resourcefulness. The agent inevitably works with people whose circumstances are different from his own. He is an educated, trained professional working with farmers, many of whom have little formal education and lead a way of life, which may be quite different from his.

## 1.6. What are the functions of an extension agent?

- Assist farmers to identify and overcome problems
- Assist farmers to make better use of resources/technology
- Introduce new technologies (new varieties, crops, breeds, etc.)
- Provide information on new promising research results
- Create opportunities for farmers (processing, marketing, etc.)
- Help farmers to put new information into use/apply it
- Assist farmers to get a clear vision of their development

## 1.7. Knowledge extension workers must have:

Four main areas of knowledge are important for the extension agent and form the basis of extension training.

- Technical
- Rural life
- Policy
- Adult education
- Cultural knowledge, etiquette & language
- Religious protocols

## 1.8. Necessary personal skills for extension workers

- Organization and planning
- Communication
- Analysis and diagnosis
- Leadership
- Initiative
- Public speaking
- Report writing

## 1.9. Key personal qualities for extension workers

- Commitment to extension work
- Reliability
- Humility in his work with the farmers
- Confidence in his own abilities and determination to achieve something

## 1.10. Who are the target of agricultural extension workers?

Adult farmers including men and women. However, communities members including children can also be included in the trainings to increase their interest in agriculture.

## 1.11. What are basics on adult learning?

Target groups of agricultural extension are female and male farmers in the age of 15 to 65. Compared to children and teens, adults have special needs and requirements as learners. Adult learners can be described by the following characteristics with the following obvious consequences for Agricultural Extension:

- Adults are autonomous and self-directed
- Adults have accumulated a foundation of life experiences and knowledge
- Adults are goal-oriented
- Adults are relevancy-oriented
- Adults are practical,
- As do all learners, adults need to be shown respect

## Chapter 2: Agriculture extension planning and M&E

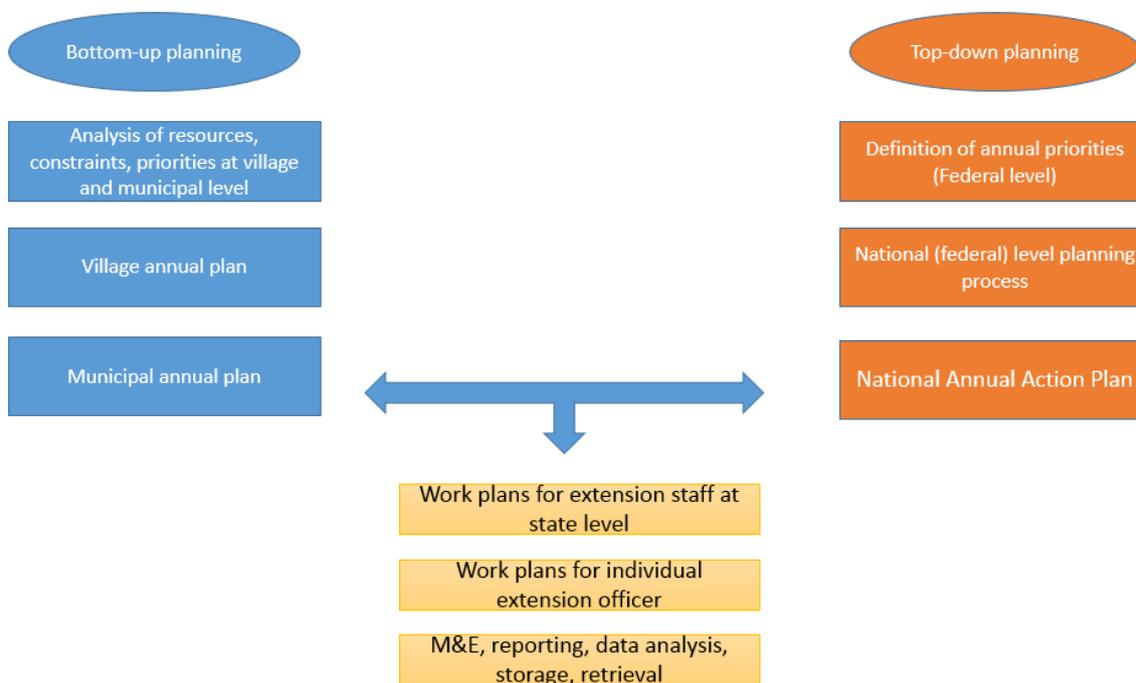
### 2.1. Introduction

Proper Planning and Monitoring & Evaluation of extension activities, outputs and impacts are key for the success of extension programs.

The extension department is responsible for providing high quality agricultural services to farmers in response to local needs. The type of service, and the way in which it is provided, is given in two ways:

- Extension events planned in advance which form the Annual Extension Plan;
- Extension events planned in response to day-to-day interaction with farmers as follow up activities

All extension plans are prepared in either top-down or bottom-up approach as shown in the diagram. This diagram is an example, which might change and be different in each state.



### 2.2. Explain Events Planned in Advance?

Each year, staff in every district identify farmer information needs, and prepare an extension plan for the next financial year, covering all seasons. Generally, the annual extension plan includes major items of work, such as motivational tours, method demonstrations, result demonstrations, field days and formal farmer training. The annual plan is reviewed for appropriateness prior to implementation.

### 2.3. What are Follow-up Events?

During the year, Head of Extension Workers works closely with farmers, implementing activities from the annual extension plan. In many cases, implementing these activities leads to new ideas for extension events, and for follow-up work, which was not in the annual extension plan. In order to maintain flexibility, and where these ideas involve no significant additional expenditure, they should be undertaken. Extension staff should not confuse these two types of planning, they both aim at providing farmer responsive extension activities, one planned in advance, and one planned in response to day-to-day interaction with farmers.

For example, the annual extension plan may include a motivational tour to a research site. At the end of the tour, the extension staff and farmers may decide that it would be useful to implement a method demonstration about one of the technologies they saw on the tour as a follow-up activity.

## 2.4. What steps are needed to prepare an annual plan?

The Annual Extension Plan follows a sequence of 15 steps, which should be completed within a specific time, in order to produce an extension plan for approval at headquarters. This sequence of steps is shown in table below.

Plans are produced each year. They are to be reviewed every quarter to ensure that they remain appropriate.

<b>Main activity</b>	<b>Activity break down</b>
1. Farmer Information Needs Assessment	Working with male and female farmers, operating small and large farms, to identify problems and information needs, using the Problem Census, participatory rural appraisal (PRA), meetings and the Extension Diary.
2. District* Agricultural Extension Co-ordination Committee/departments meetings	Sharing information about farmer needs, available resources and ideas for collaboration between all local Government and Non-Government extension agencies.
3. Collating planning information	Combining / Merging background information, monitoring and evaluation data, results of Knowledge, Attitude and Practices (KAP) Surveys and Technical Audits and assessments results to help in planning.
4. Island Planning Workshops	Developing an extension plan on the basis of island needs and planning information, by involving all extension staff in the Island, and inviting other organizations if appropriate.
5. Preparing district planning and budgeting documents	Writing up the results of the Island Planning Workshop and preparing documents.
6. Island Extension Planning Committee meetings	Reviewing and approving district extension plans.
7. Preparing annual in-service training and media requests	Preparing requests for state level mass media and in service staff training programs.
8. Preparing annual district extension plan and budget	Preparing a plan of district level activities, then sending them to regional level.
9. Agricultural Technical Committee/department meetings	Conducting a technical review of extension plans at regional level, with research participation.
10. Adjusting Island extension plans	Adjusting district and Island extension plans on the basis of step 9 Results reviews.
11. Preparing consolidated Extension Plans and budgets	Consolidating and approving all district and Island level extension plans and budgets
12. Conducting in-service training	Training staff in the necessary technical and extension skills prior to implementing the extension plan.
13. Implementing and monitoring	Implementing extension activities as planned, and using the Seasonal Extension Monitoring System and Technical Audits.
14. Evaluating last year's extension program	Evaluating extension programs using Knowledge, Attitude and Practice Surveys. Analyzing assessment and Technical Audit results.
15. Developing budget for next Financial Year and reporting last year's extension program.	Estimating budgets which will be required for next year, and preparing a brief annual report for last year.

