

# Market-oriented farm management for trainers of extension workers

TRAINING  
MATERIALS FOR  
AGRICULTURAL  
MANAGEMENT,  
MARKETING  
AND FINANCE

6

## AFRICA



### Module 3 FARM MANAGEMENT DECISION-MAKING



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Market-oriented  
farm management  
for trainers  
of extension workers

AFRICA

Module 3  
FARM MANAGEMENT  
DECISION-MAKING

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## FARM MANAGEMENT DECISION-MAKING

*In this module the participants will be introduced to the concept of farm management. The module will revisit the five capital types (natural, human, physical, financial and social) and look at the type of farm management decisions that are made for each category of capital. Decisions that impact on the supply of inputs and farm produce marketed will also be discussed. The concept of risk is also introduced. Finally, the data and information needed to make sound management decisions is also covered in this module.*





## The farmer and decision-making

*In this session the participants will learn to realistically visualize the decision-making boundaries of a farm. They will explore the physical decision-making boundaries and how they extend to incorporate the farm household decision-making process. Here the farm teams will decide on goals for their visual farms. Further they will look at the kinds of decisions that have to be made, who will make them and when.*

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### *Opening statement*

*Here we will begin to explore the concept and dynamics of decision-making on a farm family.*

*This will provide the basis for the use of the learning tools and methods we will study in Modules 4 and 5. Now let us review Handout 3.1A (The farmer and decision-making). Participants should feel free to ask questions.*

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*The outline on the following pages is provided to help the facilitator conduct the review.*

### Outline of Handout 3.1A (The farmer and decision-making)

#### Decision-making

- Decision-making is central to farm management.
- The more farmers are aware of the decision-making processes that affect the farm household, the more likely they will be profitable and the more sustainable they will ultimately be.
- Farm management decisions are closely tied to decisions made in the households.
- Farm management decisions are made to meet social and economic goals of the household.
- This leads to the concept of "decision-making boundaries".

#### The production decision-making boundaries

- Decisions about production are just the beginning of the decision-making boundaries of the farm.
- Production decisions depend on a number of factors that fall outside the physical/production area of the farm.

#### Farm and family household decision-making boundaries

- In many parts of Africa, the farm and the household are virtually one entity.
- Decisions about the farm directly impact on the household. And decisions about the household directly impact on the farm.
- It is useful for anyone working with a farming family to understand the dynamics of the farm household and the decisions that go with them.
- Traditionally men are heads of households, but there are now many variations.
- To determine the decision-making boundaries of the farm, extension workers need to identify who makes what decisions and when.

### **Social and economic goals**

- Farmers and their families need a secure source of food, and they seek a secure source of income.
- Food security is a social goal.
- Generating income is an economic goal.
- These farm management goals often conflict.
- Market-oriented farm management skills and tools can be used to make more informed decisions about food production and income generation.

### **Short-term versus long-term view**

- Good farm management requires a long-term perspective.
- If decisions are not thought through carefully, then the farm business performance may be poor.
- Learning and applying principles of farm management enables farmers to consider alternative actions in advance.
- This will help improve performance and profit in the future.

### **The farmer as manager**

- A farmer has two main jobs. One job is to take care of plants and livestock in order to get useful products. The other job is to manage the farm (make decisions about how to use the farm's resources).
- Decisions require making choices between alternatives.
- Farm planning is thinking ahead about farm activities and making decisions sometime before they will be carried out.
- As farmers become more market oriented, they will need to improve their planning and decision-making skills.

Decisions farmers make refer to:

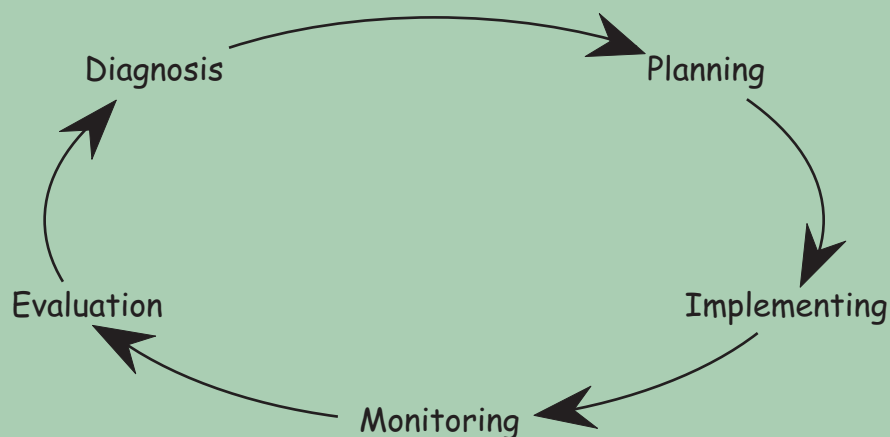
- what to produce;
- whether to produce for food, for income or for both;
- how to produce the crop;
- how to rear livestock;
- how much to produce;
- what resources to use and when to use them;
- what inputs to use and where to get them;
- how much of the produce to sell and when to sell it;
- where and to whom to sell produce and at what price.

### Key aspects of decision-making

In order to make the decisions listed above, farmers need to develop understanding and skills in four broad decision-making areas:

- Diagnosis
- Planning
- Implementing
- Monitoring and evaluation

Learning how to make decisions in these areas will put farmers in greater command of the resources and processes that influence their food security and their income generation. These areas support a process of continuous learning about what works best for farmers and their family.



**Diagnosis**

Diagnosis means investigating the performance of the farm business.

**Planning**

- Once farmers have completed their diagnosis, they can plan the farm.
- By planning they will take decisions on what, how and how much to produce in the future.
- Planning includes decisions about the use of resources and inputs.
- Planning includes an indication of expected yields and income.

**Implementing**

- Implementing means putting the plan into action.
- During implementation, the farmer may discover that things do not work out exactly as expected. Decisions may be needed to adjust the plan to accommodate these changes.

**Monitoring and evaluation**

- Monitoring means keeping track of what is happening to the farm business.
- The plan is a guide for monitoring.
- Monitoring provides the farmer with the information needed to evaluate the farm business.
- Evaluation means judging how well the farm performs compared to the plan.
- Monitoring and evaluation provide the information farmers need to appraise their needs for the next season as the basis for preparing a farm plan.

### Summary of key areas

- Following these steps in decision-making provides farmers with a very effective system for making informed choices.
- They enable the farmer to know the 'health' of the farm business.
- If it is healthy, the farmer will know why and what to do again.
- If there are problems, the farmer will know why and what to do about them.
- This will increase the sustainability of the farm.
- This will improve the family's food security.
- It will make the family's income more predictable and reliable.

### Men and women in farm management decision-making

- The role of women in making farm management decisions varies widely across Africa.
- Women and men have equal capacity to apply the principles and tools of farm management.
- In practice, gender may play a very important role, especially regarding access to resources.
- Women often have less access than men to the inputs required for farming.
- Farm management advice must be carefully targeted in order to address gender specific issues.

***Exercise introduction***

*Now that we have reviewed the concept of decision-making, let us spend some time looking at the kind of decisions that need to be made on a farm.*

*In Exercise 3.1A (Decisions on the farm) we shall look at who makes the decisions and who implements them.*

## Exercise 3.1A

### Decisions on the farm

**Purpose:** To identify the various decisions to be made on a small family farm. (Participants should have read Handout 3.1A prior to this exercise.)

**Method:** Group discussion.

**Materials:** Handout 3.1B (Worksheet – Decision-making grid).

**Allow 60 minutes for this exercise**

### Procedure

1. Get the participants to join their farm teams.
2. Give each participant a copy of the worksheet in Handout 3.1B.
3. Ask each group to select one of their enterprises and identify:
  - the decisions that need to be made;
  - who makes them;
  - who implements them.

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#### Note

In doing this exercise, the participants should use their knowledge of farming in their areas. They should try to build on their real life experiences.

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4. Each group should be allocated one of the decision-making themes: resource allocation, inputs, production, marketing and management. Depending on the number of groups, a group can look at more than one theme.
5. An example grid is given on the following page. Facilitators may use this as a reference to help if teams get stuck when completing this assignment.



*Exercise 3.1A (continued)*

Decisions	Who decides	Who implements
<i>Resource allocation</i>		
Communal grazing land for cattle	Husband	Husband and sons
Cropping land around the homestead	Wife	Wife
Allocated cropping land	Husband	Wife
Family labour	Husband	Wife
<i>Input (source and amount)</i>		
Seed	Husband	Husband
Fertilizer	Husband	Husband
Finance	Husband	Husband
<i>Production</i>		
Land preparation	Husband	Husband and sons
Sowing	Husband	Husband and sons
Transplanting	Husband	Husband and sons
Weeding	Wife	Wife and daughters
Application of pesticides	Husband	Husband and sons
Harvesting	Husband and wife	Whole family
<i>Marketing</i>		
Storage (amount)	Wife	Wife
Sell (amount and when)	Husband and wife	Wife
Process (amount and when)	Wife	Wife and children
Transport to market	Husband	Wife and children
<i>Management</i>		
Record keeping	Husband and wife	Wife and children

6. Begin with one of the headings (e.g. Resource allocation decisions) and have each group report the results of their discussions.
7. Start with one heading (e.g. Resource allocation decisions), and as the group report the results of their discussions other groups could add their experiences. Continue until all the headings are presented and discussed.

*Exercise 3.1A (continued)*

8. After each group has reported their answers, encourage discussion. Consider asking the following types of questions:
- Does this reflect reality?
  - Are things changing?
  - How does this affect extension work?

