Market-oriented farm management for trainers of extension workers

AFRICA

Module 5
PARTICIPATORY APPROACHES

TRAINING MATERIALS FOR AGRICULTURAL MANAGEMENT, MARKETING AND FINANCE

6

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Module 5
PARTICIPATORY APPROACHES

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PARTICIPATORY APPROACHES

This module introduces the class to participatory methods and tools that can be applied to the teaching and application of farm management particularly among farmers with limited literacy and numeracy skills. Here the class will explore a number of participatory and symbol based methods that can be used by extension workers to assist farmers in making better farm management decisions. The materials covered complement the farm management tools covered in Module 4.

Preparing for Session 5.1
Overview of participatory
methods and tools

Learning outcomes
Understand (i) the different ways
to collect data using participatory methods,
(ii) acquire the ability to choose
between methods

Training aids
Exercise 5.1A (Participatory approaches)
Handout 5.1A (Overview of participatory
methods and tools)

Notes

Overview of participatory methods and tools

In this session the participants will learn about participatory methods for data collection and analysis and the role they have in farm management extension. Guidance is also given on how to choose appropriate methods. The session ends with a reflection on their advantages and disadvantages.

Opening statement

Now that you have learned the different tools that can be used in farm management, you are in a position to apply them as part of your extension work. As many of you will be working with farmers that may not have the strong writing and number skills, participatory approaches have been seen to be particularly relevant and useful.

Exercise 5.1A
Participatory approaches

Purpose: To clarify our understanding of participatory approaches.
(Participants should have read Handout 5.1A prior to this exercise.)

Method: Mind mapping and presenting.

Materials: (i) Flip chart paper or newsprint, (ii) thick marking pens.

Allow 60 minutes for this exercise

Procedure

1. Divide the participants into three groups.

2. Assign each group one of the following tasks.

   Team 1: Participatory data collection methods.

   Team 2: Participatory methods for collecting, analysing and sharing data.

   Team 3: Using participatory methods.

3. Work to be done:

Team 1
Participatory data collection methods

Review the handout and make a mind map
outlining all the participatory data collection methods.

Exercise 5.1A (continued)

Team 2
Participatory methods for collecting, analysing and sharing data

Review the handout and make a mind map
of all the additional participatory methods
for collecting, analysing and sharing data.

Team 3
Using participatory methods

Review the handout and make a mind map
that answers the following questions:

(i) What are participatory methods?

(ii) Why are participatory methods important to farm management?

(iii) How do you choose a method?

(iv) Who collects data?

(v) Who uses data?

(vi) What are the advantages of participatory methods?

(vii) What are the disadvantages of participatory methods?

4. Ask each team to present their mind maps. Keep track of the main points in the handout to make sure that all the material is covered.

Allow about 15 minutes for presentations
(15 minutes for each team)

Space for notes and questions for the facilitator

Overview of participatory methods and tools

Participatory approaches are essentially tools used to facilitate participation by a wide range of stakeholders. Participatory methods are used to help people work with data and information. They can be used to collect, analyse, and share data and information. Some participatory methods can also be conducted using symbols to represent numbers and words. This is especially helpful when participants are semi-literate or speak different languages. Developing and using symbols will be covered briefly in Session 5.3 (Symbol-based methods and calculations).

Importance of participatory methods

There are a number of participatory methods that are a set of principles and provide tools to be used to facilitate a community of farmers to become aware of and analyse their problems and potentials. These methods are used in farm management so that farmers are able to realize and analyse their problems in input procurement, production and marketing. An individual or group approach can be applied in using these methods. In this session we shall focus on the group approach. Some of the participatory data collection methods include the following:

Rapid rural appraisal (RRA). As the name implies, a small team is involved in conducting a rapid appraisal of the agricultural setting that might include identifying constraints and opportunities in farming. RRA consists of a series of techniques for "quick and dirty" research that generate results of less apparent precision, but of greater evidential value.

Overview of participatory methods and tools (continued)

Participatory rural appraisal (PRA). Similar to RRA, but with greater participation of local farmers. PRA is a way of learning from and with farmers to investigate, analyse and evaluate constraints and opportunities, and to make informed and timely decisions. PRA can be used for example to obtain information about the villages, assess production potential and conduct economic feasibility, and social acceptability studies of particular technologies. Monitoring and evaluation of specific project activities can also be done in timely and focused manner using PRA techniques.

Primary data collection techniques are:

- Group interview techniques
- Focus group interviews
- Key informant interviews
- Seasonal calendars*
- Transect walks*
- Venn diagrams*
- Observation*

**See session 5.2*

Group interview techniques. Group interviews are useful for tapping the collective knowledge or memory of groups of farmers or the community. Controversial issues or issues that are not very clear from the informal survey could be used as topics or themes for group interviews. The extension worker does not need formulated questions or statements but should have a clear idea of the issue that they would like to discuss. They should be able to guide and direct the discussion. This needs some special skills. Farmers should be encouraged to talk openly about the issue under discussion. It is best to orient the discussion about what most people in the group/community do instead of what

Overview of participatory methods and tools (continued)

individuals do. The aim is often to gain consensus of issues under discussion but the extension worker should be mindful of the social dynamics of the group. Very often one farmer may dominate; wives often do not like to contradict their husbands; young farmers may hesitate to contradict their elders. Extension workers should be aware of these realities beforehand so that they can handle them better.

Focus group interview/discussion. Focus group interview is another form of group interview addressing a specific topic/issue confronting the group. Typically some six to eight people discuss a particular topic in detail under the guidance of a facilitator. When the ideas and opinion is needed at field level about a specific problem or intervention, then a focus group interview is the most appropriate technique to use. This type of discussion may reveal the perspective, attitude, understanding and reactions of farmers. To get the maximum benefit, the group interview is cost effective, can be carried out quickly and can obtain a wide range of information.

Key informant interviews. This is a process of data collection from interviews with selected and knowledgeable persons. Key informants are not only people with a high status, they may be also farmers with specific knowledge about a particular type of farming. Visiting key informants and local organizations is not only useful to gather information, it also provides an excellent opportunity for awareness raising and for building relationships for cooperation. A list of possible key informants and their knowledge base is shown below.

Overview of participatory methods and tools (continued)

Data collection from interviews

Key informants	Knowledge base
Extension/development workers	General farming situation, macro- and micro-level constraints
Research workers	Potentials, opportunities
Village elders	Historic developments, tradition, customs, consensus
Priests/religious leaders	Beliefs, taboos, religious obligations
Women	Gender issues, decision-making, family member roles
Local businessmen, traders, merchants	Marketing channels, banking, loan conditions, prices, trade regulations, transport, storage facilities
Women farmers	Socio-religious-cultural and economic constraints on them as producers
Progressive farmers	Development opportunities, adoption of new technologies, prerequisites for adoption
Staff of development projects or agencies	Local experience
Mangers of processing factories, commodity delivery schedules	Demand projections, pricing, quality issues, quota systems, marketing boards

Overview of participatory methods and tools (continued)

Some additional participatory methods for collecting, analysing and sharing data

A number of methods can be used to engage farmers in the collection, analysis and sharing of input, production and marketing data, and information. Some methods are more specific and accurate, some are more general, and some focus on particular types of information while others include a wide range of information. The table on the following page illustrates some of these methods and they are then outlined in detail in Session 5.2.

In addition to these methods, it is possible to implement most of the farm management tools (e.g. gross margins, labour analysis) using a symbol-based method where numbers are replaced with symbols.

Choosing a method

Different participatory approaches can be used for collecting, analysing and sharing data and information. The method used should be determined by: (i) the purpose of the exercise; (ii) use, (iii) availability of resources: money, people, vehicles, etc. In many cases, combinations of these methods would be used to generate the information that farmers require.