\*Three levels of aerial administration referred to here, from smallest to largest, are district, island, and state.

## 2.5. Implementation and monitoring

Implementing extension activities from the plan and follow up activities recorded in the Extension Diary is the key to successful extension work and takes place throughout the year. However, in order to provide necessary feedback so that planners (at district and island) can assess which activities are particularly successful or to identify areas of weakness it is necessary to record how each event took place. This is known as monitoring. It is important to recognize that monitoring data collected during implementation is an essential component of the planning process.

## 2.6. Evaluating last year extension program

Evaluation includes analyzing the monitoring information recorded during implementation. Evaluation should take place after each quarter to:

- check whether objectives have been achieved
- check whether objectives were appropriate
- identify any particular strengths
- Identify whether there were weaknesses. This information is then fed into the planning process. It helps planners decide appropriate activities and training for the next year's plan.

## 2.8. Developing estimated budgets

Advance budgets are prepared for approval. Steps for preparing advance budgets follow.

### STEPS FOR ADVANCE BUDGETING

1. Take the total figure from the current extension plan
2. Assess the extent to which extension service costs can actually be reduced (e.g. by planning more low or no cost events and using more mass media)
3. Reduce the total figure to actuals
4. Decide whether there are additional activities that may be implemented in the next financial year.
5. Draft a cost for these activities and add it to your new total.
6. Submit recommendations with a simple justification in a letter to the approving bodies

## 2.9. Preparing Annual Reports

To complete the annual planning process COM-FSM CRE/Agriculture Officer is required to submit a simple annual report covering the previous financial year to the approver (e.g. governor, chief of agriculture, etc). The report should contain:

- Description of achievements against targets
- A note of actual expenditure for extension activities against planned expenditure.
- Success stories
- Failures and reason for not achieving specific objectives
- List of recommendations for future programs

## Chapter 3: Communication for extension

### 3.1. What is Communication?

Communication - the sharing of ideas and information - forms a large part of the extension agent's job. By passing on ideas, advice and information, he/she hopes to influence the decisions of farmers. He/she may also wish to encourage farmers to communicate with one another; the sharing of problems and ideas is an important stage in planning group or village activities. The agent must also be able to communicate with superior officers and research workers about the situation faced by farmers in his area.

### 3.2. How communication for extension happens?

Any act of communication, be it a speech at a public meeting, a written report, a radio broadcast or a question from a farmer, includes four important elements:

1. Source:

- The source, or where the information or idea comes from;

2. Message:

- The message, which is the information or idea that is communicated;

3. Channel:

- The channel, which is the way the message is transmitted;

Criteria	Type	Examples
By nature of form	Spoken	Farm visits, farmers call, meetings, radio, etc.
	Written	Personal letter, farm publication, newspapers
	Audio-visual	TV, video, cinema, etc.
By nature of personnel	Personal localite	Local leaders, innovators and adopters, etc.
	Personal cosmopolite	Extension Agents, change agents of various organizations from outside the social system
	Impersonal cosmopolite	Mass media from outside the social system
By nature of contact	Individual	Farm & home visits, farmers call, personal letter, etc
	Group	Group meetings, small group training, field days, study tour, Farmer's Field Schools, etc.
	Mass	Mass meetings, campaigns, exhibitions, etc

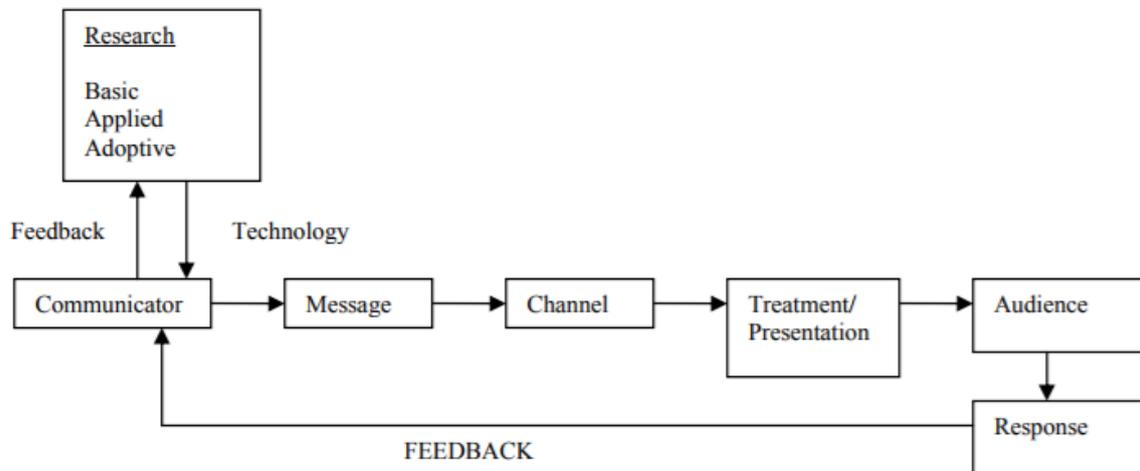
4. Receiver:

- The receiver, who is the person for whom the message is intended. Any communicator must consider all four elements carefully, as they all contribute to effectiveness. In considering each of these elements, the questions that follow provide a useful check-list.

### 3.4. Extension communication system

Communication, in extension, may be thought of as two-way stimulus-response situation in which the necessary stimulus is provided by the communicator (the Extension Agent) in the form of a message, which provides certain response on the audience (the farmers).

A diagrammatic representation of the extension communication system based on the model developed by Leagus (1963) is presented in figure below:



### 3.5. Why is listening important for extension workers?

A good communicator listens more than he speaks. An extension agent who does not listen to farmers and engage in a dialogue with them is unlikely to be very effective.

### 3.6. What is importance of Feedback in agricultural communication?

Extension communication is never complete without adequate and correct feedback information. Feedback means carrying some significant responses of the audience back to the communicator. Communication work is not an end in itself. The Extension Agent should know what has happened after the message has reached them. Some of the characteristics of feedback are,

- a) it is source oriented,
- b) it varies in different communication situations
- c) it affects the source or communicator
- d) it exerts control over future messages
- e) it affects the degree of desirable changes in receivers behavior as a result of communication)
- f) it maintains the stability and equilibrium of a communication system

### 3.7. What is mass media?

Mass media are those channels of communication, which can expose large numbers of people to the same information at the same time.

### 3.8. What are types of mass media?

They include media which convey information by sound (radio, audio cassettes); moving pictures (television, film, video); and print (posters, newspapers, leaflets).

### 3.9. Why mass media is important for extension?

The attraction of mass media to extension services is the **high speed** and **low cost** with which information can be communicated to people over a wide area.

### 3.10. What are some tools of mass media used for extension?

- Radio
- Radio Talks
- Interviews on radio
- Film
- Television and video

- Printed media
  - Posters
  - Brochure
  - Leaflets
  - Circular letters
  - Newspaper
  - Chalkboards
  - Flip charts
  - Flannel graphs
  - Projected aids

Figure 1

Example of poster (prepared for Samoa under FAO funded project for extension purposes)



## Chapter 4: Methods of extension

### 4.1. What are key extension methods?

Extension methods are classified as:

1. Individual
2. Group
3. Mass

### 4.2. What are individual methods?

#### 4.2.1. Farm Visit

Farm visits are the most common form of personal contact between the agent and the farmer and often constitute over 50 percent of the agent's extension activities. Because they take up so much of the agent's time, it is important to be clear about the purpose of such visits and to plan them carefully. Farm visits can:

- familiarize the extension agent with the farmer and his family;
- enable him to give specific advice or information to the farmer;

Figure 2

Farm visit organized under FAO funded project in the Solomon Islands



#### 4.2.2. 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.

#### 4.2.3. Letters

Occasionally, the extension agent will correspond with a farmer by letter. Letters can be a follow-up inquiry resulting from an agent's farm visit, or sent because a farmer is unable to make a personal office visit. Drafting and replying to letters are very important skills for the extension worker and he should give every thought to them.