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**Note**

Instead of having each group report in full, you may find it more useful to start with one heading and one group and then ask if the other groups have similar or different answers. For the next heading you can ask a different group to report.

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9. When the discussion seems complete, move to another heading. Repeat steps 4 and 5 until all the headings are completed.
10. As a summary point, reinforce the idea that the farm is now more than just a production unit, but also includes the household.

*Exercise 3.1A (continued)*

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**Learning points about content**

- Decision-making follows a process of diagnosis, planning, implementing and monitoring and evaluation. Monitoring and evaluation lead to a new diagnosis, which leads to a new plan. This is the cycle of decision-making. It is a powerful tool for creating sustainable farm business.
  - Farm management involves a wide range of decisions including those related to production, the market and the household economy. These decisions impact on each other.
  - Because farm management is about making decisions, it is important that extension workers understand who makes decisions about the various activities on the farm
  - Because the farm is often very closely tied to the household, it is useful for extension workers to understand the broader decision-making and decision-implementing roles of women, men and children. This will help them trace the impact of farm management decisions on the household and the impact of household decisions on the farm.
  - Although we have looked at only one enterprise, in the field it may be necessary to look at all enterprises of a farm. This may be done enterprise by enterprise, or it may be done for the farm as a whole.
  - It may be useful to conduct such an exercise for household decisions (especially regarding decisions about food balances or decisions that might limit labour or finances needed for the farm).
  - When various exercises are conducted with the same group of farmers (women or men), comparisons can be made that will help them understand the impact of their current decision-making arrangements. This may lead them to reconsider these arrangements to make their farms more profitable and their households more sustainable.
  - In the field, these exercises can be conducted on the ground (without paper, using chalk, markers or symbols).
-



*Space for notes  
and questions  
for the facilitator*

## The farmer and decision-making

Decision-making is central to farm management. Each decision has an impact on the farm and on the farm household. Even deciding to do nothing, is a decision and has an impact. The more farmers are aware of the decision-making processes that affect farms and households, the more profitable their farm will be, the more likely it is to be sustainable.

In many parts of Africa, farm decisions are closely tied to decisions made in the household. Farm decisions affect food availability, play an important role in social ceremonies, and are linked to issues of social status and wealth. Two of the main features for understanding rural economic decision-making are the way farm boundaries are determined and the ultimate social objective for which farm goods are produced. In this programme we refer to the farm boundaries as "decision-making boundaries".

### The production decision-making boundaries

- We first think of a farm in terms of its physical enterprise boundaries. We think of the land, the crops, the livestock, the fences. Many extension workers are trained only in decision-making about production. The questions of what to grow, how to grow and how much to grow are production decisions. While this is a very important part of farm management, the production decision-making boundaries are just the beginning of the decision-making boundaries of the farm.
- As we study the farmer and decision-making further, we will learn that even production decisions depend on a number of factors that fall outside the physical/production area of the farm. One of those factors is the farm family/household.

*The farmer and decision-making (continued)***Farm and family household decision-making boundaries**

- In many parts of Africa, the farm and the household are virtually one entity. Decisions about the farm directly impact on the household. And decisions about the family directly impact on the farm. More and more, families require cash for things, such as school fees, medicines, transports. These all affect the decisions that must be made about what to do on the farm. Therefore, it is useful for anyone working with a farming family to understand the dynamics of the farm household and the decisions that go with them.
- Farm boundaries are determined by family structure. There may be a family farm under the head of household, but the farm may have various subunits over which a family member will have some level of control. This will have implications for decision-making, particularly with reference to shared labour and equipment.
- While traditionally men are heads of households, there are now many variations. And even within a clearly established arrangement, different members of the family make different decisions for the family at different times of the year.
- For each specific farm, extension workers will need to identify not only the physical boundaries of a farm but also who makes what decisions and when. This is necessary in order to determine the decision-making boundaries of each farm in terms of access to resources, resource sharing at family level and the main objectives of production.

*The farmer and decision-making (continued)***Social and economic goals**

- Farmers and their families need a secure source of food, and they seek a secure source of income. Many develop a strategy of producing for a market while at the same time ensuring food self-sufficiency either from the farm harvest or by use of cash to purchase food from the market.
- In many countries, even though profit maximization is of great importance, farmers are still bound by social obligations within their own communities. In some areas farmers are less bound by these obligations and are freer to focus on farming for profits.
- Food security is a social goal. Generating income is an economic goal. These family goals often conflict. Uncertainty (or risk) is part of the conflict. Often demands of food security are detrimental to farm profitability. And it can happen that the sole focus on producing for the market can negatively affect food balances and other food security factors.
- Market-oriented farm management skills and tools can be used to make more informed decisions about food production and income generation.

**Short-term versus long-term view**

- Good farm management requires a long-term view. It requires thinking carefully about what might happen in the future as a result of a decision made today. For example, before a farmer decides to plough and plant more land, the extra labour that will be needed for weeding must be considered.
- If decisions are not thought through carefully, then the farm may perform weakly.

*The farmer and decision-making (continued)*

- Learning and applying principles of farm management enables farmers to look at their farms more impartially and to consider alternative actions in advance. This will help improve performance and profit into the future.

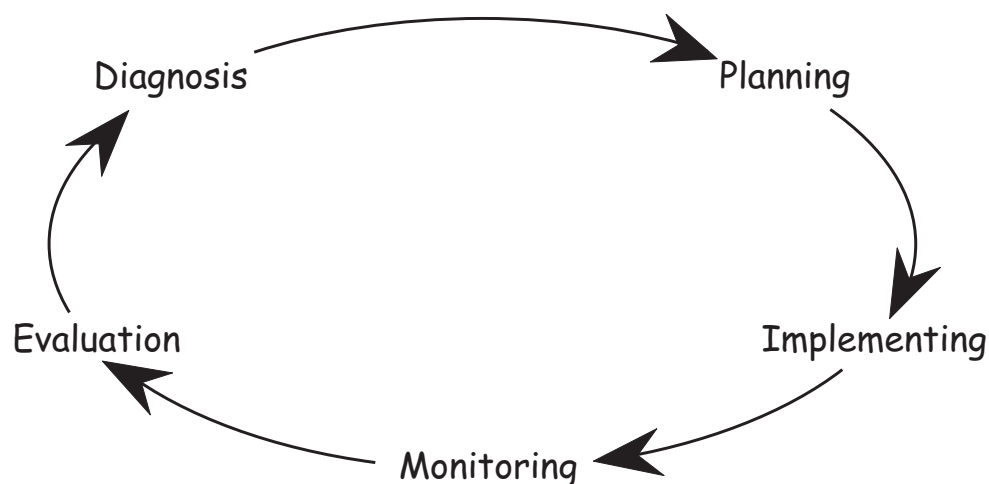
**The farmer as a manager**

- Any farmer has two main jobs. One job is to take care of plants and livestock in order to get useful products. The other job is to manage the farm; that is, making decisions about how to use the farm's resources.
- Decisions require making choices between alternatives. This often includes choosing between different crops that might be planted in each field, choosing what livestock are to be kept on the farm and deciding how to distribute available labour time among different tasks.
- Farm planning is thinking ahead about farm activities and making decisions some time before they will be carried out.
- As a farmer becomes more market oriented, the farmer will need to improve planning and decision-making skills.
- If we expand a little on the basic decisions taken as discussed earlier, we find that the kind of decisions farmers make as managers can be summarized as follows:  
(i) what to produce, (ii) whether to produce for food, for income or for both, (iii) how to produce it, (iv) how much to produce, (v) what resources will be used and when, (vi) what inputs to use and where to get them, (vii) how much of the products to sell and when, (viii) where and to whom to sell the products and at what prices.



*The farmer and decision-making (continued)***Key aspects of decision-making**

In order to make the fundamental decisions just listed, farmers need to develop understanding and skills in four broad decision areas: diagnosis, planning, implementing, and monitoring and evaluation. Learning how to make decisions in these four areas will put farmers in greater command of the resources and processes that influence their food security and their income generation. As the following diagram shows, these subject areas flow in a pattern that supports continuous learning processes on what works best for the farmer and the farm family.

**Diagnosis**

- Diagnosis means looking at the farm and household as it functioned over some period of time. For a first diagnosis, the farmer may want to understand how the farm has performed over several seasons. Just as a doctor with a patient, a diagnosis will give the farmer important clues about the 'health' of the farm business. How is it producing? What is the condition of the farm's resources? Are resources becoming more or less productive? How profitable is it? Are farm goals being achieved? What problems are there? What opportunities exist?

*The farmer and decision-making (continued)***Planning**

- Once a farmer has completed the diagnosis, planning can begin. It is here that the actual decisions about what, how and how much to produce are made. Some planning decisions will be based on knowledge (such as how much land and labour are available). Other planning decisions will be based on less certain things (such as rainfall and product prices).
- In addition to including decisions about resources and inputs, the plan will include an indication of the expected results in terms of yields and income.

**Implementing**

- Implementing means putting the plan into action. In general, implementing does not require major decisions. The plan should have covered major decisions. However, things may not always work out according to plan. Perhaps there is less rainfall than expected or perhaps the price of a crop changes. Thus, during implementation, plans may need to be adjusted to accommodate such changes.

**Monitoring and evaluation**

- The plan is a guide for monitoring (i.e. keeping track of what is happening on the farm). For example, the plan may say that the farmer should plant .5 ha of cabbage. During monitoring the farmer can check to see how many hectares were actually planted. Perhaps the plan expected 100 mm of rain by a certain time; the farmer can record the actual rainfall. Monitoring provides the farmer with the information needed to evaluate the success of the plan.