Choosing a method that is appropriate and feasible depends on a number of factors:

What needs to be accomplished?
What do you need to do: assess, register, compile, analyse or disseminate information?

Participatory methods and tools

Method/tools	Type of data to be collected
Seasonal calendars	• Production/productivity of different crops • Labour/food availability • Amount and/or cost of inputs • Farm income changes over time and expenditures • Rainfall patterns • Use of certain products in the community over time • Crop/livestock/ human diseases • Prices, marketing • Migration
Transect walks	• Details about the environmental, economic and social resources in the locality • Location of pests, soil erosion, resource use • Problems of different zones
Maps and mapping	• Location, size and production problems • Social/physical structure of the farmers • Resource allocation within the farm/variations in resource access
Trend lines	• Farmer perception of change in the local environmental, economic, social and institutional patterns • Price/market or product (changes over time) • Migration, yields
Venn diagrams	• Perceptions on importance of local groups and institutions • Clarifying decision-making roles and identifying potential conflicts between different socio-economic groups • Identifying links between and among different groups
Semi-structured interviews/ group discussions	• Collect production data or production practices • Input supply (sources, prices) • Collect data on off-farm, on-farm demonstrations • Marketing systems
Observation	• Cross-checking data obtained through interviews • Resource use • Marketing packaging, marketing outlets
Flow diagrams	• Flow of commodities and cash in a marketing system • Production cycle for a major commodity • Effects of major changes or innovations
Participatory theatre or drama	• Main changes in relative values and use of natural resources • Changes in social relations (i.e. gender roles in decision-making) • Marketing systems or linkages

Overview of participatory methods and tools (continued)

Do you need quantitative or qualitative information?

Quantitative methods are useful when you require numeric information such as how much, how many, the frequency of…

Qualitative methods are more appropriate when you want to understand attitudes, opinions, experiences and priorities.

What context and medium would be most appropriate?

Choices include written, oral, visual and dramatic. The choice depends on how the people involved prefer to communicate, how they are able to communicate, and on their level of literacy and numeracy.

Suitability of the method

The method you choose must produce the information you want. There is no point selecting a method simply because it is fun or easy for the farmers to do. Whatever method you choose, it must be able to produce the kind of information being sought. And the information it produces must be reliable.

Who collects the data?

Data can be collected by any number of stakeholders. Farmers and other participants should be encouraged to record data and information generated by these methods. A detailed recording of the process is critical. Often, a great deal of information is lost because of failure to take good notes and relying too much on the products of the chosen methods (e.g. a diagram or a map).

Overview of participatory methods and tools (continued)

In the process of collecting the data, one must assess the quality of information. To do this one must carefully listen, observe, probe and judge. As data is developed, it is important to regularly review the process and assess information. It is important to leave the farmers to conduct the participatory methods without much interruption. The extension worker should guide them, but must be objective in guiding the process as well as in collecting, analysing, or sharing the data. Extension workers should encourage farmers to keep or take record of the process.

Who uses the data?

Data from participatory methods can be used by a number of people. Interested users include:

- *Farmers.* Individuals or groups of farmers who have participated directly in the exercise should have keen interest in the data and information produced.

- *Other community members.* Community members who have not directly participated or who may not directly benefit from the planned activities may be very interested in knowing how things are going.

- *Local institutions.* If the participatory results are relevant to their tasks and priorities, local institutions will have interest in the data and information.

- *Government services staff, research or donor organizations.* These may also be interested in knowing, (collectively or individually) results in order to focus their activities.

Overview of participatory methods and tools (continued)

Advantages and disadvantages of participatory methods

Advantages

- Data can be easily validated with the farmer groups.
- The methods enhance farmer-to-farmer dissemination of farm management technologies.
- Methods enhance understanding of local situations.
- The process encourages participation and learning among the participants, encourages a two-way process of exploration, questioning and learning.
- Information can be collected from literate and illiterate people.
- Methods are simple to use, relying mostly on oral and visual techniques.
- The methods facilitate making full use of local knowledge and experience, limiting the imposition of outsider's preconceptions on local conditions. Local people are given the opportunity to describe how they do things, what they know and what they want.

Disadvantages

- It is very easy to go off-track and collect unnecessary data.
- It is a time-consuming process.
- Quantification of data can be difficult with some of the methods.
- It is not always the case that participatory process leads to consensus; it may, in fact, expose deep differences and conflict among various groups.

Preparing for Session 5.2
Use of methods and tools

Learning outcomes
To understand and be able to apply
a selection of participatory tools

Training aids
Exercise 5.2A (Participatory methods)
Exercise 5.2B (What do you see?)
Handout 5.2A (Seasonal calendars)
Handout 5.2B (Transect walks)
Handout 5.2C (Venn diagrams)
Handout 5.2D (Trend lines)
Handout 5.2E (Flow diagrams)
Handout 5.2F (Participatory theatre)
Handout 5.2G (Maps and mapping)
Handout 5.2H (Semi-structured interviews)
Handout 5.2I (Observation)

Notes

Use of methods and tools

In this session, the participants explore a range of participatory methods that can assist them in more effectively applying the farm management tools discussed in the previous module. Because participatory methods are increasingly included in training of extension workers the participants may already be familiar with some or all of the methods included in this session. The facilitator will need to determine what the participants already know and cover only those methods that they are unfamiliar with or would like to review.

Opening statement

The only way to learn participatory methods is to practise them. The session features two exercises that permit participants to practise some of the methods presented. But the best way to gain confidence in learning how to apply these tools is through testing and trying them out with farmers in the field.

Exercise 5.2A
Participatory methods

Purpose: To understand use of participatory methods and tools.

Method: Discussion and practical drawings.

Materials: (i) Large sheets of paper, (ii) thick marking pens, (iii) heavy paper or light cardboard, (iv) scissors, (v) stones, beans, other objects for markers.

Allow 90 minutes for this exercise

Procedure

1. Ask the participants to get into their 'farm teams'

2. Allocate each team one method to practise. Exclude the following methods:
   - Maps (Handout 5.2G): they have done a lot of work on maps already.
   - Semi-structured interviews (Handout 5.2H): it is not feasible in the classroom setting.
   - Observation (Handout 5.2I): it will be done as a group exercise.

3. Each team should decide what it wants to learn from their particular participatory exercise. These should be written into a short list of intended outcomes.

4. Each team is to follow the guidelines provided for each of the methods. See handouts.

5. Each team shares their results.

Discussion questions:

- What were the main issues or problems in the enterprise you looked at?
- What problems did you encounter in using the method?
- What type of data can be collected by the method you used?

Exercise 5.2B
What do you see?

Purpose: To improve the ability of participants to observe small changes.

Method: Observation.

Materials: (i) Table, (ii) 30—35 small objects (e.g. pen, paper clip, coin, small jar, ring, stamp), (iii) pen and paper.

Allow 60 minutes for this exercise

Procedure

1. Place all but five of the objects randomly onto the table. Keep the remaining five out of sight.

2. Ask the participants to gather around the table and study its contents for one minute.

3. Ask them all to leave the room and to return when you call them.

4. While they are out of the room, remove between 5 and 10 of the objects. Add the five new objects.

5. Call the participants back into the room.

6. Ask each participant to write down which objects are missing and which objects are new, and to compare their findings.

7. Repeat the exercise to see if they can improve their skills.

If there is time and if it is appropriate the facilitator may wish to make use of the "game of observation" outlined on the next page.

A game of observation

1. Write the names of each participant on a small piece of paper. Fold them so the name cannot be seen. Ask each participant to take one name. Keep a record of who has whose name. No one except the facilitator should know who has whose name.

2. Ask participants to spend the day observing the person whose name they have drawn without letting that person know. If someone notices they are being observed, they should not let anyone know.