## 4.3. What are group methods of extension?

### 4.3.1. 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.

### 4.3.2. Demonstrations

#### 4.3.2.1. Result demonstrations with farmers groups

Result demonstrations show what happens as a result of using a particular technology in the field or homestead. Examples include growing cucumber using balanced fertilizer. Result demonstrations can be conducted over a single season, two seasons, or a whole year. Although some result demonstrations are conducted with an individual farmer, others are conducted with groups.

#### 4.3.2.2. Cropping pattern demonstrations

Cropping pattern demonstrations are implemented throughout a whole year and cover three seasons. This makes it possible to demonstrate a rotation of crops. The advantage of a cropping pattern demonstration is that farmers can learn how to integrate a new crop into their farming system. Principles of integrated plant nutrition can also be demonstrated, for example by applying full fertilizer to the some crop, and allowing crops in the other two seasons to take advantage of residual effects. In the latter case, cropping pattern demonstrations are based on the normal cropping patterns in the area, and only show adjusted fertilizer doses. All other operations remain the same as the farmer's usual practices.

#### 4.3.2.3. Block demonstrations

Block demonstrations are planned and implemented with a group of farmers who operate land next to one another. In this way, the area of the demonstration can be quite large, up to two or three, or perhaps five hectares. Block demonstrations present a strong visual impact, and involve working with a group of 10 to 15 farmers. A block demonstration is simply a large demonstration. This means that they can be cropping pattern demonstrations, single season demonstrations, single intervention demonstrations or package demonstrations.

#### 4.3.2.4. Single season demonstrations

Single season demonstrations last for only one season. They are usually conducted with a single crop, unless the demonstration involves intercropping.

Single season demonstrations are used to demonstrate a single aspect of crop production. A single season demonstration can be any size, so it could be a block demonstration.

#### 4.3.2.5. Single intervention demonstrations

Single intervention demonstrations are conducted on a crop which is already being grown in an area. They show only one adjustment to the farmers practice. A single intervention demonstration has two plots, one control plot which is the farmer's normal practice (variety, fertilizer, water management, or pest and disease management), and one demonstration plot. There is only one difference between the control and the demonstration plot. For example, a different timing to fertilizer applications, or the use of a different water management practice. This is so that the farmer clearly understands the precise benefits of a single change. Single intervention demonstrations also usually show ideas which farmers can adopt at little cost. In theory, a single intervention demonstration could be of any size or duration, so it could be a cropping pattern demonstration, a single season demonstration, a block demonstration, or a single farmer demonstration.

#### 4.3.2.6. Package demonstrations

Package demonstrations are conducted mainly for crops, which are new in an area. For new crops, a package demonstration shows which variety to plant and when, what fertilizer to use and when, what water

management procedures to use, how to control pests and diseases and all other aspects of production. There is no control plot, as the crop is new to the area.

A package demonstration could be of any size or duration, so it could form part of a cropping pattern demonstration, be a single season demonstration, or a block demonstration.

#### 4.3.2.7. Single farmer demonstrations

Result demonstrations can also be conducted as an individual event. Single farmer demonstrations are conducted with one farmer, as opposed to block demonstrations which are conducted with a group of farmers over several hectares of land. Single farmer demonstrations are smaller, and often comprise two plots, a demonstration and a control, each of which perhaps cover 50 m<sup>2</sup> or 100 m<sup>2</sup>.

Figure 3

Demonstration plot – using keyhole garden concept (funded under FAO project in Samoa)



#### 4.3.3. FIELD DAYS

A field day is a group extension event conducted at the site of any type of result demonstration. With single farmer result demonstrations, the field day is important to improve the cost-effectiveness of the demonstration. Field days provide the opportunity for

10 or more farmers to visit a demonstration site, learn about what is being demonstrated, ask questions, and encourage them to try new ideas themselves on their own farms. A series of field days, especially those that last for a year and show a cropping pattern, provide an ideal opportunity for farmers to meet again.

Field days are arranged at key times during the demonstration, when particular management activities are implemented, or when the benefits of the demonstration are most visible. For crop production demonstrations, appropriate times could be:

- At the time of planting
- When fertilizers or other inputs are provided
- At mid-season when differences in crop growth are apparent
- At harvest time when yields, costs and benefits can be compared

A minimum of two field days for a single season demonstration is recommended. For cropping pattern demonstrations, which involve three consecutive seasons, two field days in each season, or a total of six field days during the year, are recommended.

Field days generally last no more than an hour or so, and involve no cost. There is no allowance for either extension staff or farmers. Refreshments are not necessary as the event is short. Dates and times should be fixed in advance, and advertised to neighboring farmers. Where there is a demonstration signboard, field day schedules should be added. The same group of farmers should be encouraged to attend consecutive field days at specific sites. However, the number of participants should not exceed 20 to 25 farmers. Smaller groups will have a better opportunity to see what is being demonstrated, and hear the explanations of farmers and extension staff. In addition, with fewer people, a greater proportion of participants will have the opportunity to ask questions and participate properly in the field day.

#### 4.3.4. Methods demonstration

Method demonstrations are group extension events conducted over one to two hours to demonstrate and practice a specific skill, step by step. Method demonstrations are low cost and relatively efficient as they involve one extension worker and several farmers. They are participatory and enable farmers to learn by doing.

#### 4.3.5. District/Island agricultural fairs

A fair can be an effective way to create awareness about improved technologies to a large number of people within a short time and to stimulate general motivation for agricultural and rural development in the area. It can also play a valuable role in strengthening relationships between extension partners. Farmers are able to see a range of technologies and ideas displayed by non-government organizations, other government agencies and dealers and discuss them in a lively and informal way. Every district and Island should organize at least one fair every year, which is open to all categories of farmers in the area

#### 4.3.6. Farm walks

A farm walk involves a group of farmers visiting a farm and walking around it with the host farmer and the extension agent. The purpose of a farm walk could be one of the following:

- to give farmers an opportunity to see how a new technology has been tried, tested or adopted by one of their neighbors;
- Implementation Monitoring and Evaluation and Follow Up to give farmers an opportunity to see a technology which has been developed by one of their neighbors; to give farmers an opportunity to analyse a farming system and identify opportunities for improvement. Used in this way, a farm walk is a useful supplement to the Problem Census in gaining farmer participation in the process of assessment, and could be considered as one of the techniques associated with PRA
- To give farmers an opportunity to reach agreement on how a particular problem can be tackled, or to plan and implement new ideas as a group. This is often particularly important with approaches to farming such as Integrated Pest Management (IPM) which are not very successful when implemented by a single farmer whose neighbors use chemical pest control techniques;
- They can also be used as an activity to assist group formation.

#### 4.3.7. Farmers rallies

Farmers' rallies are large extension events, which usually involve a combination of activities centered around a main theme (e.g. the use of folk song, drama, banners to support a central presentation about IPM). They should only be used for introducing successful technologies.

Although the cost of organizing a farmers' rally may appear to be significantly higher than other extension events they do have the advantage of attracting large numbers of farmers from a wide range of backgrounds. This enables them to be potentially cost effective. In addition, one rally could be organized by a number of districts to share costs and resources or by a district.

#### 4.3.8. Folk media

Folk media is a traditional form of entertainment and communication, which is practiced in some countries, e.g. Bangladesh.

For extension programs, they present the opportunity to convey agricultural information in a culturally acceptable way, stimulate discussion about local issues among farmers, and make extension events enjoyable.

Folk media includes:

- song;
- drama;
- story telling;
- dance; and
- Puppets.

No modern technology or audio visual aids are required, these methods can be relatively cheap and are useful where literacy levels are low. Folk media can be fun for both extension staff and farmers. They are also interesting for radio broadcast, so it may be worthwhile inviting local radio/TV to record events where songs, drama or story telling are used.

#### 4.3.9. Group meetings

Group meetings are opportunities for extension staff and farmers to come together to discuss and analyze issues and ideas. They are generally short, not exceeding a couple of hours, and involve no or low cost. There are two basic types of group meetings, with many variations:

Small group meetings, which usually comprise one extension agent and not more than 10 farmers, who are either members of an existing group or a temporary group interested in a particular agricultural issue.

Large group or community meetings, which usually comprise several extension agents and a local community. Such events are most useful for conveying important or urgent information, and are advertised by miking or posters.