*The farmer and decision-making (continued)*

- Evaluation means judging how well the farm performed when compared to the plan. Did things go as planned? Were expected yields achieved? Were expected incomes reached?
- Monitoring and evaluation provide the information the farmer needs to diagnose the farm for the next season. It is the basis for making the next plan.

When farmers follow these steps in decision-making, they will have a very powerful process in their hands. Just as a doctor, they will be able to know the 'health' of their farm business. If the farm is healthy, the farmer will know why and will know what to do again. If there are problems, the farmer will also know why and what to do about it. This will increase the sustainability of the farm business. It will improve the family's food security and it will make the family's income more predictable and reliable.

**Men and women in farm management decision-making**

- The role or place of women in making farm management decisions varies widely across Africa.
- Women and men clearly have equal personal capacity to apply the principles and tools of market-oriented farm management. Market-oriented farm management should not, in principle, be affected by gender. However, in practice gender may play a very important role, especially regarding access to resources. Women often have less access than men to the inputs required for farming.
- Farm management advice needs to be carefully targeted in order to address gender specific issues.

## Worksheet – Decision-making grid

Resource allocation decisions	Who decides	Who implements

Input decisions	Who decides	Who implements

Production decisions	Who decides	Who implements

*Worksheet – Decision-making grid (continued)*

<b>Marketing decisions</b>	<b>Who decides</b>	<b>Who implements</b>

<b>Management decisions</b>	<b>Who decides</b>	<b>Who implements</b>



## Resources and farm management

*In this session, participants will be given an opportunity to take a detailed look at the kinds of decisions required that affect the use and allocation of the five types of capitals used by farmers on their farms.*

---

### *Opening statement*

*We will begin with a brief review of the subject matter materials provided in the handouts of the session, which deal basically with decision-making.*

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*The outline on the following page is provided to help the facilitator conduct the review.*

### Outline of Handouts 3.2A, B, C, D and E (Resources and farm management; Farm management decisions – the five capitals)

Decision-making is central to farm management. Each decision has an impact on the farm and the farm household. Some key decisions include:

- what to produce;
- whether to produce for food, for income, or for both;
- how to produce it;
- how much to produce;
- what resources will be used and when;
- what inputs to use and where to get them;
- how much to sell the products for and when;
- where and to whom to sell the products
- what prices are attained.

Each decision a farmer makes is essentially about how to utilize farm and household resources. Decisions can relate to the five categories of capital:

- natural capital: land, vegetation, water, and fish and wildlife;
- human capital: human skills and capacity to work;
- physical and financial capital: producer goods, basic infrastructure and funds required to farm;
- social capital: shared capital, such as community institutions, social work contracts, communal grazing land, rivers, community forests.

#### ***Exercise introduction***

*Let us continue the review with Exercise 3.2A (Short-term gains and long-term profitability).*

*The purpose of this exercise is to teach participants how to achieve longer term sustainability of the farm business.*



## Exercise 3.2A

### Short-term gains and long-term profitability

**Purpose:** To understand the impact of short-term gains on long-term profitability and to create a checklist of sustainability. (Participants should have read Handouts 3.2A, B, C, D and E prior to this exercise.)

**Method:** Group discussion, brainstorming, graphic representation.

**Materials:** (i) Handout 3.2 F (Worksheet – Farm management resources sustainability), (ii) heavy paper or poster board, (iii) thick marking pens.

*Allow 90 minutes for this exercise*

### Procedure

1. Ask the participants to get into their farm teams.
2. Give each team two pieces of flip chart paper/poster board.
3. Ask each team to draw two picture/posters of their farm resources 10 years into the future.
  - One should show what the resources (all five capitals) would look like if they were well maintained.
  - The other picture should show what the resources (all five capitals) would look like if they were not well maintained.
4. Ask each team to present their posters. Encourage discussion around the farm management decisions a farmer needs to take to ensure long-term value and productivity of farm resources.

*Exercise 3.2A (continued)*

5. Now ask each farm team to use their two pictures as a discussion point to develop 3–4 farm management sustainability questions and recommendations per capital group (i.e. natural, human, physical, financial, social). Participants can record their questions and recommendations on Handout 3.2F.
6. A farm management sustainability question should generally ask: What is the long-term affect on \_\_\_\_\_  
if I \_\_\_\_\_  
and \_\_\_\_\_.

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**Note**

A recommendation indicates what you, as an extension officer, would recommend to the farmer. Keep in mind the farmer needs to make profits now and in the future.

---

*Allow 30 minutes for this*

7. Choose one capital group after another and ask each team to present its questions and recommendations until all the teams have reported on all the capitals. Encourage discussion about the questions and recommendations to help deepen their understanding of the relationship among farm management decisions, resources and long-term profitability.

*Exercise 3.2A (continued)*

---

**Learning points**

- Decision-making is central to farm management.
  - Each decision has an impact on the farm and on the farm household.
  - The more farmers are aware of the range of decisions to be made and the factors affecting those decisions, the better their decisions will be, the more sustainable their farms will be and the more likely they will be profitable.
  - Underpinning all these decisions are the resources available to the farmer.
  - Each decision a farmer makes is essentially about how to utilize the farm/household resources.
  - Resources are subject to stresses and shocks that reduce their value or productive power.
  - The farmer has two areas of concern: (i) productivity of resources, (ii) profits.
  - To achieve both objectives, farmers will need to consider very carefully their decisions about utilizing their resources.
  - The aim of market-oriented farm management is to increase farm profitability.
  - Farming for profits does not imply sacrificing resources.
  - The real goal is long-term sustained profits from farming.
  - Good farm management demands sustainable use of resources.
  - Maintaining and improving the value and productive power of farm resources to sustain profits is one of the key decision areas of a good farm manager.
  - Good farm management looks for ways to put these resources to work in such a way that the farm will be profitable in both the short and long term.
-



*Space for notes  
and questions  
for the facilitator*

## Resources and farm management

As stated previously, decision-making is central to farm management. Each decision has an impact on the farm and on the farm household. Even deciding to do nothing is a decision that has an impact. The more a farmer is aware of the range of decisions to be made and the factors affecting those decisions, the better the decisions will be, the more sustainable the farm will be and the more likely it will be profitable.

We know that some of the key decisions to be made include:

- what to produce;
- whether to produce for food, for income or for both;
- how to produce it;
- how much to produce;
- what resources will be used and when;
- what inputs to use and where to get them;
- how much to sell the products and when;
- where and to whom to sell the products and at what prices.

Underpinning all these decisions are the resources available to the farmer. Each decision a farmer makes is essentially about how to utilize the farm and household resources. Resources or capital, as it is often called, can be categorized into five types:

- *natural capital*: land, vegetation, water, and fish and wildlife;
- *human capital*: human skills and capacity to work;
- *physical capital*: producer goods, basic infrastructure;
- *financial capital*: funds required to farm;
- *social capital*: shared capital, such as community institutions, social work contracts, communal grazing land, rivers, community forests.

*Resources and farm management (continued)*

Each of these capitals is vulnerable. Each is subject to stresses and shocks. There are many pressures on these resources that may cause them to decrease in value or reduce in their productive capacity. There are other pressures and events that may completely deplete or remove the resource.

Farmers have two areas of concern. One is the productivity of the resources. The second is that they need to make sure their resources are maintained or improved. They also need to make profits. To achieve both objectives, farmers will need to consider very carefully decisions about resource utilization.

We know the aim of market-oriented farm management is to increase farm profitability. However, farming for profits does not imply that one must sacrifice resources to maximize income. The real goal of market-oriented farm management is long-term sustained profits from farming. Therefore, good farm management demands sustainable use of resources. Maintaining and improving the value and productive power of farm resources sustains profits. Once this is understood, good farm management embraces sustainable agriculture and supports sustained profits from the farm.

*Resources and farm management (continued)*

Thus, one of the key decision areas of a good farm manager is maintaining the farm's resources. Proper care of land, infrastructure and equipment; keeping labour healthy and well-trained; wise investment of cash; prompt repayment of debt and being trustworthy in all their dealings — all of these will help to reduce the vulnerability of a farmer's natural, human, physical, financial and social capital and will help ensure that they are productive for many years to come.

Maintaining control over the long-term value and productive power of resources is a very important part of market-oriented farm management. Farming for high profits in the short-term without taking steps to sustain the soil will eventually lead to lower profits. Good farm management looks for ways to put these resources to work in such a way that the farm will be profitable in both the short and long term.





*Space for notes  
and questions  
for the facilitator*

## Farm management decisions — natural capital

### Farm management and natural capital

Farmers do not farm in isolation. They take from and influence natural capital. Natural capital is the first resource base on which a farm is established and run. Farmers need to be very aware of the inter-relationship of their farms with their natural resource base. Natural capital is run down and destroyed by one of two forces:

- acts of nature such as droughts, wind and floods;
- deliberate acts of humans such as over-grazing, harmful production practices.

Obviously it is to the latter that farmers must turn their attention.

Below are some actions that can be taken by farm managers to make sure their land remains productive and to help make sure that common property also remains productive.

- improved land reclamation through **preservation of vegetation strips and valuable trees, subdivision of fields**, introduction of **agroforestry** practices such as quick-set hedges;
- introduction of **soil conservation measures** on existing fields, using improved ways of land preparation, improving soil coverage by mixed cropping or other techniques, introduction of tree crops and quickset hedges;
- development of **better integrated on-farm livestock production activities** including animal traction, making use of crop by-products for feed and litter, and use of the manure for fertilizing the crops.