3. The object is to identify two characteristics of the observed person. One characteristic should be a physical habit, frequently scratching an ear. (They should not look for anything that would embarrass the other person.) The second should be a word or phrase or expression the observed person uses frequently.

4. Each participant should write down these two characteristics plus their own name on the paper with the name of the person they are observing and give this to the facilitator. (The paper will have the name of the person being observed, the two characteristics and the name of the person making the observation.)

5. On a separate piece of paper, each participant should write down their own name and the name of the person they think was observing them. This should also be handed to the facilitator.

6. At the next group meet (at least four hours after the names were assigned), ask each person whom they thought was observing them. Check this against the list and the papers handed in. If it is the same, ask how they knew. If it is different, ask why they thought the 'wrong' person was observing them? For those who were not 'caught', ask what they did to observe without being noticed.

7. Read out the characteristics and see if the group (including the observed one) can identify the person by these two features.

Discuss the results with a view
to learning better skills in observation.

Space for notes and questions for the facilitator

Seasonal calendars

1. Find a large open space for each group.
2. Calendars can be drawn on a large paper or can be traced in the sand or on dirt floor using stones or leaves for quantification.
3. Draw a line all the way across the top of the cleared space (or paper). Explain that the line represents a year, and ask how farmers divide the year up (e.g. months, seasons). The scale to use is the one that makes sense to the participants. Ask the farmers to mark the seasonal divisions along the top of the line.
4. It is usually easiest to start the calendar by asking about rainfall patterns. Ask the participants to put stones under each month (or division) of the calendar to represent relative amounts of rainfall (where more stones equal more rain).
5. Once finished with rainfall another line can look at labour for the farm activities (indicating time periods of high labour intensity). Make sure the labour calendar and all subsequent calendars perfectly align with the rainfall calendar.
6. This process is repeated, one line under another until all the seasonal issues of interest are covered. Some of the issues to be covered could also include food or water availability, income sources and expenditures.
7. Calendars can be done with groups separate, men and women groups and then compare.
8. Discussion questions will be based on the variations on the calendars.

Examples on the following two pages show a calendar completed using words and numbers, and a version of the same calendar using symbols.

Seasonal calendars (continued)

Seasonal calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall	Heavy		Light	Sllght			Slight		Ligth		Light	Good
Land preparation									2 Labourers			
Planting/ manuring/ fertilizing	2 Labourers								2 Labourers	1 Labourer		
Weeding	5 Labourers	2 Labourers	1 Labourer							1 Labourer	5 Labourers	5 Labourers
Irrigation		1 Labourer	1 Labourer							5 Labourers	1 Labourer	
Spraying		1 Labourer								2 Labourers		2 Labourers
Harvesting				5 Labourers	2 Labourers							
Bagging-selling				2 Labourers	5 Labourers							

Note: see also Session 5.3 (Symbol-based methods and calculations)

Seasonal calendars (continued)

Seasonal calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Note: see also Session 5.3 (Symbol-based methods and calculations)

Space for notes and questions for the facilitator

Transect walks

For the purposes of this exercise, you will be using the grounds around the training venue to practise the transect walk. The following guidelines are written in terms of a village or farm. You have simply to apply them to your situation.

1. Divide the farm team into groups of 2—3 each. Make the group as diverse as possible.

2. Assign each group a responsibility to carry out during the walk. For example, one group may focus on soils, land use and cultivation; a second on trees, vegetation and water resources; and a third on infrastructure, housing and services.

3. Use the village map (map of the training facility and grounds) to decide on the route to follow. The route must be planned and should take in many of the different physical zones types of vegetation, land use areas and sections of community as possible. It is often a good idea to start from the highest point in the area.

4. Depending on the size of the area to be covered and the nature of the terrain, transect resource assessments can be done by foot, animal, cart or motor vehicle. But the slower modes are preferable because they allow for greater observation.

5. Observations under the corresponding sections and discussions should be done as you walk across. Identify contrasts and changes as you move along.

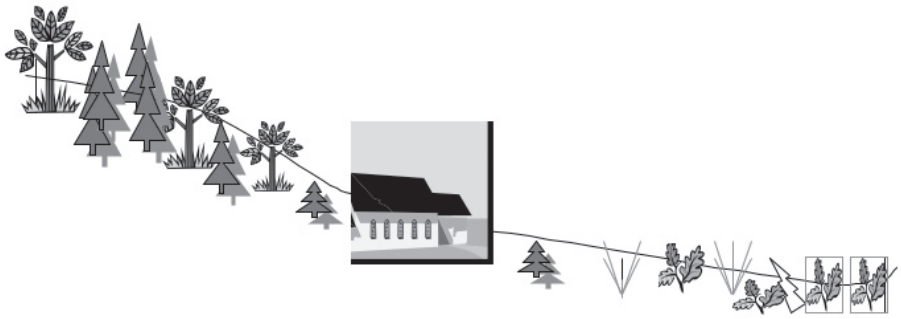
6. Afterwards the groups share the information from their resource assessments walks to construct the transect diagram(s) together on paper or on a blackboard to

Transect walks (continued)

promote further discussion. The team should identify possible opportunities and/or solutions to the problems discovered during the assessment of resources. An example diagram is given below.

7. Add the identified opportunities and problems and their possible solutions to the initial list of intended outcomes.

8. After conducting the walk and drawing up the transect diagrams for the larger area (e.g. the community), extension workers are encouraged to ask individual farmers to assess the availability and access to resources for their own farms. Transects per farm allow teams to observe more closely farm practices, achievements and indigenous technologies; it identifies specific problems and their possible solutions.



Soil	Rocky	Gravel	Gravel	Sand	Clay
Land use	Forest	Farmland Grazing	Village	Farmland Grazing	Farmland
Crops and vegetation	Trees Bamboo	Grass Shrubs Millet		Sesame Beans Hibiscus	Sorghum Groundnuts
Problems	Erosion	Drought Pests		Drought Low soil fertility	
Opportunities	Fuel wood Timber Bamboo	Pasture Rain-fed farming	Market Transport Water Credit Health care	Pasture Rainfed farming	Flood farming

Space for notes and questions for the facilitator

Venn diagrams

The following provides guidance for applying Venn diagrams in a village community. You will have to adapt it to your team farm.

1. Organize the team into 2—3 separate focus groups (e.g. women and men), including a mix of socio-economic groups. Be sure that the poorest and most disadvantaged are included or have their own groups as appropriate.

2. Find a clear level space or work on a large piece of paper. The Venn diagram can be traced on the ground or a large sheet of flip chart paper.

3. Each group lists:

- all the products/services that they consider important;
- all the local groups, organizations and outside institutions that are most important to them.

4. The participants consult and agree on the relative importance of each product, service, organization, etc. For each, cut out a paper circle: large, medium or small (large = most important, small = least important). The name or symbol of each organization should be indicated on the circle representing it. Cut out a circle for the community (farm); also give it a size to indicate its importance.

5. The participants consult and agree on relationship between/among these products, services, etc. both to each other and to the community/farm.