#### 4.3.10. Motivational tours

A motivational tour involves taking a group of up to 5-10 farmers from their village or block to another area. Motivational tours usually last a day. Motivational tours expose farmers to developments and new technologies, which are being used by farmers in another area, or are being developed at research stations, horticultural base nurseries, or activities being implemented by other extension organizations such as NGOs. Tours present a good opportunity for farmers from different areas to exchange ideas with one another

#### 4.3.11. Participatory technology development

Participatory Technology Development (PTD) is a process of developing technology, which is led by farmers.

The purpose of PTD is to:

- test farmers technology ideas;
- test, under local conditions, a technology that has been successful in other areas;
- try out a modification to an existing or recommended technology to see if it can be more successful under local conditions;
- Develop the capacity of farmers to solve their own problems through experimenting with ideas.

PTD differs from demonstrations, as it:

- does not involve showing a farmer a proven or recommended technology;
- is conducted in a participatory manner and farmers are full partners;
- Cannot be predicted, nothing can be promised, and nothing is guaranteed.

Conducting PTD is a learning process for everybody, with extension staff acting as facilitators. In return, farmers understand that there is no room for complaint or compensation if the technology which they test proves to be less suitable than their existing practice. If the idea being tested turns out to be a failure, the

process is often a success because of the learning that has occurred. Farmers have always been active developers of farming practices. PTD builds on, supports and encourages this capacity. The use of PTD is linked to the Department's extension approach which may seeks to encourage farmer participation.

#### 4.3.12. Formal training days

A formal training day is a group extension event. It is a structured, planned event with objectives and a written training plan, which involves training materials and trainers. Formal training days generally last for half or a whole day, generally catering for approximately 20 farmers. Formal training days can be held at any venue, at block, union, village or district level. Generally, the closer to farmers' homes the better. There are three types of formal training day, based on the cost of the event. These are:

- formal training day with no cost;
- formal training day with materials cost; and
- Formal training day with all costs.

#### 4.3.13. Farmer field schools

Unlike other farmer training that takes place at village level, Farmer Field Schools (FFS) are usually instigated by the Agriculture Officer (or near to the Agricultural Extension specific area). This is because they are often organized as part of a national program for introducing new technology and tend to require a large investment.

The FFS approach is field orientated and participatory placing emphasis on learning by doing. Training takes place over an extended period such as a cropping season and is a combination of classroom and field work. Training is also holistic in that it follows the farming systems adopted by participants. This means that the training starts from an understanding of existing farmers practice e.g. inputs used, resources available for production, market prices, availability of inputs etc.

### 4.4. Mass extension

Extension methods for a larger public (mass extension) are most suitable for fast and widespread transfer of easily understandable information and proven messages. They are not suitable for extension packages which cannot be understood without intensive discussions, questions and feedback from farmers. The advantages of mass extension are obvious:

- They reach a larger public and are highly cost-efficient in terms of costs per reached farmer
- They can re-enforce points already introduced during group and individual extension processes
- They can convey messages on emergencies like outbreaks of endemic diseases (e.g. grass hopper, grain borer, etc.) and therefore make a larger public aware of such outbreaks in a very short time. The most common mass extension methods are village meetings (Section 4.4.1), field days (Section 4.4.2) and extension campaigns (Section 4.4.3).

#### 4.4.1. Village meetings

Village meetings are normally used for spreading a message relevant for the whole or large parts of a village. Village meetings are used for the following purposes:

- To inform the village about a topic of interest to all or most of the villagers e.g. about an outbreak of disease and consequent emergency measures
- To inform the village about a village event like Participatory Situation Analysis or a Government Crop Program and to agree with the village population on timing and overall principle procedures of village events
- To inform the village about the results of village research, Participatory Situation Analysis, etc. and get feedback from the whole village.

#### 4.4.2. Field days

Field days are normally used to demonstrate improved production techniques being used by one or more farmers, demonstration plots or research stations, to a large number of farmers. See section 4.3.3 for more information.

#### 4.4.3. Extension campaigns

Extension campaigns are suitable to spread a central message to a larger number of farmers. The objective is to propagate this central message as quickly as possible to as many farmers as possible via mass meetings and the use of all available media (see also next point).

Campaigns are particularly suitable for implementing pronounced policy objectives (e.g. the policy of self-sufficiency in rice in Timor-Leste. Therefore, campaigns have been conducted in Timor-Leste during the last years mainly on the intensification of (mechanized) rice production). The advantages of extension campaigns are as follows:

- Campaigns make the farmer aware of existing programs supported by Government (or others), usually with subsidized inputs (as is the case in Timor-Leste with mechanization, seeds and fertilizer for the rice campaigns)
- Campaigns give clear and simple messages, which do not need strong backing by group extension (however, many campaigns need follow-up on a group extension basis). Extension Campaigns need thorough and specific planning, organization, implementation and monitoring. To outline the design of an extension campaign would over-stretch this manual and needs a separate manual.

Figure 4

Vanilla farm in the Cook Islands – which could be also used for the extension purposes



## Annex 1: Practical tools for the extension workers

### Tool 1: Guidelines for Successful meetings/workshops

#### Preparation

The moderator prepares the meeting well in advance. This means:

- To fix timing and content of meetings and make them known to the participants
- To assure that proposals are worked out in writing for outstanding decisions and that they are made known to the other participants well in advance (at least one day before). Those who want to present cases for decision making, should be encouraged to present proposals in an acceptable form (visualized)
- To prepare the meeting place (chairs in semi-circle, if possible; preparation of visualization materials, for example felt pens and flipcharts etc.)
- To read protocols from previous meetings carefully so that follow up of previous decisions is not forgotten.

#### Facilitation

- The moderator is responsible for the process, not for the contents of the meeting. Therefore, he/she must guide the meeting target oriented, to look for the time schedule and to assure that everybody has the chance to speak and nobody is allowed to talk all the time. Here, a certain strong personality is necessary.
- The mandate for moderation must be accepted from everybody. The moderator is, for the time of the moderation, not colleague, boss or subordinate but the 'president' of this meeting. Everybody must accept his guidance concerning the process and the methodology of the meeting.
- Each moderation starts with seeking acceptance for the protocol of the previous meeting and follows-up which decisions from last meetings have been implemented, which not and why not.
- The moderator is responsible for the documentation of decisions (result-protocol). This does not mean that he has to write the protocol but only that he has to assure that the protocol is written. Usually, he/she asks a colleague to make the protocol because moderation and making protocol is usually too much for one person.
- The moderator must assure that relevant decisions are taken and that responsibilities for the implementation of decisions are clear at the end of the meeting.

#### Follow-up

- Protocols of meetings should be written from the notes immediately after the meetings in order not to forget important points. The protocol should be distributed as soon as possible to all participants of the meeting.
- Those persons who have been made responsible for the implementation should be made accountable for the implementation. This does not mean that they have to do everything by themselves; they only have to assure that things are done. Tasks should be, as much as possible, delegated to lower level staff.

## Tool 2: Guidelines for resource mapping

### Description

- A resource map is a map showing a village with its natural resources with special regard to different aspects like:
  - natural resources (e.g. land, fields, forests, rivers )
  - infrastructure (e.g. streets, paths, wells, water tanks)
  - social facilities (e.g. houses, schools, health centre)
- One key feature of the resource map is that it should be constructed with the local materials available (e.g., seeds, stones, leaves) by the villagers themselves.

### Objectives

- to gain an overview of the situation with special regard to the resources available in the village as perceived by the villagers
- to learn about access and control over resources
- to find out and discuss the different perceptions of various groups on problems within the village
- to discuss potentials, problems, needs, arising from the information gathered through the process of drawing the map

### Activities

- Ask the participants to draw a map on the ground showing the whole village with all the important items, according to their own perception.
- Suggest using symbols or natural resources for visualizing the different items.
- Throughout the process pay attention that the others agree when somebody has arranged or rearranged something in the map. If they disagree, ask for reasons and try to facilitate the process to reach a general agreement.
- Ask one of the villagers to draw a copy of the resource map on paper. Make sure that the copy really represents the original and that the legend is complete.