While each of these takes place at a cost, they have long-term benefits. They will contribute to the sustained profitability of the farm.



*Space for notes  
and questions  
for the facilitator*

## Farm management decisions — human capital

### Farm management and human capital

Decisions about human capital on the farm are among the most important decisions made by a farmer. Decisions about human capital represent choices in technologies. They represent productivity on the farm. They represent how the farm family earns its income. In many ways, these decisions represent the way the family sees itself and the way it sees its farm.

With the change in economies in Africa, the availability and the cost of labour are changing. And with it farmers now face serious questions. They need to decide if it is better for their families to sell their labour in town or to use it on the family farm. Understanding the concepts, principles and tools of farm management will help farmers assess the choices and to make better decisions.

However, extension workers will need to take special care in assisting farmers with examining this aspect of farm management. Human capital decisions touch on societal and cultural issues as well as on more purely management issues. Many of the factors to be taken into consideration are related to the status of women. Changes in the status and role of women vary from country to country and culture to culture. And these changes will find expression in different ways in each family.

*Farm management decisions – human capital (continued)*

Some technical or practical factors that might also be taken into account include: (i) issues of land rights and inheritance, (ii) who in the home is allowed to work outside, (iii) the effect of HIV/Aids and other health issues on head of household.

**Options for alternative labour sources**

Faced with the many problems affecting the productivity and availability of labour and their compounding affects on the household and farm, farmers need to think carefully about options for providing power on the farm – and to plan for them in advance. Some of the options might include:

***Labour saving technologies.*** Most farmers could improve the productivity of their labour by adopting better tools that have been tried out successfully elsewhere. This may include replacing hand labour with animal power by using draught animals, tractors or motorized implements. Each of these is an additional cost to the farm. Therefore a farmer should decide to use labour-saving technologies only when sufficient returns can be generated to cover the extra costs.

***Changing farm enterprises and combinations.*** Market-oriented farmers will want to give careful consideration to adding or changing crops. This can be a very effective way to increase farm profitability and cope with labour productivity problems. Some possible changes include:

- *Intercropping.* Two or more compatible crops are grown together in the same field or row.
- *Introducing a new crop.* Farmers can investigate increasing profitability and addressing productivity by growing high-value crops on a reduced area.

*Farm management decisions – human capital (continued)*

There are many opportunities. Farmers will have to investigate the market first and then find out about the input and production requirements before changing crops.

**Increasing productivity**

There are a number of ways to increase labour productivity, including introducing new technology, producing more per hectare, choosing the right enterprises to produce, improving farm layout, using improved tools and working methods, practicing good labour relations, and paying wages in relation to the amount and quality of work done. Good relations means treating labourers justly, paying fair wages and providing good supervision for hired labour.

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**Note**

A word of caution. Increased productivity based on intensification of cropping techniques together with mechanization often results in increases in labour constraints. For example, mechanized land preparation may lead to more land being tilled. This will result in an increased need for labour for planting and weeding. It may lead to increased total yields that will require more labour.

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Handout 4.7A (Labour planning) provides a detailed examination of labour decisions and provides tools for making these decisions.



*Space for notes  
and questions  
for the facilitator*

## Farm management decisions — physical and financial capital

### Farm management and physical and financial capital

As has been stated frequently, farm management is about making decisions. Many of the decisions to be made involve physical and financial capital. These decisions have long-term implications for the farm. Remember, decisions made today limit the decisions you can make tomorrow. Farmers need to make both short-term and long-term decisions about physical and financial capital. Short-term decisions affect long-term decisions. And long-term decisions affect short-term decisions. Farmers need to think things through carefully.

### Long-term capital decisions in different enterprises

Capital invested in livestock, perennial crops, orchard trees or buildings cannot be readily changed into another form of capital that might earn a higher rate of return. Once capital has been invested in durable assets it is committed, and flexibility is lost. Capital is always limited. It should be used where it will add most to profits. Different enterprises involve issues when making long-term capital decisions.

**Tree crops.** The capital cost involved in tree production is equal to the cost of growing that tree up to the stage of full production. When the tree dies, it should be replaced by a new tree. Taking good care of trees and controlling diseases and pests is very important to protect the money that has been spent growing the tree. If the tree dies before it has produced anything, all the money is lost.

*Farm management decisions —  
physical and financial capital (continued)*

**Livestock.** The capital cost involved in livestock production is equal to the cost of keeping that animal up to the stage it reaches full production. Whether the animal is being kept for meat, milk, eggs or some other product, the animal should be kept fit and healthy so that it will produce efficiently. Only in this way can the farmers get high profits through their livestock. Again, farmers want to protect investments. If the animal dies before producing, the money is lost.

In cases where farmers cannot afford to raise the livestock, they can also hire. For example, the farmer may be able to look after an animal for someone else. In return they will keep half of the offspring and return the other half to the owners as a kind of hire charge. This is a form of sharecropping, but with livestock.

**Buildings.** The cost of buildings can be kept very low if the farmers and farm families do most of the building. Careful repair and maintenance of buildings will make the buildings last longer and this will reduce depreciation cost (or decrease in value). Where possible and practical, a farmer can hire a building. Buildings that are hired should be put to maximum productive use. An empty building is a waste of money. However, there is no point in filling a building with produce where it will be losing value. If the produce can be sold at a good price, it should be sold.



*Farm management decisions —  
physical and financial capital (continued)*

***Machinery and equipment.*** Investment in machinery and equipment can be very profitable if the farmer can manage the finance and if it increases profitability. Mechanization can be costly both in terms of buying it and in terms of repairs and maintenance.

***Mechanization through animal traction.*** In many countries animal traction with draught animals is an immediate way of mechanizing. The investment includes the animals and the equipment they will pull, such as a plough, a planter, a cart or other farm implements.

***Motorized machinery and equipment/intermediate power-driven equipment.*** This includes two-wheel tractors and light four-wheel tractors. Farmers can also invest in small-scale post-harvest equipment, such as threshers, mills or oil-presses, to add value to their products before taking them to market.

***Heavier power-driven equipment.*** This include tractors, combine harvesters or trailers. Hiring is an option that can be used by farmers, and this saves on the cost of buying the machine. For example, hiring a tractor to plough the land or a threshing machine for maize. Hiring is often cheaper than buying.

Cooperative use of machinery or sharing is another option. Shared use of equipment by two or more farmers has often been more successful than cooperatives. In Kenya, for example, sharing often means one farmer brings a cart, another one the oxen, and another the yoke. In other cases, one farmer brings the tractor and another farmer brings the threshing machine.

*Farm management decisions —  
physical and financial capital (continued)*

**Short-term decisions about physical and financial capital**

Farms require many decisions that affect the farm for a single season. Which seed to buy? When to plant? Which market to use? Farms also require short-term decisions that impact on the long-term sustainability of the farm. Often these decisions involve choices about what to do with limited cash: Should the farmer repair a weakening fence this year, or use the cash to buy all the seed needed? Not buying all the required seed will limit income this year. Not repairing the fence may allow cattle into the fields and destroy the crop.

Farmers will need to think carefully about the many short-term decisions to be made. They also need to anticipate what the long-term effect of short-term decisions are likely to be.

*Space for notes  
and questions  
for the facilitator*

## Farm management decisions — social capital

### How does social capital affect farm management decisions?

Some farm management decisions involving social capital affect the farm directly. Other farm management decisions involving social capital affect common property: common forests, grazing land and water to which the farm family has access. Examples of the kind of decisions that farmers take that may involve social capital are given below.

#### *Decisions affecting the farm directly*

1. What are the sources of cropland available to me?  
How do I access that land?
2. What sources of labour are available to me?  
How do I access it?
3. What sources of finance are available to me? Can I borrow from family members? Should I be part of a group to negotiate better terms?
4. Should I buy my own tractor or alternatively hire from a tractor pool? Is it possible to borrow from a neighbour?
5. Should I market my own farm produce?  
Should I be part of an organized marketing group?
6. Should I buy my own inputs and materials?  
Should I work with others to buy in bulk?

*Farm management decisions – social capital (continued)*

*Decisions affecting common property (off-farm)*

7. How can I access water for irrigation? Is there adequate water for irrigation?
8. Should we establish a community forest plantation?
9. How should we as a community treat the watershed?  
How should we organize ourselves?
10. What are the sources of grazing land available to me?  
How do I access this land and vegetation? What are my responsibilities?

These questions and similar ones are likely to have an impact on the inputs and outputs related to farm production and sales. Some of the decisions regarding social capital relate to the individual farm holding. Others concern the utilization of common resources. All of these decisions have an impact on the farmer's resource base and income. Farm household decisions are inseparable from the social relations of farming.

Social capital can lower the costs of performing farm operations. In this way it can improve the efficiency of farming. This often results in financial savings and increased income. Farmers coming together as a group facilitate cooperation and foster confidence. Social capital is useful in promoting collective action such as water saving and communal grazing. It helps to ensure that farmers get greater benefits when negotiating with powerful bodies. For example better prices might be negotiated for bulk sales of produce or purchases of inputs. Social capital can also promote better use of natural and other resources, if managed correctly.

*Farm management decisions – social capital (continued)*

Joint or group interventions contribute to the formation of social capital by developing expertise within the group, such as working together for a common good, learning and implementing formal rules and procedures, democratic election of leaders and participatory decision-making in allocation of credit, and inputs for farm enterprise development.