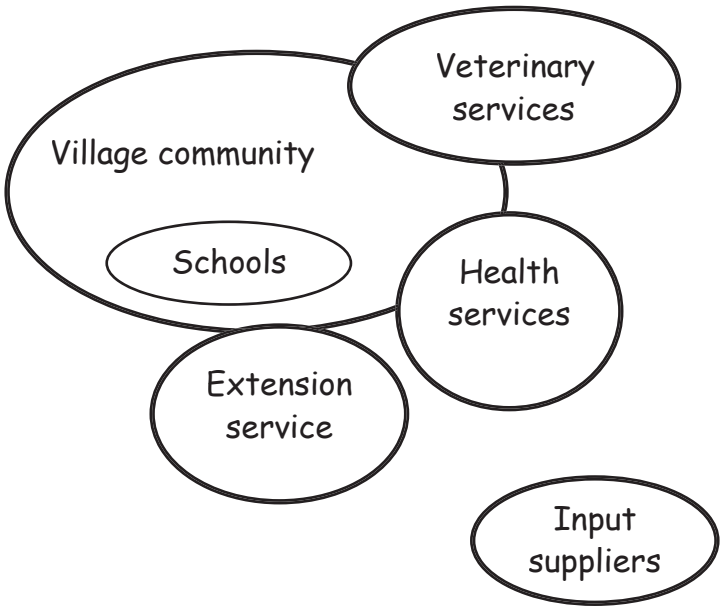
Venn diagrams (continued)

6. Discuss as many institutions as possible and ask the participants to position them in relation to each other. The circles are then arranged on the ground/paper to represent these relationships. Use the following as a guide for arranging the circles:

- Circles at the outer edge of the diagram = no contact or limited contact.
- Circles in the centre of the diagram = closer cooperation/contact.
- Circles close to, touching, or overlapping each other = degree these work together.
- Circles close to, touching or overlapping the community circle = work with community but has other functions outside.

7. Institutions can be viewed in terms of input supply, credit providers, market linkages or service providers in crop and livestock production. The data can also be viewed in terms of gender or wealth.

Picture of a Venn diagram



Space for notes and questions for the facilitator

Trend lines

The guideline is written for a community, but it can be applied to many other situations. For the purpose of the training exercise, apply the guidelines to your farm team. Because your farm team is imaginary, use your knowledge as an extension worker to create a history.

1. Organize the participants into groups. Each member will take a turn as facilitator. Divide the time by the number on the team/group. This will give everyone a chance to be a facilitator.

2. Decide on a time period you want to explore (make it at least 20 years).

3. Draw a large blank graph on paper for each trend to be explored. Explain how left of the horizontal axis represents the past and the far right represents the present. Ask what intervals (e.g. year, events in history) should be used along the bottom axis (e.g. 1995, 2000, 2005). Explain how the estimates of increase and decrease are to be shown on the vertical axis. (Remember to take turns facilitating.)

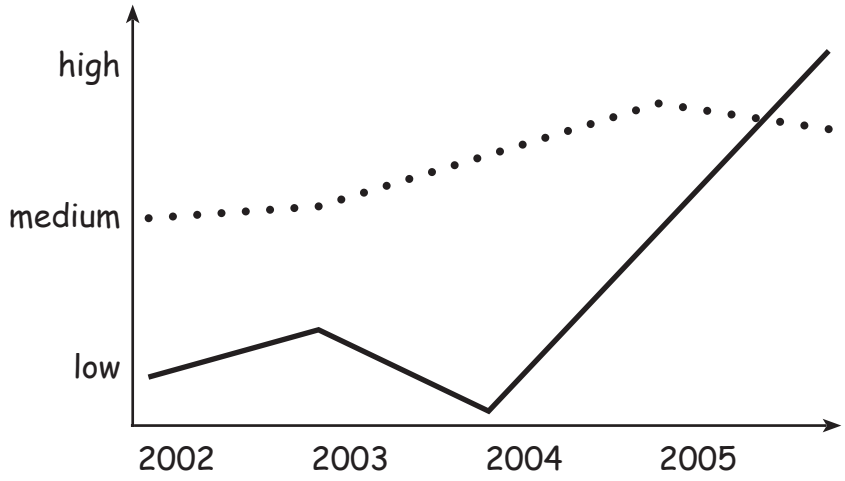
4. Ask the participants about important changes in the community. Questions to ask while facilitating include:

- What are the most important environmental trends (e.g. drought, erosion)?
- What are the most important economic trends (e.g. prices, costs of inputs, yields, livestock production)?
- What are the most important demographic trends (e.g. out-migration, increase of female-headed households)?
- What other trends are important?
- What are the linkages between the trends?
- What is getting better and what is getting worse?
- What trends impact on women and men differently?

Trend lines (continued)

5. As the questions are explored, get an indication of high, medium or low (or some other relevant distinction) that can be assigned to a given year or period. Put a mark on the appropriate place on the graph. When you have covered all the time periods for a single question, connect all the points with a line. The line for each question should be different. Give a key to indicate what issue the lines represent.

6. The trend lines show the increase to decrease of, say, demand of product or price of product over time. See the example below.



Key

Prices of cabbages (over the years)

Prices of tomatoes (over the years)

Space for notes and questions for the facilitator

Flow diagrams

These guidelines are presented for general use. You will need to adapt them for your farm team. Take turns being the facilitator. Divide the time available by the number of members in your farm team. This will give you the amount of time each member should serve as facilitator.

1. Create a space on the ground or on a large piece of paper.

2. Consult and agree on the processes or relationships to be analysed. This should be simply general problems being faced by the farm, a community or could be focused on a specific crop or enterprise that interests the farmers. The group should come to a consensus on the specific enterprise or area they want to examine. (For this example, choose from input, production or marketing issues affecting your farm team.)

3. Farmers discuss and list their problems using symbols or labels to illustrate each problem as it is identified. The facilitator explains that often problems are connected and the next step is to look at the connections between the problems identified. Which problem seems to be the biggest or most general? You may wish to use a scoring system to identify the 'end' problem. Identify that one at the bottom of the diagram. It is possible there will be more than one significant problem, but it is more likely that other problems are causes of the major problem.

Problems can be of many kinds and of different natures. The problem usually represents the failure or unsatisfactory progress toward a particular objective. A household may have an objective of being prosperous. A farmer might have the objective of high profits. Failure to achieve these objectives becomes the problem. Therefore, a general household or community problem might be: hunger and poverty. A more specific farming problem might be: low income (losses) from the farm.

Flow diagrams (continued)

Note

Generally, it is advisable to exclude the problem of a general lack of money from the diagram as it can dominate and be seen as the source of all the problems. This tends to hide the causes of lack of money.