### Actors/Responsibilities

- Extension agents
- Whole village/community members

### Time

- depends on the number of participants and the size of the village
- roughly two hours

### Suggestions/ Comments

- Prepare in advance all the necessary items for the construction of the map and choose a suitable place.
- Ensure that everybody in the village community participates during the construction. Encourage non-participants to get involved!
- Try to draw conclusions already about various groups and their respective problems in the village. Listen closely to people's talk during the whole process.
- Indicate community projects identified during PNA on the map.

### Tool 3: Guidelines for farmers' training/group discussions

Group discussions is probably the most widespread group extension methodology. The classic setting is a discussion group in a circle or round table arrangement, be it outside or inside. The success or failure of group discussions depends largely on the level of preparation and depends on the following factors

#### Group size

The number of people should ideally not exceed 10 to 15. Larger groups tend to be less inclined to hold together, do not give individuals enough chance to speak, and are prone to domination by people with higher status and greater aggression.

- Place

Group discussions should be carried out in central, quiet venues. If they continue for any length of time, seats and writing facilities should be provided.

- Participants

The group should be relatively homogeneous with regard to resource endowment, the practical obstacles it has to tackle, and its interests. However, some differences among members make an exchange more interesting, provided that a climate of mutual trust can be created.

- Information

The participants should be informed about the points to be dealt with well before the beginning of the discussion. Where groups already exist, this advance warning can be given on notice boards in the middle of the village or by providing specific contacts with the necessary information.

- Agenda

The agenda for group discussions must be carefully prepared so as not to demand too much of the participants. Wherever possible, the advisers should work out the items and discuss them in advance with representatives of the group. In this way, the adviser gets a more realistic idea of the reactions that can be expected from the rest. Advisers, and particularly "experts", tend to overestimate the ability of local client groups to take in information.

- Preparation of content

The adviser must prepare the group sessions carefully in order to present the necessary information effectively and to put appropriate and stimulating questions to the group. If it is not possible to prepare leaflets or hand-outs, there should at least be a blackboard or some other item of presentation equipment available. Leaflets and handouts should be prepared in English with translation in the local language as well. Practical demonstrations should be fully rehearsed beforehand. Questions of detail should be clarified in preparatory discussions with other advisers or by consulting specialists. When their presence is necessary, they should if possible be brought into the group discussions.

#### Tool 4: Guidelines for cross-visits

On a Cross-Visit, a group travels to another location to observe agricultural practices, projects or demonstrations not available locally. Farmers from one village will see the successes of other farmers in another village. On such trips, farmers can learn through their own experience. The trip may consist of one or more stops. The purpose of the field trip is

- to provide first-hand observation of practices that might be of benefit to the farmer or householder and farm worker
- to enable the group to interact with individuals knowledgeable about the practices; and to present a fresh and different learning environment for both the extension worker and the clientele.

The following hints are given for the planning and conduct of cross-visits:

- Field trips should be organized with a very specific, limited objective, for instance compost heaping, seed multiplication, and so on
- The group taken on a field trip should be limited to a maximum of 5-7 key persons. These key persons should already have an interest in the topic and be motivated to learn more
- Field trips should be organized not too close to the participants' home area, but conditions in the area to be visited should be as similar to their own area as possible
- The host farmers should do most of the talking and responding to the questions
- After the field trip the adviser should ask for feedback about the field trip from the participants

The ideas on preparing, running and evaluating demonstrations (Tool 7 & 8) and group discussions (Tool 3) can essentially be applied to field days, too.

#### Tool 5: Criteria for selecting 'pilot farmers'

Pilot farmers are farmers who are willing and able to conduct on-farm-trials, demonstrations and have the potential to advise other farmers (for the farmer-to-farmer approach). Pilot farmers have a very important function for extension as they can multiply the impact of the AE in extension. In addition, pilot farmers are the main contact partners of advisers, and in this capacity they pass on information and techniques to other farmers. As representatives of the client groups, contact farmers see that the wishes, proposals and criticisms of the farmers are taken into consideration when extension measures and programs are formulated. Pilot farmers should preferably be selected from farmer groups. However, other farmers with the potential being contact farmers should not be excluded. The following criteria should be followed when selection pilot farmers.

##### **Social-economic criteria**

- Pilot farmers must be accepted and respected by the farmer group or the farming population. In the ideal case, the pilot farmer is selected/chosen by the group/the people themselves
- Pilot farmers should have sufficient status in the client group to counter the sanctions that could be applied when unconventional innovations are tested. It is an advantage if the pilot farmers have sufficient status for the farmers to accept their role in testing innovations
- Pilot farmers must not be motivated simply by personal advantage, such as the cost free provision of inputs, or keeping the innovations on their farm a secret in order to benefit from the innovation gain alone
- Pilot farmers should always behave in solidarity with the members of their client group

- Pilot farmers must be open, communicative and willing to share agriculture extension information and innovative practices with other farmers

#### **Agriculture and agricultural practices**

- • Pilot farmers should have a similar resource endowment as the other farmers (not too resource rich and not too resource poor)
- • Pilot farmers should have the similar basic agricultural practices as the farmers in their respective client group. However, pilot farmers must be recognized as somebody interested in trying out new practices in the past which proved to be successful
- • Pilot farmers' farms should be suitably located to allow easy access to the maximum number of client group members

#### **Know-how and skills**

- A good formal education is an advantage but not be condition. More important than formal education is the willingness and ability to accept agriculture extension ideas and to integrate new agriculture extension information
- Pilot farmers must have the ability to carry out trials and interview the agents correctly (time, content, observations)
- Pilot farmers must be capable of advising farmers and giving them factually correct information and advice at the right time. They must also be in a position to interpret farmers' reactions correctly
- An important precondition of selecting pilot farmers is the willingness to undergo further training, either by means of courses, training by the adviser, or with the aid of printed material or electronic media.

## Tool 6: Guidelines for farm and home visit

	Farm and home visits
<b>Description</b>	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
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• To get acquainted with and gain confidence of farmers and homemakers.</li> <li>• To obtain and/or give firsthand information on matters relating to farm and home.</li> <li>• To advise and assist in solving specific problems, and teach skills.</li> <li>• To sustain interest.</li> </ul>
<b>Situation</b>	<ul style="list-style-type: none"> <li>• People to be contacted are few in number.</li> <li>• Farmers are conveniently located close to the extension agent</li> <li>• Sufficient time is available for communication</li> </ul>
<b>Procedure</b>	<p><b>Planning for preparation</b></p> <ul style="list-style-type: none"> <li>• Decide on the audience and the objectives – whom to meet and what for?</li> <li>• Get adequate information about the topic.</li> <li>• Collect relevant publications and materials to be handed over.</li> <li>• Make a schedule of visits to save time and money.</li> <li>• If possible, send advance information.</li> </ul> <p><b>Implementation</b></p> <ul style="list-style-type: none"> <li>• Visit on the scheduled date or according to convenience of the farmer and when the person is likely to listen.</li> <li>• Create interest of the farmer and allow the individual to talk first.</li> <li>• Present the message or points of view and explain up to the satisfaction of the farmer.</li> <li>• Answer to questions raised and clarify doubts. Hand over publications, if any.</li> <li>• Try to get some assurance for action.</li> </ul> <p><b>Follow-up</b></p> <ul style="list-style-type: none"> <li>• Keep appropriate record of visit</li> <li>• Send committed information or material</li> <li>• Make subsequent visits as and when necessary</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Helps to build a rapport with farmers</li> <li>• Helps to identify local leadership.</li> <li>• Helps to change attitude of people.</li> <li>• Helps in teaching complex practices</li> <li>• Enhances effectiveness of group and mass media methods.</li> <li>• Facilitates getting feedback information</li> </ul>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Only a limited number of contacts may be made.</li> <li>• Time consuming and relatively expensive.</li> <li>• Favoritism may develop towards some farmers.</li> </ul>
<b>Tips</b>	Avoid concentrating your attention on a few big and progressive farmers thereby creating a prejudice towards the larger number of small and marginal farmers, landless labor and backward people.