Social capital arrangements provide farmers and other members of the rural community with full control over the use of resources. There are many benefits from such an association at grassroots level: higher productivity, reduced costs and increased efficiency, building of democratic group organization and enhanced self-reliance among the poor. Thus, the strength of social capital arrangements lies in the processes that they offer and their economic and social benefits.

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**Sharing oxen\***

An inter-group committee in Zambia operates a successful oxen hire service for its member groups. The oxen that are used for ploughing rice and maize fields are rotated among the groups, each of which contributes to a fund for veterinary supplies. Before the ploughing season, the committee draws up a work plan assigning the oxen to each group for two weeks. Group members wishing to use the animals pay a fee of just 30¢ a day. Thanks to this collective system farmers now pay less than \$1 for services that using hired oxen would cost up to \$10.

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\* Participation in Practice, Lessons from the FAO People's Participation Programme, FAO 1990.

### Worksheet – Farm management resources sustainability

Questions	Sustainable recommendations
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*Natural capital*


*Human capital*


*Physical capital*








## Inputs, markets and farm management

*This session essentially provides checklists for extension workers to help farmers make good decisions about inputs, equipment and markets. It also helps extension workers identify their role in the farmer's decision-making process.*

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### *Opening statement*

*As a class we have looked at farm management decisions about resources on the production unit. It is clear that the decision-making boundary of the farm extends to include the off-farm input and market systems. Thus, farm management also requires that decisions be made regarding these. Let us now review Handout 3.3A (Inputs, markets and farm management).*

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### Outline of Handout 3.3A (Inputs, markets and farm management)

#### Decisions about inputs

- Farmers require inputs, equipment and materials in order to produce outputs for the market.
- Farmers need to know which inputs to use and where to get them.
- Farmers need to determine whether the additional cost of using inputs will generate sufficient additional income to cover these costs.

Most inputs can be obtained from a number of sources:

- the farmer's own farm;
- another farm;
- private suppliers;
- local general dealers;
- farmers' cooperatives;
- product distributors.

In each case, the farmer must consider the price, quality and availability offered by the various sources of inputs.

#### Choice of inputs and equipment

When deciding on inputs and equipment a farmer should ask:

- Is it technically effective?
- Is it of dependable quality?
- Is its price reasonable?
- Is it available locally in particular when farmers need to use it?
- Is it offered for sale in appropriate sizes or amounts?

Each input (supplies or equipment) must have the following qualities:

- technical effectiveness;
- quality and dependability;
- good price–quality relationship;
- available when needed;
- appropriate quantities/packaging offered for sale.

#### **Choice of input and equipment supplier**

- Farmers need to know who are reliable and trustworthy suppliers.
- Farmers need to know what each supplier offers in terms of prices, quality and availability of inputs and equipment.

#### **Operations and maintenance**

- Maintaining capital is a key factor in profitability.
- Maintenance helps resources retain their productive power.
- Good farm management includes care for all of the physical capital on the farm.
- The value of the maintenance must be measured against the income it generates.

#### **Checklist of questions related to marketing when planning for the market**

- Decisions about markets are among the most important decisions a farmer will make.
- Decisions about markets can also be among the most difficult to make because markets generally represent the unknown.
- The farmer can make decisions based on the best available information regarding the following market issues:
  - the market
  - the product
  - the marketing chain

***Exercise introduction***

*We have looked briefly at some of the decisions to be made about inputs on the farm and about the market. In order for us to engage in the many questions that farmers should ask themselves to help make better marketing decisions, we shall now do Exercise 3.3A (Mind map of marketing questions).*

### Exercise 3.3A

## Mind map of marketing questions

**Purpose:** To visualize the range of questions to be asked to make good marketing decisions. (Participants should have read Handout 3.3A prior to this exercise.)

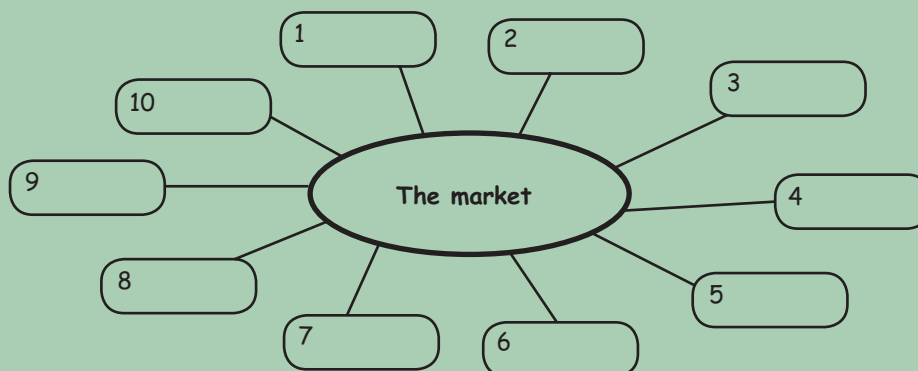
**Method:** Mind mapping.

**Materials:** (i) Flip chart paper or newsprint, (ii) thick marking pens (same three colours per team).

*Allow about 60 minutes for this exercise*

### Procedure

1. Divide the participants into teams of 5–6 members each.
2. Give each team three sheets of flip chart paper/newsprint and a set of marking pens.
3. Referring to Handout 3.3A, each team is to read through the checklist of questions under the three main headings of: (i) the market, (ii) the product, (iii) the marketing chain. They should identify the 8–10 most relevant/important questions under each heading that they feel a farmer in their area should ask to improve their decisions about marketing.
4. Once they have agreed on the key questions, they should put them into a mind map as shown below.



*Exercise 3.3A (continued)*

5. They should repeat the exercise for each of the main areas: The market, the product and the marketing chain. Each team should use the same colour pen for the mind map. (This will help with clarity during presentations.)
6. Once the teams have completed their three mind maps, ask each team to present their maps to the rest of the participants. Start with "The Market".

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**Note**

As the students present and discuss,  
keep track of key learning points.

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7. When all the teams have presented their "Market" mind map, encourage the teams to discuss their reasons for making the choices they made. There is no need to come to a consensus. It is important that the teams learn from each other about how and why they chose the questions they chose.
8. Next have the teams present their mind maps on "The Product". Again, when each team has presented their mind map, encourage discussion around how and why each team chose the questions they chose.
9. Next have the teams present their mind maps on "The Marketing Chain". Again, when each team has presented their mind map, encourage discussion around how and why each team chose the questions they chose.

*Exercise 3.3A (continued)*

10. When the discussions are complete review key learning points. Cover the points you have noted from the discussion. Additional points are set out below:

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**Additional learning points**

- To make good decisions about marketing, the farmers need to learn as much as possible about the marketing environment for their products.
  - They need to understand the market itself.
  - They need to understand their products in that market.
  - They need to understand how their products will be handled from farm to market.
  - They should decide ahead of time on the key questions to investigate so that they do not become overwhelmed with too much information that cannot be handled.
-

***Exercise introduction***

*While farmers are responsible for their farms, extension workers are responsible for assisting farmers in making profitable farm management decisions. Exercise 3.3B (Supporting farmers with input and marketing decisions) will help us to better perform our roles as extension workers.*



## Exercise 3.3B

### Supporting farmers with input and marketing decisions

**Purpose:** To help participants clarify their role in supporting farmers with input and marketing decisions. (Have participants refer to Handout 3.3A.)

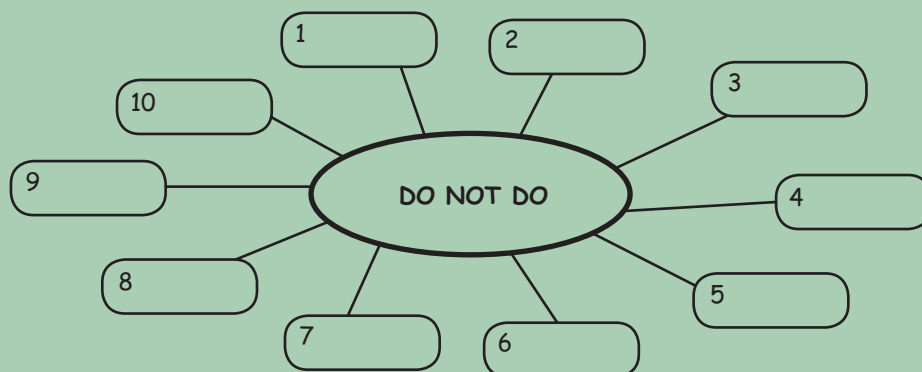
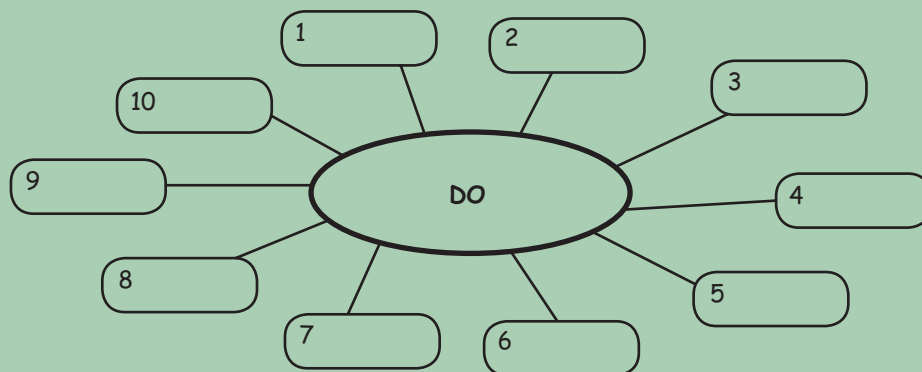
**Method:** Brainstorming, mind mapping.