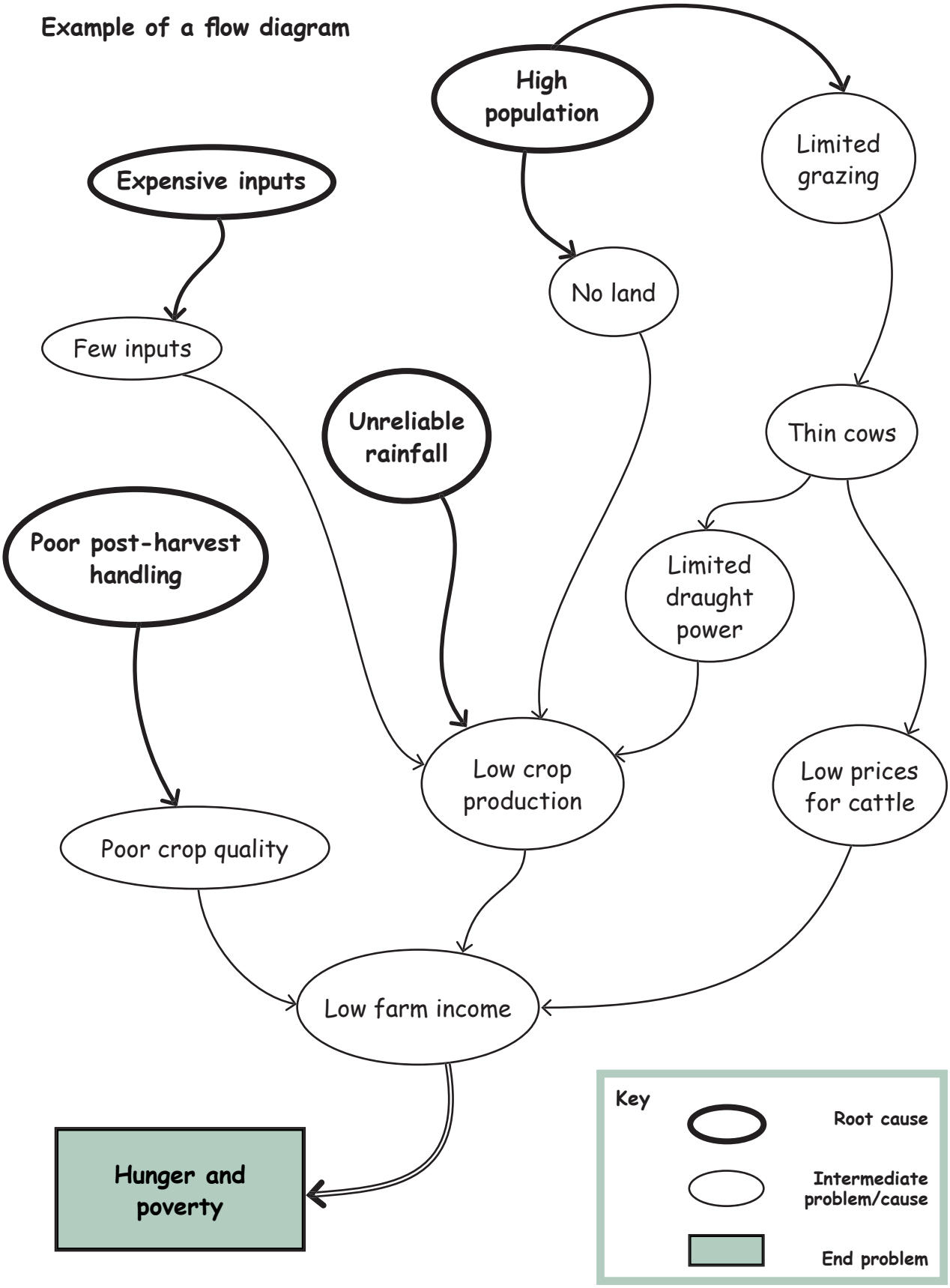
4. The group now looks for the direct causes of the end problem(s). As they are identified the symbols are placed on the diagram and arrows are drawn in to represent the causal relationships between the problems. Each problem is represented on the ground once only. The causes of those problems are identified and added to the diagram. These may be from the original list or may be newly identified. The process is continued until the participants are happy that all the problems have been included and all the connections identified.

5. The problems at the edge with no identified causes are the "root causes". If the logic of the diagram is correct and has been carefully done, solving the root causes will result in solving the other problems. It is useful to discuss the possible solutions to these root causes with farmers and identify which ones can be influenced by farmers themselves and which cannot.

6. The positive effects of the solution can be traced back on the diagram, turning problems into solutions, e.g. lack of draught power becomes adequate draught power.

This analysis can be used by the farmers to prioritize the possible solutions that they would like to explore. Their focus can now be trained on the real issues (root causes) to assist them to make better farm decisions. An example of a flow diagram is shown on the next page.

Example of a flow diagram



Space for notes and questions for the facilitator

Participatory theatre

Participatory techniques in the form of drama or theatre are used to create short problem posing scenes and to enable the audience to probe, reflect on and respond to issues of concern to them provoked by the drama. This approach poses questions and problems, rather than supply answers and solutions, in order to bring change in the community's and farmers' perceptions of the world and themselves as individuals within it, allowing the community and farmers to examine their attitudes towards the unresolved dilemmas in the drama that reflect their lives.

A question is chosen for which section that provokes discussion. A theme and a question relating to each other are discussed and farmers can relate to their own situations.

There are two ways to present dramas. One is straight performance followed perhaps by group discussion among those watching the performance. The other is with audience participation where the 'performers' engage the audience in developing the story. This is done by stopping the performance at a 'critical moment' where a decision has to be made and asking the audience for 'advice'. Then the performance resumes following the advice given.

1. For this exercise, the team consults on an important issue facing their farm.

2. They then work out what could be done to improve the situation.

3. They develop a dialogue among the performers that will help the audience hear the problem and the solution.

An example of a drama is given on the next page.

Participatory theatre (continued)

The following is a guide to developing a drama to share information about pest management. In this case the product is potatoes. In practice, the author would use a crop relevant to the message being shared.

SCENE ONE

FARMER 1 (Bill) visits Farmer 2 (Joan).

FARMER 2 complains about pests in her potatoes.

FARMER 1 tells Farmer 2 about his use of a pest management system, which he learned about from the extension worker (or farmer field school, radio).
Farmer 1 invites Farmer 2 to his field.

SCENE TWO

FARMER 1 and Farmer 2 are at Farmer 1's field.

FARMER 1 shows Farmer 2 his healthy pest-free potato crop.

FARMER 2 expresses amazement and asks for information about where to learn this pest management technique to improve her own crop.

FARMER 1 tells Farmer 2 about the extension worker (or farmer field school, radio programme).

FARMER 2 says she is going to follow up on that right away.

SCENE THREE

FARMER 1 and Farmer 2 meet again after Farmer 2 learned about and applied the pest management system. Farmer 2 tells Farmer 1 about the improvement of her crop. Now that her crop is healthy, she gets a better price.

She is very grateful to her friend and gives him a gift that she bought at the market with some of her profits.

Space for notes and questions for the facilitator

Maps and mapping

The community members are the best experts of their area. The community village map initiates dialogue among the community members. Similarly, farmers can be engaged in developing individual farm maps or maps showing the spatial arrangements of their farms. Because everyone has done mapping in Module 2, no one will do a mapping exercise.

1. A large open space should be found and the ground cleared. (Alternatively work on a large piece of paper. When using paper, where it says to place, participants can draw or cut out symbols to place on the map.)

2. Start by placing a rock or leaf to represent a central and important landmark.

3. Participants are then asked to place other things on the map that are important in the village. Each time something is placed on the map, a record should be made of what it is (e.g. large flat stone represents the community hall). Participants should not be interrupted unless they stop drawing in which case questions can be asked such as whether there is anything else of importance that should be added.

4. Discuss the map both as it is being developed and once it is finished. Discussion questions may include:

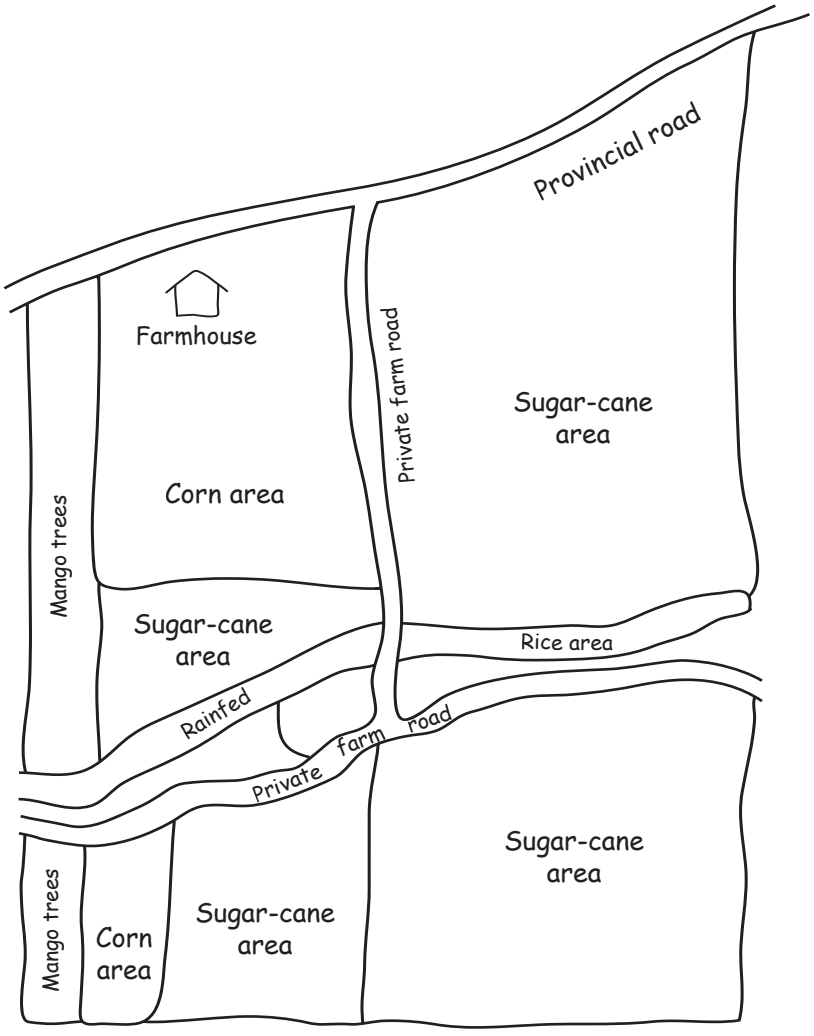
- Who makes decisions about who can use land or water?
- Does the village have land that is held in common? Who decides how common resources will be used?
- Where do people go for water, firewood and grazing?
- Are the rights of access different for women and men?
- Which of the indicated resources are the most problematic? Why?