## Tool 7: Guidelines for results demonstration

	<b>Result Demonstration</b>
<b>Description</b>	Result demonstration is a method of motivating people for adoption of a new practice by showing its distinct superior results.
<b>Objective</b>	To show the advantages and applicability of a newly recommended practice in farmer's own situation. <ul style="list-style-type: none"> <li>• To motivate groups of people in the community to adopt a new practice by showing its results.</li> <li>• To develop innovative leadership</li> </ul>
<b>Situation</b>	<ul style="list-style-type: none"> <li>• When it is necessary to communicate with a group of people, rather than individuals, to show the benefits of a new innovation.</li> <li>• 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.</li> </ul>
<b>Procedure</b>	<p><b>Planning and preparation</b></p> <ul style="list-style-type: none"> <li>• Analyze farmer's situations and select relevant beneficial practices, in consultation with subject matter specialists and researchers.</li> <li>• Select few responsible, innovative and cooperating farmers who possess 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.</li> <li>• Select representative locations for conducting the demonstrations where it will be easily visible to a large number of people in the community.</li> <li>• Develop a complete plan of work clearly identifying each individual step and who has the responsibility each task, along with a time schedule.</li> <li>• 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.</li> <li>• Organize materials and equipment required for conducting the demonstration.</li> <li>• 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.</li> </ul> <p><b>Implementation</b></p> <ul style="list-style-type: none"> <li>• Put up suitable signboard for each demonstration site</li> <li>• Start the demonstration on the scheduled date and time in the presence of those who will be present.</li> <li>• Welcome the attending farmers and explain the objectives of the demonstration.</li> <li>• Ensure that all critical operations are done in time and try to supervise them personally.</li> <li>• Motivate as many farmers as possible to be present at the time of final assessment of the results.</li> <li>• Make frequent visits to monitor the demonstration plots closely during their entire trial period and make sure that they are progressing well.</li> <li>• Take photographs for record and help the demonstrating farmers to maintain</li> </ul>

	<p>records</p> <ul style="list-style-type: none"> <li>• Arrange method demonstrations where a new skill is involved.</li> <li>• Conduct field days and farmers days around successful demonstrations.</li> <li>• Encourage the demonstrating farmers to explain the procedures and experiences to visiting farmers as much as possible.</li> <li>• Analyze and interpret the results and compare them with those under the existing farming practice.</li> <li>• 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.</li> </ul> <p><b>Follow-up</b></p> <ul style="list-style-type: none"> <li>• Use the results of the demonstration in future extension work and also release on to mass media for further dissemination.</li> <li>• Prepare extension material, particularly visual aids such as photographs, charts, videos, etc, on the demonstrations for future use in extension programs.</li> <li>• Engage the demonstration farmers in farmers meetings and training programs.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• It helps to produce positive results for extension worker by creating confidence in their judgment and ability.</li> <li>• It helps to open way for further interaction with the farmers.</li> <li>• Hands-on participation in the trial will train and encourage the farmers to act in a more systematic and scientific manner.</li> </ul>
<b>Limitation</b>	<ul style="list-style-type: none"> <li>• Unsuccessful demonstrations may cause some setback to extension work.</li> <li>• It can be costly in terms of time, energy and funds for the extension work.</li> </ul>
<b>Tips</b>	<p>To enhance its effectiveness, result demonstration should be integrated with the total extension program.</p> <p>If the particular result demonstration may involve new skills development, it can most effectively be combined with method demonstration.</p> <p>Similarly, application of other extension communication techniques such as field days and farmers days can be arranged to center around successful demonstrations.</p> <p>Avoid using the same set of demonstration farmers continuously for subsequent demonstrations as this may be regarded as favoritism towards some selected farmers by the extension agent.</p>

## Tool 8: Guidelines for method demonstration

	<b>Method demonstration</b>
<b>Description</b>	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.
<b>Objective</b>	To teach skills and stimulate people to action <ul style="list-style-type: none"> <li>• To discard ineffective or inefficient practices</li> <li>• To improve the final result by doing a job in a better way.</li> <li>• To build up learners confidence and satisfaction on the practice</li> </ul>
<b>Situation</b>	When skills development is emphasized to carry out a job more effectively as means of improving the final result.
<b>Procedure</b>	<p><b>Planning for preparation</b></p> <ul style="list-style-type: none"> <li>• Identify the problems giving due consideration and involving the local clientele</li> <li>• Select the skill which is important and needed by the farmers for immediate use</li> <li>• Ensure the participation of subject matter specialists.</li> <li>• Assemble the relevant information, materials and equipment.</li> <li>• Plan the presentation step-by-step including an introduction and summary, and practice the demonstration.</li> <li>• 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.</li> <li>• Display diagrams, photographs, charts, etc., at the demonstration site.</li> </ul> <p><b>Implementation</b></p> <ul style="list-style-type: none"> <li>• Start the demonstration on the scheduled date and time in the presence of those who will be present.</li> <li>• Welcome the attending farmers and explain the objectives of the demonstration.</li> <li>• Show each operation step-by-step, explaining clearly why and how it is done.</li> <li>• Ensure that all the participants have seen the demonstration and have understood it. Repeat difficult steps if required.</li> <li>• Invite the participants one by one or in small batches to practice the skill.</li> <li>• Clarify doubts and answer their questions.</li> <li>• After the participants have completed practicing the skill, summarize the proceedings highlighting the key points.</li> <li>• Hand over relevant publications.</li> </ul> <p><b>Follow-up</b></p> <ul style="list-style-type: none"> <li>• Keep a record of the participants and maintain contact with them</li> <li>• Assist participants to acquire the required material and equipment.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• It involves seeing, hearing, participation and practicing in a group which stimulate interest and action.</li> <li>• As the results of method demonstration are known within a relatively short time, it is very effective in persuading people to acquire the skill.</li> </ul>
<b>limitations</b>	<ul style="list-style-type: none"> <li>• Suitable mainly for practices involving skills</li> <li>• Require good deal of preparation, equipment and skill of the extension agent.</li> <li>• Not all the participants may get the opportunity to practice the skill depending on the size of the gathering and time available.</li> </ul>

## Tool 9: Guidelines for group meetings

	<b>Group meeting</b>
<b>Description</b>	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.
<b>Objective</b>	<ul style="list-style-type: none"> <li>• To prepare a favorable climate for discussion and better understanding the problem.</li> <li>• To facilitate in-depth discussion by involving a small number of participants.</li> <li>• To generate new ideas and methods involving useful traditional practices and conventional wisdom, and select the rational ones through group interaction.</li> <li>• To develop a favorable attitude and commitment for action through group involvement.</li> </ul>
<b>Situation</b>	<p>When pooling of knowledge and experience of a number of persons is desired in arriving at collective decisions through shared opinion.</p> <ul style="list-style-type: none"> <li>• To act as a safety valve for reducing tension that may arise as a result of local disputes or outside influences.</li> </ul>
<b>Procedure</b>	<p><b>Planning and preparation</b></p> <ul style="list-style-type: none"> <li>• Prepare an agenda highlighting the topic to be discussed, decide who should be involved and the date and time for holding the meeting.</li> <li>• Assemble relevant information. Contact subject matter specialists, researchers and resource persons for participation, if required</li> </ul> <p><b>Implementation</b></p> <ul style="list-style-type: none"> <li>• Start the meeting on the scheduled date and time.</li> <li>• Introduce the topic to the group and initiate the discussion.</li> <li>• Allow the members to talk and interact.</li> <li>• Encourage the less vocal members to participate in the discussion.</li> <li>• Assist the group to take decisions and keep record of the discussion.</li> <li>• While facilitating the discussion, gentle guidance may be required to ensure that it does not stray away from the main topic of the meeting.</li> </ul> <p><b>Follow-up</b></p> <ul style="list-style-type: none"> <li>• Remind members of the decision arrived and assist them to take action.</li> <li>• Arrange for services consistent with the decisions</li> </ul>
<b>Advantages</b>	<p>Promotes collective decision making as well as individual decision making by using knowledge and experience of group members.</p> <ul style="list-style-type: none"> <li>• The group process enhances peoples participation and facilitates program implementation</li> <li>• It develops the capability of the people to face challenges and adverse situations</li> </ul>
<b>Limitations</b>	<p>Requires understanding of group dynamics and skill of the extension agent.</p> <ul style="list-style-type: none"> <li>• Village factions may hinder successful use of this method</li> <li>• Some self-discipline among members is needed for the method to be successful.</li> <li>• It is a slow process and may not be suitable in crisis or emergency situations.</li> </ul>
<b>Tips</b>	<p>Convenient size of group for conducting a meeting or discussion may be around 5 to 10, which may be extended up to 30 as the situation demands. The participants may be a cross section of the farming community representing all strata from landless through small, medium and large farmers to land owners.</p>