**Materials:** (i) Writing paper, (ii) flip chart paper or newsprint, (iii) thick marking pens, (iv) prestik.

*Allow 45 minutes for this exercise*

### Procedure

1. Ask the participants to get into the teams they were in for the market mind maps. Give each team two sheets of writing paper, two sheets of newsprint or flip chart paper and two marking pens of different colours.
2. At the top of one sheet of the writing paper the team should write: "DO". At the top of the second sheet of writing paper they should write: "DO NOT DO".
3. Each team should now discuss the role the extension worker should play in supporting the farmer in input, equipment and marketing decisions. They should agree on 5–10 things extension workers SHOULD do and 5–10 things extension workers SHOULD NOT do.
4. When they have agreed on the two lists, they should capture them into mind maps as shown in the examples on the next page. Make sure each team uses the same colour for "DO" and "DO NOT DO". (See Handout 3.3B for a worksheet of mind map formats.)

*Exercise 3.3B (continued)*

5. When the teams have completed their work, ask each team to present their mind maps. Each team presents both mind maps. In the presentation the teams should explain their choices. Questions from the other participants should be limited to questions for clarification (more open discussion will be held after all the mind maps have been presented).

On the wall, stick the "DO" maps together and the "DO NOT DO" maps together.

6. When all the mind maps are presented, encourage discussion about the choices made by each team. The aim is to create a good understanding of what supports the farmer in making decisions (as opposed to the extension worker making decisions for the farmer). Additional points are set out on the opposite page.

*Exercise 3.3B (continued)*

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**Additional points to be covered**

Extension workers have an important role to assist farmers in making management decisions about inputs, equipment and markets. Extension workers can:

- help farmers to ask the right questions about sources of inputs and equipment and about the inputs and equipment needed;
- provide farmers with information about inputs and equipment including:
  - research information on the technical effectiveness of the inputs and equipment;
  - experiences of other farmers with the inputs and equipment;
  - availability of inputs and equipment in the area.
- help farmers with reliable information about markets including:
  - prices;
  - quality requirements;
  - handling;
  - packaging and transport;
  - niche marketing opportunities.

Extension support for input and marketing decisions should always include information and guidance on the impact of the inputs and markets on farm profitability.

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## Inputs, markets and farm management

We have looked at farm management decisions about resources on the production unit. We recall that the decision-making boundary of the farm extends to include the input and output systems. Thus, farm management also requires that decisions be made regarding inputs and markets.

### Decisions about inputs

As noted earlier, farmers require inputs, equipment and materials in order to produce outputs for the market. While most of the inputs and materials may come from the farm itself, such as livestock feed, compost, farm yard manure, some of the inputs required by the farmer have to be manufactured and specially prepared.

Farmers need to know which inputs to use and where to get them. They need to determine whether the additional cost of using inputs will generate sufficient additional income to cover these costs.

In our earlier discussion about inputs, we identified that most inputs can be obtained from these sources:

- the farmer's own farm;
- another farm;
- private suppliers;
- local general dealers;
- farmers' cooperatives;
- product distributors.

In each case, the farmer must consider the price, quality and availability offered by the various sources of inputs.

*Inputs, markets and farm management (continued)***Choice of inputs and equipment**

Questions to ask when deciding on inputs and equipment:

- \_\_\_ Is it technically effective?
- \_\_\_ Is it of dependable quality?
- \_\_\_ Is its price reasonable?
- \_\_\_ Is it available locally, in particular when farmers need to use it?
- \_\_\_ Is it offered for sale in appropriate sizes or amounts?

**Qualities that input (supplies or equipment) must have**

*Technical effectiveness.* Seed, fertilizer or other items must be technically effective. Does the seed produce as promised? Does the fertilizer perform as intended? Does the livestock medicine really work? Does the implement do the job it is supposed to do? Is the input or equipment appropriate to the farmer's farm system? The question of technical effectiveness is the first one on which a farmer must be satisfied before buying a new input.

*Quality and dependability.* Sustained quality is another important characteristic for inputs and equipment. Is equipment built to last? Does it come with a guarantee? Is the seed within its expiry date? Do the pesticides contain any illegal chemicals? Have the feeds been properly mixed? Is the supplier reliable and honest? Farmers, especially smallholder farmers, cannot afford to lose money on poor quality inputs or equipment.

*Price relationships.* Farmers should not buy fertilizer or other inputs just because its price is low. The inputs must also be effective and of a certain quality. But in all events farmers must take into account the price, especially the relationship between prices and inputs and the prices they can get for their products. Farmers need to be aware that the supplier needs to make a profit as well. The supplier must cover the cost of transporting them from the manufacturing plant, seed farm or seaport to the local market. This cost plus others and a markup for profit is included in the price of the input or equipment for sale.

*Inputs, markets and farm management (continued)*

*Availability when needed.* The need for each input is highly seasonal. Seeds must be available shortly before planting and can seldom be sold at any other time of the year. Fertilizers must be applied at specific times, and few farmers have facilities for storing them satisfactorily. The same is true of pesticides, although small amounts of them can be held for future use. This means suppliers of inputs and equipment for sale must know when each separate input will be needed by farmers and have adequate supplies of each one on hand ahead of time so that farmers may get them quickly when they are needed. A supplier who cannot or does not do this is not a reliable supplier.

*Quantity offered for sale.* The size of the containers in which many supplies are offered for sale is also important. Too frequently containers hold more than a small farmer needs at any one time, and farmers may not have facilities for storing the extra amount until the following year when it may be needed again.

**Choice of input and equipment supplier**

In addition to knowing which input to buy, farmers also need to know who are reliable and trustworthy suppliers of inputs, equipment, machinery, spare parts and maintenance supplies. Farmers also need to know what each supplier offers in terms of prices, quality and availability of inputs and equipment.

**Operations and maintenance**

One of the key factors in profitability is maintaining capital. The better equipment is maintained, the longer it will retain its productive power. Good farm management includes care for all of the physical capital on the farm. This includes proper storage of inputs, such as seed and fertilizer, proper storage and maintenance of tools and equipment, such as hoes, ploughs and tractors, and the regular maintenance of building, fences and farm roads. Maintenance costs money, thus as with all farm management decisions, the value of the maintenance must be measured against the income it generates.

*Inputs, markets and farm management (continued)***Decisions about the market**

Decisions about markets are among the most important decisions a farmer will make. They can also be among the most difficult to make because markets generally represent the unknown. The farmer cannot be certain of the supply of products that will be on the market. The farmer cannot be certain about the demand for specific products. The farmer cannot be certain about the prices on the market. However, the farmer can make decisions that are informed by knowledge of how markets have performed in the past. The farmer can make decisions based on the best available information regarding the following market issues:



What can farmers learn about the market for the products they want to sell? The following questions will help build confidence about marketing decisions.

**The market***Markets and buyers*

- \_\_\_ How is the crop/livestock produce marketed at present?
- \_\_\_ What are the main markets and where is produce sold?
- \_\_\_ What has been the demand for the products?
- \_\_\_ Who buys the produce and when? In what quantities?
- \_\_\_ What is the best day for arrival in the market?
- \_\_\_ Who are the most important intermediaries or buyers?
- \_\_\_ Which buyers have the best reputation?



*Inputs, markets and farm management (continued)**Prices and pricing*

- \_\_\_ What prices are paid?
- \_\_\_ Is there a wide variation between the prices received by farmers for similar produce in the same area? If so, why?
- \_\_\_ Is there competition between buyers?
- \_\_\_ Do buyers provide credit to farmers and on what conditions?
- \_\_\_ Do buyers expect credit from farmers in the form of deferred payment?
- \_\_\_ What are current price levels, price policies, conditions of sale and payment terms found in the market?
- \_\_\_ Is the farmer a price taker or a price maker?
- \_\_\_ What market prices are obtained (average, maximum, minimum, effect of different quality standards and seasonal conditions on price)?
- \_\_\_ How can premium prices be attained?
- \_\_\_ If the farmer is a price maker, what price strategy should be followed? And what is the percentage markup? Does the set price leave a margin for profit?
- \_\_\_ What are the various cost factors to be considered in determining the pricing policy?
- \_\_\_ How does the location of the market affect prices?
- \_\_\_ How does time of day affect prices?
- \_\_\_ How much does the price normally fluctuate during the year?
- \_\_\_ What credit does the buyer require and how does this affect price?

*Promotion*

- \_\_\_ Is the market aware of the product?
- \_\_\_ Does the market know the volume available and how to purchase the product?
- \_\_\_ Does the product need promotion?
- \_\_\_ How can producers give all possible advance notice of changes in their ability to provide the goods?

*Inputs, markets and farm management (continued)**Marketing costs and margins*

- \_\_\_ What are the overall costs of marketing and what are the marketing margins?

*Sales*

- \_\_\_ What factors are likely to affect sales?  
(weather, special festivals, day of arrival in market)?
- \_\_\_ What are the potentials and techniques for developing sales?

**The product***Product type and form*

- \_\_\_ What products are farmers interested in producing?
- \_\_\_ What market forms (fresh, processed)?

*Competition*

- \_\_\_ How competitive is the market?
- \_\_\_ Who are the main suppliers to that market?
- \_\_\_ Is the marketing plan being adjusted to reflect changes in the competition?