Maps and mapping (continued)

If you are working on the ground, be sure to transfer the map (including the key to symbols) to paper.

The facilitator may ask participants to indicate some things they would like to see in their village that are not currently on the map. These can be added to the map. Discussion can be held to identify ways of fulfilling these visions

In the case of the farm map it should be properly identified and sizes of fields determined to assist in planning activities for possible investments such as land levelling, irrigation or drainage systems.



Note: a simple farm map, like the one above, can be drawn by hand

Space for notes and questions for the facilitator

Semi-structured interviews

The semi-structured interview is a form of guided interviewing where only some of the questions are predetermined.

The interviewers choose a topic (or facilitate the group to choose a topic) to explore.

The interviewers prepare a list of topics (checklist). From these, some basic starting questions are developed. These will be used to start the interview and to move on to the next main issue once the other area has been adequately covered. (Again, like a checklist.) As the predetermined questions are discussed, new questions come up during the interview.

The interviewing team consists of 2—4 people of different disciplines. They make it very clear that the objective of the interview is to learn from the farmers.

Begin the question by referring to someone or something visible. The interview is conducted informally and there is mixing of questions with discussion. The team should be open-minded and objective and avoid value judgements. Only one member should do the note taking. It is important to take note of non-verbal signals during the discussion.

During the interviews avoid making conclusions for the farmers, lecturing or advising, repeating questions, asking sensitive or leading questions. It is important to probe further on issues and listen carefully.

Be aware of the farmers' schedules. Time interviews so they do not interfere with important activities.

Space for notes and questions for the facilitator

Observation

The observation method is usually used together with other methods. It involves observing objects, events, process, relationships or people and recording these observations.

Direct observation is a good way to crosscheck respondents' answers.

Use of checklist to do observations systematically is recommended.

This works well when doing a livelihoods analysis or resource map.

Preparing for Session 5.3
Symbol-based methods and calculations

Learning outcomes
Understanding and applying
symbol-based calculation methods

Training aids
Exercise 5.3A (Symbol-based calculations of gross margins)
Handout 5.3A (Symbol-based methods and calculations)
Handout 5.3B (Example of a participatory budget for maize)

Notes

Symbol-based methods and calculations

In this session the participants will learn about symbol-based communication and the role it can play in agricultural extension, particularly among semi-literate and semi-numerate farmers. The methods will include gross margins, food requirements and labour analysis. With this basic practice, they should be able to apply the skill to other tools such as break-even and cash flow.

Opening statement

Review of Handout 5.3A. In Module 4, we explored seven different farm management tools requiring calculations. These can be divided into two groups.

Complex calculations

- *Gross margin budgets*
- *Marketing margins*
- *Break-even*
- *Sensitivity analysis*
- *Cash flow*

Simple calculations

- *Food requirement*
- *Labour analysis*

Each of these can be conducted using both numeric and symbol-based methods. The basic principle for symbol-based calculations applies to both groups: that is, numbers are replaced with symbols. We shall use an exercise to learn to apply this method.

Exercise 5.3A
Symbol-based calculations of gross margins

Purpose: To practice translating numeric gross margins into symbol-based gross margins. (Participants should have read and studied Handouts 5.3A and B prior to this exercise.)

Method: Symbol design, drawing, gross margin matrix.

Materials: (i) Sticks, stones, twigs, seeds, (ii) clear ground.

Allow 180 minutes for this exercise

Procedure

1. Ask the participants to form their farm teams.

2. Each team should select the gross margins for one crop and one livestock enterprise (if time permits). It is important that the size of the enterprise is set in terms of area planted or the number of livestock kept.

3. Each group should draw a matrix or grid on the ground similar to the seasonal calendar. Ask the participants to describe the different months in the top row of the grid, in the form of symbols. Time is represented on the matrix by columns. Each column could signify a month, week, day or any other period of time. If months are chosen, the first column becomes the first month, the second the second month, and so on.

4. The second row shows the activities carried out each month. Group members need to agree on the symbols used to describe each activity. Don't forget what the symbols symbolize. From the third row on, indicate the resources used. This could include labour, machinery and any other inputs. Other rows should include cash expenditure and value of output and income.

5. Quantities could be shown by numbers of beans, with a value attached to each one. For example, in September, nine stones could be placed in the first column to indicate the ninth month. The amount of fertilizer used can be denoted by the number of beans, each representing a bag. Labour can be represented by number of persons or labour days. The number of people

Exercise 5.3A (continued)

can be symbolized by sticks and another symbol used for labour days. Group members should indicate the quantity of the resource required in each month, by placing a specific number of counters in the relevant cell in the grid.

6. In the same way, the cash expenses and income generated by the enterprise can be denoted by the number of beans allocated. Income could be shown in terms of produce marketed and production retained for home consumption. The aggregated number of beans shows the total income.

7. The groups should now calculate the 'end balance' of resources. This can be worked out by comparing resources used (expended) and income received. It is important that all the outputs and inputs of the enterprise are included in this calculation and not just those given cash values. Subtract the beans used from those required to produce the income. If there are beans that remain in the output row, it means that the gross margin is positive. Conversely, if more beans remain in the expenditure row it means that the gross margin is negative. The end balance can be expressed in both physical and cash forms (e.g. as three bags of maize and $100 cash). Alternatively, if a cash loss is made it can be expressed as three bags of maize less $100 cash. More commercially orientated farmers may want to convert all resources into cash terms and calculate the profit.

8. After constructing the gross margins each group should then present their findings to the other members. All the groups should get a chance to present their gross margins.

Note

For farmers who find counting a problem, the following technique should be of help when determining balances:

- Gather the counters representing the amount of the resource used as an input.
- Gather the counters representing the amount of the resource produced as an output.
- Take one counter from each pile (i.e. to form a pair) and continue until no counters are left in one of the piles. The remaining counters indicate the size of the balance.

Space for notes and questions for the facilitator

Symbol-based methods and calculations

In Module 4, we explored nine different farm management tools, seven of which require calculations. These can be divided into two groups:

Complex calculations	Simple calculations
• Gross margin budgets • Marketing margins • Break-even • Sensitivity analysis • Cash flow	• Food requirement • Labour planning

Each of these can be conducted using both numeric and symbol-based methods. The basic principle for symbol-based calculations applies to both groups: that is, numbers are replaced with symbols.