## Tool 10: Guidelines for small group training

	<b>Small group training</b>
<b>Description</b>	It is a technique of imparting specific skills to a group of people who need them by creating an appropriate learning situation
<b>Objective</b>	<ul style="list-style-type: none"> <li>• To impart the needed skills to a small group of people.</li> <li>• To motivate people to adopt new practices through skills training</li> </ul>
<b>Situation</b>	<ul style="list-style-type: none"> <li>• Facilities for holding several sessions spreading over more than one day may be required.</li> <li>• Useful where transfer of technology (e.g., post harvest technology for marketing, etc) is an important aspect</li> </ul>
<b>Procedure</b>	<p><b>Planning and preparation</b></p> <ul style="list-style-type: none"> <li>• Identify a technology for which there is a need in the community.</li> <li>• Decide on the location, date, time and duration of the training program.</li> <li>• 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.</li> <li>• Prepare a written program allocating topics and time duration to different trainers.</li> <li>• Discuss the program with the trainers to finalize the presentations schedule.</li> <li>• Collect relevant materials, publications and audio-visual aids.</li> <li>• Inform all concerned in time.</li> <li>• Make arrangements for refreshments, food, accommodation, transport and other facilities according to the needs of the program.</li> <li>• Allocate responsibilities to suitable persons.</li> <li>• Make arrangements for registration of participants.</li> </ul> <p><b>Implementation</b></p> <ul style="list-style-type: none"> <li>• Start the training program on the appointed date and time.</li> <li>• Distribute publications and materials for taking down notes at the time of registration.</li> <li>• Keep the inauguration function and other formalities to a minimum.</li> <li>• Invite the trainers as per the program. Give enough time for discussion and the trainees to react.</li> <li>• Explain the relevant technology and state clearly why and how it should be done.</li> <li>• Use visual aids such as chalk or white board, flip-chart, models, O/H projector, computer, etc, as appropriate.</li> <li>• Arrange practical demonstrations and give enough time to each trainee for practicing the skill.</li> <li>• Clarify doubts and answer to their questions.</li> <li>• 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</li> </ul> <p><b>Follow-up</b></p> <ul style="list-style-type: none"> <li>• Maintain contact with the trainees.</li> <li>• Encourage and assist them to apply the new practice and remove hindrances.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• In-depth learning of skills is possible.</li> </ul>
<b>Limitations</b>	Only a small number of people can be trained at a time. • Follow-up requires more staff and time

## Tool 11: Guidelines for a field day or farmers' day

	<b>Field days</b>
<b>Description</b>	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.
<b>Objective</b>	<ul style="list-style-type: none"> <li>• To convince the farmers about applicability of the practice in their own situation.</li> <li>• To motivate them to adopt the practice by showing its performance and profitability under field conditions.</li> <li>• To remove doubts and unfavorable attitude about the new practice.</li> <li>• To reinforce previous learning about the practice.</li> </ul>
<b>Situation</b>	<p>Field days or farmers' days can be held in research and demonstration farms, farmer's field or home.</p> <ul style="list-style-type: none"> <li>• It can be used to the show results achieved with mini-kits or method demonstration plots laid down by selected farmers to the community.</li> </ul>
<b>Procedure</b>	<p>Planning for preparation</p> <ul style="list-style-type: none"> <li>• Decide about the practice, the location, date, time and the participants.</li> <li>• Contact Subject Matter Specialists and fellow extension agents serving in surrounding areas to ensure participation.</li> <li>• Arrange a meeting place close to the location where the practice has been applied.</li> <li>• Make a written program identifying the activities and responsibilities of suitable persons</li> <li>• 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.</li> <li>• Collect relevant publications and prepare a handout for the occasion.</li> <li>• Arrange public address system, required materials and equipment, vehicles, etc.</li> <li>• Inform invitees, farmers and, depending on the scale of the event, mass media personnel.</li> <li>• Make arrangement to register participants.</li> </ul> <p><b>Implementation</b></p> <ul style="list-style-type: none"> <li>• Welcome the participants on arrival, assemble them to meeting place and register attendance.</li> <li>• Start the meeting at scheduled time giving a brief introduction on the purpose of the field day and how the group should move.</li> <li>• 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.</li> <li>• On completion of the field visit, invite all participants to the meeting place and distribute publications or handouts.</li> <li>• A short time may be allotted to formal addresses followed by emphasizing of important points of the practice again.</li> <li>• Invite few participants to present their observations and answer the questions that may be raised.</li> <li>• End the meeting by thanking the participants for their attendance and the people who have helped in various ways.</li> </ul>

	<p><b>Follow-up</b></p> <ul style="list-style-type: none"> <li>• Maintain contact with the participants to keep their interest and promote adoption of the practice</li> <li>• Reinforce learning about the practice through use of mass media</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• The method gives the participants to visually observe the benefits that can be gained by application of the practice.</li> <li>• Helps the farmers to socialize and to acquaint themselves with outside persons like Subject Matter Specialists.</li> <li>• 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.</li> </ul>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Field days cannot be held frequently</li> <li>• Does not facilitate in-depth learning</li> </ul>
<b>Tips</b>	<p>If the number of participants is large, they can be divided into small groups of say 5– 10 each.</p> <p>Each group can visit the field in rotation according to pre-arranged time schedule thereby all participants get the opportunity to make full use of the field day.</p>

## Tool 12: Guidelines for Farmers Field School (FFS)

	<b>Farmer field schools</b>
<b>Description</b>	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.
<b>Objective</b>	To enable participating farmers to make their own locally specified decisions about crop management practices. <ul style="list-style-type: none"> <li>• To transfer part of the Government cost on extension to the community</li> </ul>
<b>Situation</b>	<ul style="list-style-type: none"> <li>• When mass mobilization of the farming community is required for a change in the currently operating farming systems</li> </ul>
<b>Procedure</b>	<p><b>Planning and preparation</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Discuss and finalize the terms and conditions with the owner farmer, on compensation, logistics, etc., and maintain proper communication channels.</li> <li>• Carry out a baseline assessment.</li> <li>• Select participating farmers who are interested, motivated, ready to learn, cooperative, full-time farmers growing the FFS crop for the FFS.</li> <li>• Form farmer groups for FFS by gathering participants from a similar crop production background.</li> <li>• 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.</li> <li>• Register the willing group members</li> <li>• Design the FFS curriculum through a study of problem identification and needs assessment to stating objectives, field activities and learning subjects of FFS.</li> <li>• Prepare meeting schedules and detailed activity plans</li> <li>• Procure materials and stationery including forms for data collections, etc. in time.</li> <li>• Prepare FFS budget</li> </ul> <p><b>Implementation (the procedures will vary with the program and crop)</b></p> <ul style="list-style-type: none"> <li>• Conduct the meetings and field activities as scheduled. Invite resource persons as and when required.</li> <li>• 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.</li> <li>• Take care of the administrative obligations and maintain constructive communication with local authorities, NGOs and other organizations in the area.</li> <li>• Evaluate the FFS during the season for training quality</li> <li>• Evaluate the FFS at the end of FFS training – Impact evaluation</li> </ul> <p><b>Follow-up</b></p>

	<ul style="list-style-type: none"> <li>• Set up farmer studies by providing specific training on field study skills to promote continuation by themselves independently</li> <li>• Support farmer-to farmer extension by graduates of FFS offering to training to new groups</li> <li>• Encourage the trained group to repeat activity on a different crop.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Provide means to develop expertise among farmers in a farmers community and thereby promote good management practices and possible increase in profits</li> <li>• Provide opportunities for farmer work group formation for related activities such as marketing (Global GAP) and community action on related topics.</li> <li>• Provides an opportunity to integrate farmers’ knowledge and experiences into the program through experimentation in FFS fields without personal risks.</li> <li>• The basic knowledge acquired through FFS makes trainees better clients for research and extension systems as they have more scientific questions and demands,</li> </ul>
<b>Limitations</b>	<p>Assumes that the Extension Agent possesses all the required skills in growing of the crop selected for FFS.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Finding a suitable FFS plot may not always possible due to reluctance of the land owner farmers (it differs from ‘traditional demonstration’ plots)</li> <li>• Cost per trained farmer is high.</li> </ul>
<b>Tips</b>	<p>Farmer participation can be improved by selecting locations where a wide gap exist between the current practice and the expected result of FFS. Clustering of the FFSs is considered more advantageous than spreading as the former creates a critical mass for better interaction and strengthening farmer networks. It is more likely that full-time farmers will have a greater interest in FFS participation than those who are part-time farmers. Promote independent establishment of farmer associations and assist in writing proposals and requests for local funding.</p>