*Market potential*

- \_\_\_ What is the demand to be satisfied?
- \_\_\_ How large is the market? How much can the market absorb?
- \_\_\_ Which market is the farmer willing and able to satisfy?
- \_\_\_ What percentage of produce should farmers be interested in producing?

*Quality standards, packaging*

- \_\_\_ What are the grades and quality standards of the produce?
- \_\_\_ What type of packaging is required? What is the cost of packaging?

*Inputs, markets and farm management (continued)***The marketing chain***Product preparation and packing*

- \_\_\_ Who can/should prepare and pack the product according to the market requirements?
- \_\_\_ What is the cost of preparation and packing?

*Handling*

- \_\_\_ Who can/should handle the product?

*Transport*

- \_\_\_ What is the best way to transport goods to the market?
- \_\_\_ Who provides transportation?
- \_\_\_ What is the unit price of transport to the different markets?
- \_\_\_ How long do the journeys take? How frequently does the transport leave the area?
- \_\_\_ How efficient are the transport links?
- \_\_\_ Should the transport of produce be pooled or sent individually?

*Delivery of products*

- \_\_\_ How should the product be delivered?
- \_\_\_ What method of transportation does the consumer require?
- \_\_\_ What methods of transportation does the producer or trader have?
- \_\_\_ Can small farmers meet the markets' delivery requirements?
- \_\_\_ Is the crop/livestock produce stored? If so, where and by whom?
- \_\_\_ How much of the product should be stored? What storage arrangements are required?
- \_\_\_ Are storage and stocking required to meet the buyers' delivery schedule?
- \_\_\_ Are associations and cooperatives a necessary link in reaching the market?
- \_\_\_ Are goods delivered directly to the buyer by producers?
- \_\_\_ What size units does the buyer require?

*Inputs, markets and farm management (continued)***Supporting farmers with inputs and marketing decisions**

Extension workers have an important role to assist farmers in making management decisions about inputs, equipment and markets. They can help farmers to ask the right questions about sources of inputs and equipment, and about the inputs and equipment themselves. They also can provide farmers with information about inputs and equipment including:

- \_\_\_ research information on the technical effectiveness of the inputs and equipment;
- \_\_\_ experiences of other farmers with the inputs and equipment;
- \_\_\_ availability of inputs and equipment in the area.

Extension workers can help farmers with reliable information about markets including:

- \_\_\_ prices;
- \_\_\_ quality requirements;
- \_\_\_ handling;
- \_\_\_ packaging and transport;
- \_\_\_ niche marketing opportunities.

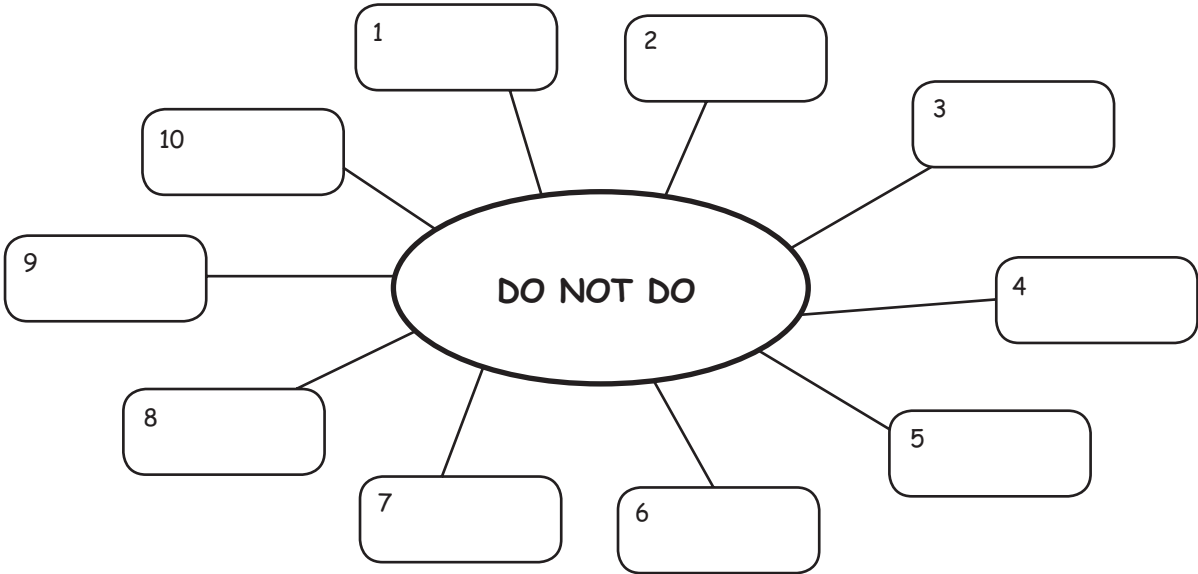
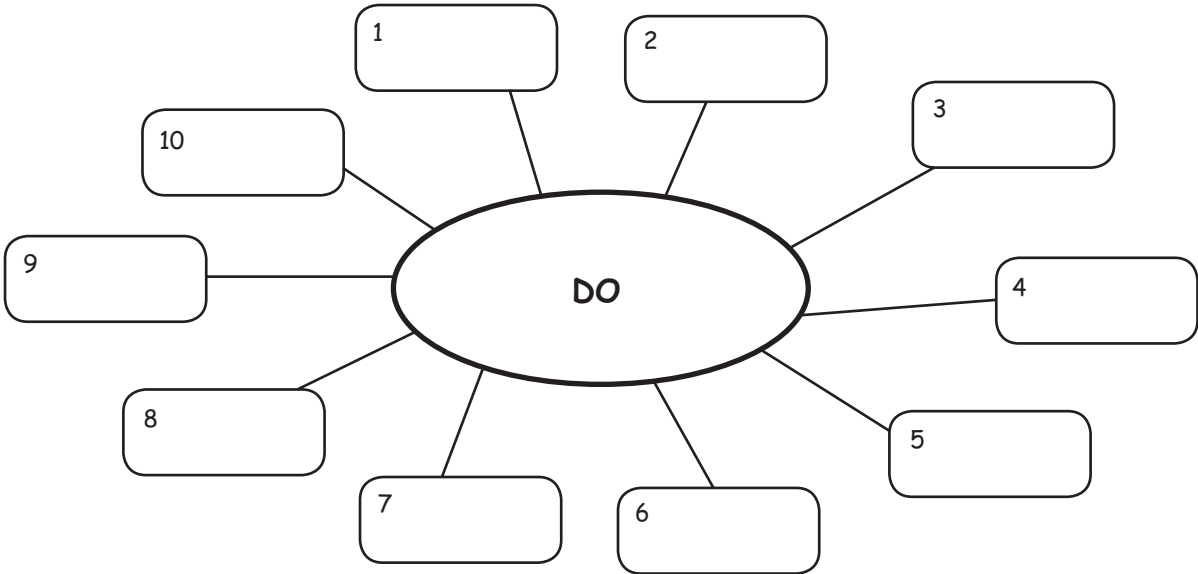
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**Remember**

Extension support for input and marketing decisions should always include information and guidance on the impact of the inputs and markets on farm profitability.

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Worksheet – Mind map formats





## Risk, vulnerability and sustainability

*This session introduces the concept of risk and sustainability. The participants will learn about different types of risk and what makes farmers and their farms vulnerable. They will work with the idea of mapping sustainability to locate areas in the farming system that need strengthening.*

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### *Opening statement*

*The risks that farmers face are usually beyond their control. Therefore they must develop strategies to cope with them.  
To begin our discussions of this topic, let us review Handout 3.4A (Risk, vulnerability and sustainability).*

---

*The outline on the following pages is provided to help the facilitator conduct the review.*

### Outline of Handout 3.4A (Risk, vulnerability and sustainability)

#### What is risk?

- uncertainties that farmers face and that can negatively affect their farming activities;
- can occur as stresses (general negative pressure) or shocks (sudden negative change);
- not usually under the control of the farmers themselves, thus they develop strategies to cope with them.

#### *Types of risk*

##### **Production and technical risks**

- uncertainties about weather, soils, pests, diseases and wildlife, which cannot be predicted accurately;
- the introduction of a new technology.

##### **Marketing or price risk**

- uncertainty about prices, which vary from year to year or even daily;
- uncertainty about supply and demand of a product;
- uncertainty about costs of inputs.

##### **Financial risk**

- uncertainty about the interest rates lenders charge;
- uncertainty about money lenders' willingness to continue lending;
- uncertainty about the ability of the farm to generate the cash flows necessary for debt payments.

##### **Institutional risk**

- unpredictable changes in the provision of services, such as the supply of credit, purchased inputs and information from traditional and modern institutions.



**Human or personal risk**

- uncertainties about problems of human health and personal relationships that affect the farm business (e.g. HIV/Aids, malaria, labour migration).

**Vulnerability and the effect of risk**

- Vulnerability is the ability to recover from a stress or a shock.
- Stresses erode the value or productivity of capital.
- Shocks cause the sudden loss of a resource.
- Part of coping with stress is reducing vulnerability to stresses and shocks.
- The less vulnerable the resources, the more sustainable the farm.
- As a result of vulnerability to risk, farmers often trade-off between maximizing profits and minimizing risks.

**Risk-reducing strategies**

- choosing low risk enterprises;
- diversification: growing many things;
- growing crops on different land parcels or plots;
- growing crops at different times;
- selecting and changing production practices;
- maintaining flexibility;
- maintaining reserves;
- spreading crop and livestock sales;
- partial processing;
- traditional institutions and social arrangements;
- maintaining resources.