When applying this method with farmers, the extension worker will have to decide how to create the symbols. If the calculations are done in a room where paper and pens are available, then it is possible to draw the symbols. If they are done in the field (e.g. on the ground), it may be necessary to create symbols with rocks, beans, sticks. In either case, the first step is to create a matrix or framework that represents the farm management tool (e.g. gross margin, cash flow).

In this session, we are going to look at creating a symbol-based food requirement, labour analysis and gross margin. Once you have mastered the symbol-based gross margin, you will be able to apply this to the other complex calculations.

Symbol-based methods and calculations (continued)

Simple calculations

Translating simple calculations (i.e. food requirement and labour analysis) from a numeric to a symbol-based method simply requires one to create symbols for concepts and numbers. An example of each is given on the following pages.

In addition, a typical enterprise budget for maize using concepts and numbers including a symbol-based version is given in Handout 5.3B.

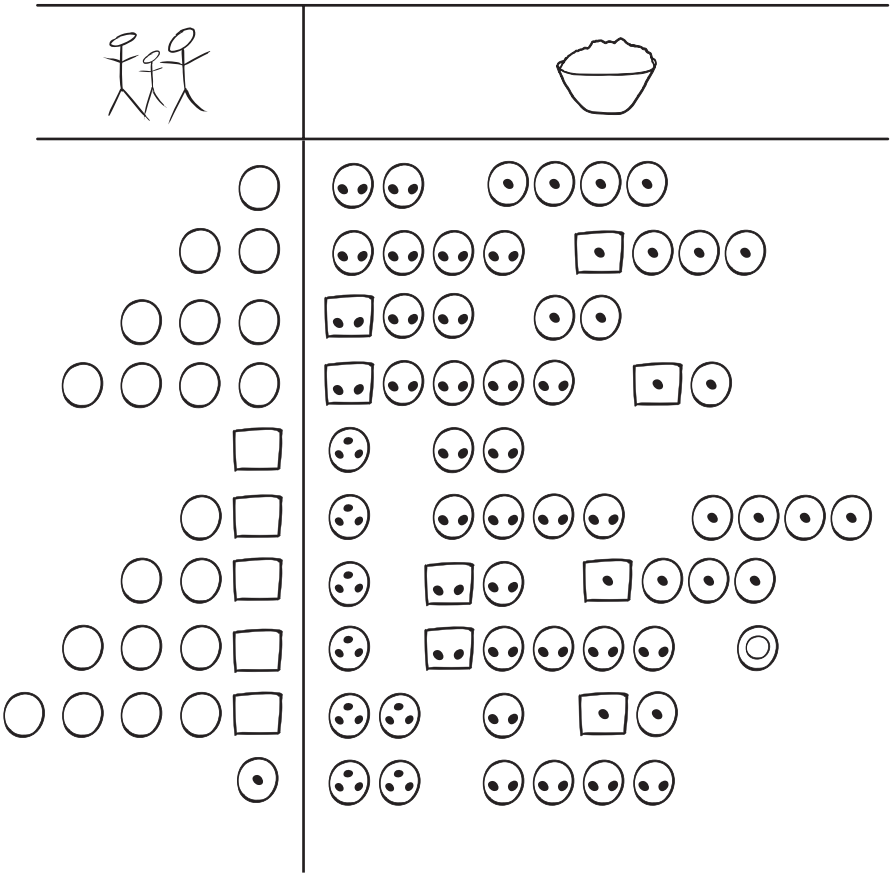
Food requirement. We shall recall from Session 4.6 that the basic food requirements in numeric form are:

Family size (people)	Food required each year (kg)
1	240
2	480
3	720
4	960
5	1 200
6	1 440
7	1 680
8	1 920
9	2 160
10	2 400

To translate this to a symbol-based method we need to create symbols for concepts and numbers:

Family size	Annual food requirement	
= 1	= 10	= 100
= 5	= 20	= 500
= 10	= 50	= 1 000

giving ...



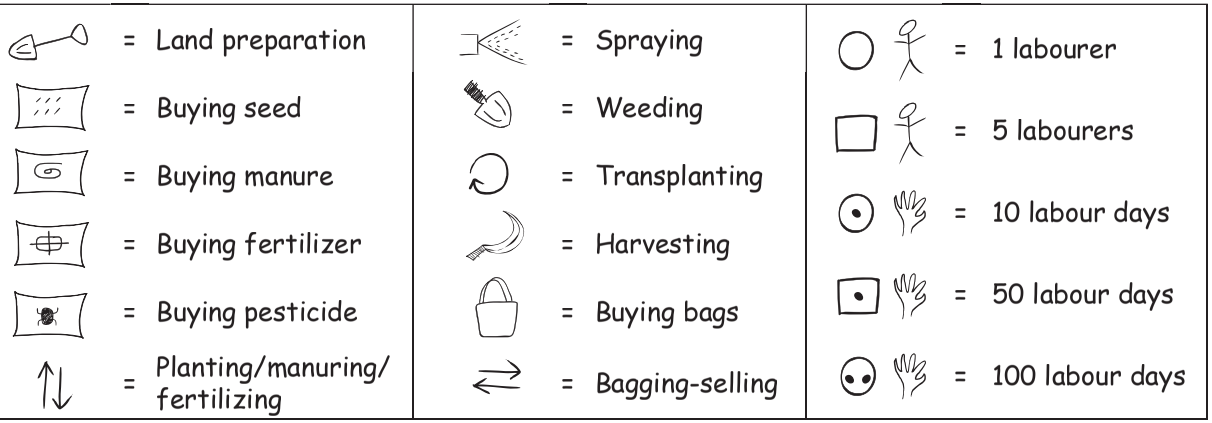
Symbol-based methods and calculations (continued)

Labour Analysis. Below is a basic labour plan for 2.5 acres of cabbage with a yield of 168 bags per acre and 420 bags in total.

	January	February	March	April	May	June	Total
Activities	—	Land preparation Buying seed Buying manure Buying fertilizer Buying pesticide	Planting/manuring Spraying Weeding Transplanting	Weeding	—	Harvesting Buying bags Bagging-selling	
Total labour required	—	2	9	3	—	3	17
Labour days	—	20	90	35	—	25	170

To translate this to a symbol-based method we need to create symbols for numbers and activities.

Activity symbols



Symbol-based methods and calculations (continued)