### Tool 13: Sample job description of agricultural extension (AE) workers

The AE is the primary partner of the farmers' groups at community level. He/she interacts regularly (weekly and on needs) with the farmers and assumes all extension functions. The AE has to perform the following jobs (job description):

- Identify and form farmer groups
- Mobilize farmers in implementing their agriculture activity effectively
- Assist farmers to realize their regular meetings
- Assist farmers by providing information about agriculture techniques appropriate to the local condition, inputs availability, and credits and marketing
- Assist farmers in formulation of seasonal cultivation and annual needs
- Prepare work schedule or extension events in coordination with SEC
- Conduct plot demonstration (Demo Plot) to stimulate farmer to adopt agricultural technology and arrange Farmer Field Days with farmer groups
- Identify and predict pests or disease that may affect crop, livestock and fish, and provide means to stop or control with the assistance of SMS.
- Participate with SMS or Researchers to establish on-farm adaptive trials and collect relevant data for analysis
- Assist farmers to diagnose farming related problems and propose appropriate solutions
- Coordinate with community leader and development agencies in rural area to ensure successful implementation of programs
- Undertake data collection at village level, such as number of household, hectares, production volume etc.
- Elaborate operational plan for extension activity and monthly report
- Undertake any tasks as may be assigned.

### Tool 14: Developing an agricultural extension program (an example)

<b>Problem</b>	Local shortage of staple food.
<b>Potential</b>	Some local farmers have increased maize yields by 30-40 percent by using improved seed and animal manure most farmers have plenty of manure but do not use it.
<b>Solutions</b>	<p>A Increase size of small farms and introduce labour-saving techniques  - not feasible: no access to additional land.</p> <p>B Encourage larger, mechanized farms to grow more food crops  - not acceptable: poorer farm families could not buy the food.</p> <p>C Enable smaller farmers to increase yields  - feasible, using better varieties and tested husbandry improvements.</p>
<b>Preferred solution C</b>	
<b>Objective</b>	Raise yields by 30 percent on 20 percent of the farms in the area in the first year.
<b>Intermediate objectives</b>	<p>50 percent of farmers will learn of the benefits, and will acquire the skill, of using manure.</p> <p>50 percent of farmers will learn the benefits of new varieties.</p> <p>20 percent of farmers will plant improved varieties.</p>
<b>Plan of work</b>	<ul style="list-style-type: none"> <li>- Establish demonstration plots on ten farms.</li> <li>- Hold public meetings and film shows in ten villages to show the benefits of new varieties and improved husbandry.</li> <li>- Hold method demonstrations of manuring and correct spacing at the appropriate times.</li> <li>- Visit farms during planting season.</li> <li>- Hold result demonstrations on selected plots to encourage more farmers to try the new varieties and practices next year.</li> </ul>
<b>Support needed</b>	<ul style="list-style-type: none"> <li>- Subject-matter specialist to speak at public meetings, attend demonstrations and answer farmers' questions.</li> <li>- Adequate supplies of seeds, at the right time, at local stores.</li> <li>- Farm broadcasts to include relevant items at the appropriate time of year.</li> </ul>

### Tool 15: Extension officer's annual report (an example)

<b>Name of extension officer/agent</b>	Mr. John Bob
<b>Field of extension</b>	Vegetables and fruits
<b>Reporting period</b>	2018-2019
<b>Summary of work done</b>	During this year, I had 15 demonstration plots (10 on fruits and 5 on vegetables) in Pohnpei. I also conducted 10 trainings for farmers.
<b>Objective of extension activities in XXX year. (Why you want to have this extension method?)</b>	To demonstrate new techniques regarding vegetable intercropping, row cultivation and comparing organic manure vs. NPK.
<b>Material and methods (How is the demonstration done?)</b>	<p>5 demonstration plots on vegetable fertilizer application using compost and NPK in the farmers' field and in the ministry research facility.</p> <p>10 demonstration plots on vegetables row cultivation to see if the yield will increase. In addition, we demonstrated that row cultivation can minimize weeds and pests.</p> <p>10 on-the-field training, farm visits and in class training for farmers were delivered on fruit cultivation, propagation methods, pruning, grafting and harvesting.</p>
<b>Results and discussion (What worked and what didn't?)</b>	<p>5 demonstration plots fertilizer application data was collected through 15 visits to the farmer fields. In addition, farmer also collected data based on their observation from the field. The results show that compost was not very different then the commercial fertilizer. Therefore, we recommend increasing the number of composting activity for next year.</p> <p>The demonstration plots on vegetables were also good. However, during the 2<sup>nd</sup> quarter of the year, I was busy on overseas training, I could not collect the data. The farmer didn't know how to collect data so we don't have full data. But still the final harvest data is available and show better results then broadcast method and relatively less pest and weeds were easily controlled.</p> <p>During this year, I trained 100 farmers through 10 trainings. The farmers expect more follow on training at higher capacity.</p>
<b>Challenges</b>	Limited transportation, farmers are very busy with church, cyclone.
<b>Recommendation</b>	I request the following for next year: Improve transportation for extension officer Provide composting material + training for more farmers

## References and further information

- Agricultural Support Assist Project. 2008. *Agriculture extension methodology: A reference manual*. Japan International Cooperation Agency .
- Dia, L., Sablah, M., & Bendeck, M. 2017. *Integration of Nutrition in agriculture extension services in Africa*. FAO. Accra, Ghana.
- FAO. 2017. *What role can Agricultural Extension and Advisory Services play in realizing gender equality and improved nutrition?: Summary of Online discussion No:141*. Rome.
- L. Blum, M. 2007. *Trends and Challenges in Agricultural Extension –Policies and Strategies for Reform*. FAO. Also available at <http://www.fao.org/nr/res/wshops/docs/presentation2.pdf>
- Ministry of Agriculture. 1999. *Agriculture extension manual*. Government of Bangladesh.
- Ministry of Agriculture and food security. 2006. *The district agriculture extension system: Implementation guide*. Malawi: Government of Malawi.
- Oakley, P., & Garforth, C. 1985. *Guide to extension training*. FAO, Rome.
- Qamar, M. 2005. *Modernizing national agricultural extension system: a practical guide to policy makers of developing countries*. FAO. Rome.
- Rivera, W., & Qamar , M. 2003. *Agriculture Extension, rural development and the food security challenge*. FAO. Rome.
- Rivera, W., Qamar, M., & Crowder, L. 2001. *Agriculture and rural extension worldwide: options for institutional reform in the developing countries*. FAO. Rome
- Swanson, B., & Rajalahti, R. 2010. *Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems*. World Bank. Washington D.C.
- Swanson, B., Bentz, R., & Sofranko, A. 1998. *Improving agricultural extension: A reference manual*. FAO. Rome.
- University of Sunshine Coast. (n.d.). *Pacific examples of good extension practices: Pacific Islands Extension Strategy Consultancy Report to SPC*. Also available at <https://pafpnet.spc.int/attachments/article/514/Pacific%20Islands%20Extension%20Strategy%20Consultancy%20Report%20to%20SPC.pdf>
- Wesley, A., & Faminow, M. 2014. *Research and development and extension services in agriculture and food security*. ADB.

## **CONTACT**

**Food and Agriculture Organization of the United Nations (FAO)**  
Sub Regional Office for the Pacific (SAP)

UN Compound, Lauofo Meti's Building, Matautu-Uta  
Apia – Samoa  
Tel: (+685) 221226  
mail: [SAP-SRC@fao.org](mailto:SAP-SRC@fao.org)