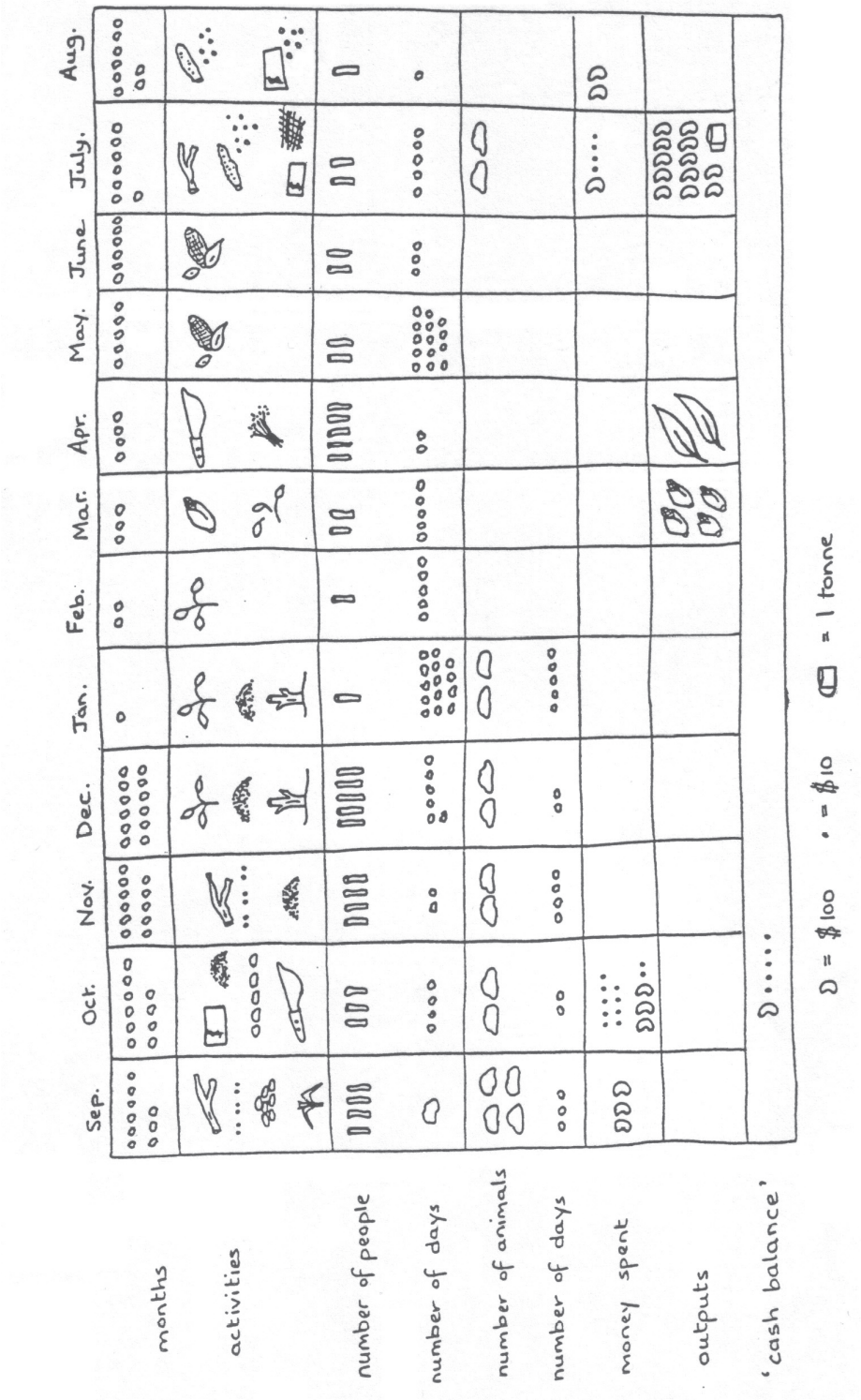
This then translates as follows ...

Example of a participatory budget for maize

(represented using concepts and numbers)

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apri	May	Jun	Jul	Aug
Activities	-Winter ploughing -Dry planting -Digging of manure -Removal of stover in the field	-Buying of seed and fertiliser -Spreading of manure in the field -Cutting of tree regrowths	-Ploughing and planting -Fertiliser application	-1st weeding -Fertiliser application AN -Cultivation	-2nd weeding -Fertiliser application AN -Cultivation -Planting late maize crop	Weeding	-Harvest green mealies -Pull weeds	-Cutting and stooking	Dehusking	Dehusking	-Winter ploughing -Shelling -Buying of empty bags	Shelling -Selling
Labourers required	4	3	4	6	1	1	2	5	2	2	2	1
Lab days	1 month	4	2	6	14	5	5	2	14	3	5	1
No. of draught animals	4	2	2	2	2						4	
Days required	3	2	4	2	5						2	
Expenditure	Digging manure = $300.00	Seed 10kg =$90.00 AN 2bags = $320.00									20 empty bags = $140.00	Transport $200.00
Output							Green mealies (4 buckets)	Fodder (2 bales)			1tonne $1200.00	
Cash balance	Outputs – Inputs = 1200 – 1050 =$ 150											

Example of a participatory budget for maize
(interpreted using symbols)



This participatory budget was constructed by a group of women farmers in Buhera District, Zimbabwe. The budget shows the resource outputs and inputs for 1 acre of maize. When constructing the budget, symbols and counters were used on the ground.

* Reference: FAO 2007, *Participatory farm management methods for analysis, decision making and communication* by P. Dorward, D. Shepherd and M. Galpin

Symbol-based methods and calculations (continued)

Additional use of symbol-based methods

Below is a simple example of another use of symbol-based methods.

Information sharing: analysing market options.

This is a simple method to visually demonstrate the effect of using different markets on net income.

Three farmers from Njoro grow and market bananas. One sells in Njoro. The second sells in Nakuru. The third sells in Nairobi. Using participatory methods, the extension worker can help the farmers compare their marketing choices and demonstrate the effect each choice has on price, transport costs for marketing and net income.

An example of a matrix to analyse the choices is set out below.

		Njoro	Nakuru	Nairobi
Farmer A	Price	ooooo		
	Transport	o		
	Net income	oooo		
Farmer B	Price		oooooo	
	Transport		oo	
	Net income		oooo	
Farmer C	Price			oooooooooo
	Transport			ooooo
	Net income			ooooo

Key o = $100

Review of Module 5

At the end of this segment
participants will have the basic understanding
and skills to apply participatory methods
and symbol-based tools in support
of market-oriented farming.

The following outline will guide the facilitator in a brief review of the activities of this module.

Session 5.1
Overview of participatory methods and tools

Purpose of this session:
To introduce the participants to participatory approaches that can be used for data collection, analysis and dissemination.

Learning outcomes

(i) Understanding the importance of participatory approaches for better communication with farmers and in particular will less literate and numerate farmers and the different methods that can be applied, (ii) selecting the most appropriate method to match a particular situation.

Session 5.2
Use of methods and tools

Purpose of this session:
To provide the participants with examples of participatory methods/tools that can assist them as extension workers to better communicate with farmers.
These methods/tools are intended to complement those covered in the previous module.

Learning outcomes

(i) Understanding the relevance and usefulness of participatory methods/tools in farm management and (ii) developing skills in their application.

Session 5.3
Symbol-based methods and calculations

Purpose of this session:
To introduce extension workers to symbol-based methods of application of the farm management tools previously discussed. These methods can assist farmers to quantify and analyse the use of their farm resources and improve their decision making processes.

Learning outcomes

Understanding (i) different ways of collecting data using 'symbol-based' methods, (ii) the ability and skills to select and use the methods chosen.

Closing questions

Ask participants if they feel that the overall purpose of the module has been achieved and if they have improved their understanding of the concepts behind the methods and tools, and the skills and competency in applying symbol-based approaches to farm management. Make reference to each of the methods and tools discussed previously.

Notes

Notes

Notes

Notes

The following is a list of the AGSF series TRAINING MATERIALS FOR AGRICULTURAL MANAGEMENT, MARKETING AND FINANCE

1. Farm planning and management for trainers of extension workers in the Caribbean, 2004 (CD-ROM, English).
2. Horticultural marketing extension techniques, 2004 (CD-ROM, English).
3. Farm planning and management for trainers of extension workers. Asia, 2006 (Hard copy and CD-ROM, English).
4. Integrating environmental and economic accounting at the farm level, 2005 (CD-ROM, English).
5. Curso de gestión de agronegocios en empresas asociativas rurales en América Latina y el Caribe, 2005 (CD-ROM, Español).
6. Market-oriented farm management for trainers of extension workers. Africa, 2007 (Hard copy and CD-ROM, English).

In preparation

- Farm planning and management for trainers of extension workers. Latin America (CD-ROM, in Spanish).
- Training manuals on farmer business schools. Asia and Africa.

Other work

- FAO Pacific Farm Management and Marketing Series 3, Helping small farmers think about better growing and marketing (Hard copy)*.

* Copies soon to be available from AGSF

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The purpose of Module 5 is to engage farmers in the pursuit of farm management goals. Here we will explore participatory and symbol-based methods of working with the various farm management tools.