**Sustainability**

The balance between vulnerability and risk:

- availability
- accessibility
- affordability
- appropriateness
- reliability (trustworthiness)

***Exercise introduction***

*Now that we have reviewed risk from a theoretical point of view, let's see how it applies to the farm situation. In Exercise 3.4A (Vulnerability analysis – sustainability analysis), participants will draw upon their knowledge to determine the degree of vulnerability of their farm's resources. This will give an indication of farm sustainability.*

## Exercise 3.4A

### Vulnerability analysis – sustainability analysis

**Purpose:** To analyse the strength and vulnerability of the farm's resources and to map the vulnerability/sustainability of the farm.  
(Participants should have read Handout 3.4A prior to this exercise.)

**Method:** Group discussion, representative mapping.

**Materials:** (i) Handouts 3.4B (Sustainability analysis) and C (Worksheet – Recording sustainability analysis), (ii) pen and paper, (iii) heavy paper or poster board, (iv) thick marking pens, (v) scissors.

*\* Handout 2.2H from the previous module*

*Allow 60 minutes for this exercise*

### Procedure

1. Ask the participants to get into their farm teams.
2. Using the maps and lists they created in Module 2, Sessions 1–4, each team should review the capital base of their farm. They should look at each resource in each capital grouping and discuss the sustainability of the resource. Handout 3.4B provides guidance for assessing sustainability. The results of the team's discussion can be recorded in the table provided in Handout 3.4C.
3. Ask each team to present and explain their 'maps'. Allow (encourage) questions and discussion to create a richer understanding of the concept of vulnerability/sustainability.

*Exercise 3.4A (continued)*

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**Learning points**

- Farmers need to be aware of the risks they face.
  - They may be aware of the production and marketing risks, but they are not always aware of the other forms of risk.
  - It is useful for farmers to understand the relative vulnerability/sustainability of their farms by assessing the ability of their resources to recover from shocks and stresses.
  - The more vulnerable the capital, the less sustainable the farm.
  - The less vulnerable the capital, the more sustainable the farm.
  - Farmers need to identify and weigh up the costs and benefits of various risk-reducing strategies.
  - Farmers need to be able to assess their vulnerability/sustainability in terms of:
    - availability
    - accessibility
    - affordability
    - appropriateness
    - reliability (trustworthiness)
- 

---

**Note**

At the close of this session, return to the introduction and review the learning points as a reminder to the participants. Encourage the participants to ask and participate in answering questions about the content of this Module.

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*Space for notes  
and questions  
for the facilitator*

## Risk, vulnerability and sustainability

### What is risk?

Small-scale farmers in Africa are particularly exposed to uncertainties of weather, prices and disease. Many farmers live on the edge of extreme insecurity, sometimes falling just below, and sometimes rising just above the threshold of survival. Farmers do not know whether rainfall will be good or bad over the season. They do not know if the crop will be infected by disease. These are risks. Risks are usually not under the control of the farmers themselves, thus they develop strategies to cope with them.

### Types of risk

Risks have a direct impact on the farm family and their options to increase profitability and farm income. Good farm management includes making decisions to reduce vulnerability to risk. Risk can be classified as follows.

***Production and technical risk.*** Crop and livestock performance are affected by weather, soils, pests, diseases and wildlife. These cannot be predicted accurately. Farmers experience a wide range of weather conditions and refer to them simply as a "good" year, "normal" year and "bad" year. Poor rainfall leads to poor plant growth, which may lead to reduced livestock fodder supplies and livestock production. Pests or diseases can also cause major yield losses. Seed is planted and inputs, such as fertilizer, are applied before the farmer knows what the weather will be. Inputs do not change the weather.

*Risk, vulnerability and sustainability (continued)*

**Marketing or price risk.** The prices of farm products may vary from year to year or even on a daily basis. These changes are usually beyond the control of the individual farmer. Supply of a product is affected by a combination of production decisions made by many farmers and the weather. Demand for a product is affected by the level of income of consumers, the strength of the general economy, the supply of competing products, and by changing tastes and eating habits. Costs of production are another source of price risk. While input prices do not usually change suddenly, they generally increase steadily year to year. Some inputs, such as petrol and diesel, are subject to sudden price increases.

**Financial risk.** Financial risk occurs when farmers borrow money to cover their farm and family needs. Risk may be caused by uncertainty about the interest rates lenders charge and their willingness to continue lending. On the other end, financial risk is affected by the ability of the farm to generate the cash flows necessary for debt payments.

**Institutional risk.** Institutions include organizations and businesses on which farmers rely for inputs, markets, information or finance. Unpredictable changes in the provision of services, such as the supply of credit, purchased inputs and information from traditional and modern institutions, are also risks faced by farmers.

**Human or personal risk.** Human risk refers to problems of human health and personal relationships that affect the farm business. Illness and death threaten to disrupt farm performance through loss of labour or reduced productivity of labour. Labour migration to towns and cities reduces availability of labour to farms.

*Risk, vulnerability and sustainability (continued)*

Production, marketing, financial, institutional and personal risks exist on most farms and are often interrelated. The ability to repay debts depends on production levels and prices received for produce sold. Financing of production depends on the ability to borrow capital and the performance of the institution to supply capital in time. The different types of risk often need to be considered together.

**Vulnerability and the effect of risk**

The real danger of risk is found in the degree of vulnerability of the farm and its resources. Vulnerability can be defined as the ability to recover from a stress or a shock.

Stresses erode the productivity or value of capital. For example, if farmers do not manage their soil well, they may lose topsoil, which reduces the land's productivity. Poor health of the farmer's family reduces their labour productivity. Poorly maintained roads become rutted and damage produce as it is transported to market. Poorly kept livestock fetch lower prices. Shocks cause the sudden loss of a resource. For example, a flood may wipe out a farm. Animals that are not treated for pests may die. Equipment that is not cared for properly may break beyond repair.

Part of coping with risk is reducing vulnerability. The less vulnerable the resources, the more sustainable the farm. High vulnerability leads to greater negative affect of risk. The vulnerability of the family's livelihood often makes it difficult to cope with risks, making the family less able to control or influence their environment to reduce or recover from stresses and shocks. As a result, they become even more vulnerable to risk.

*Risk, vulnerability and sustainability (continued)*

Risks influence the amount and costs of inputs farmers use. These risks also affect crop yields and product prices. As a result, farm profits are always uncertain. But not all of these factors have the same effect on farm profits. As a result of vulnerability to risk, farmers often trade-off between maximizing profits and minimizing risks.

**Risk-reducing strategies**

The way farmers deal with risk depends on their personalities, their family situations and the extent to which they wish to gamble. No two farm families are the same. Some farmers like to take more risk than others. Decisions also depend on the situation of the farmer. For example, does the farmer have savings to make sure that the family will not go hungry if the crop fails? Are there money reserves that allow farmers to repay loans? Generally, the higher the demands on the family for cash, the less likely will the family be able to absorb risk. The family is more vulnerable.

A number of common risk-reducing strategies are listed below, although many farmers may simply see them as good farm management. They are:

***Choosing low risk enterprises.*** Based on their knowledge and experience, farmers may select enterprises or crop varieties that are usually reliable in preference to enterprises that result in variable yields between one year and the next. Low risk enterprises often give lower, but more predictable incomes.

***Diversification: growing many things.*** Farmers may diversify their farms to reduce risk. Diversifying means producing more than one enterprise together on the farm. This can be done by producing more than one or two different crops or combining them with livestock.



*Risk, vulnerability and sustainability (continued)*

Diversifying is done with the expectation that all enterprises will not fail together. If one crop does not do well, the farmer has other crops on which to rely. This way, the farmer's income is not totally dependent on a single enterprise. If one enterprise fails, the income from the other enterprises is expected to be sufficient to keep going. Intercropping is a common form of diversification. However, the benefit of diversification is often offset by increased costs. The second enterprise may make very little money. The income farmers make from the two crops may not be as high as if they specialized in growing just one crop.

***Growing crops on different land parcels or plots.*** Farmers also rotate crops to protect their soils and stop diseases building up. This reduces costs and increases yields. Growing crops in different locations on the farm reduces the impact of localized disease and microclimatic factors. But in order to increase the scale of their crop production, farmers must cultivate over a wide area, which costs more money. Again the protection from risk needs to be weighed against the reduced income.

***Growing crops at different times.*** Staggered planting of the same crop can be used to ensure an even supply of food over as long a period as possible. Staggered planting can help cope with uncertain rainfall. Earlier planted crops may suffer, but later planted crops may still do well because the rains come at a better time for them.

***Selecting and changing production practices.*** Farmers can spread risk by using different production programmes. Some farmers may buy inputs that control diseases or pests, or support animal health. These inputs reduce the chances of low yields. For example, drought-resistant seed varieties reduce the likelihood of crop failure when low rainfall occurs. Farmers may use pesticides and fungicides to reduce the risk of low yields. However, because profits

*Risk, vulnerability and sustainability (continued)*

are also affected by the prices of inputs, using costly inputs could increase the risk of income shortfall; more stable yields from using costly inputs may not lead to a more stable income. Farmers may use low cost, conservation practices, such as composting and mulching, as a way to manage risks and reduce the amount and cost of purchased inputs.

Determining whether or not an input reduces risk depends on the type of risks that the farmer is trying to address. The added cost of doing this has to be compared against what could happen if they did not.

***Maintaining flexibility.*** Flexibility of the farming system allows farmers to shift from one cropping pattern to another without a negative effect on farm profitability. Farmers may change the area of land planted or the number of livestock kept if, for example, market prices change markedly. To avoid risking expenditure on inputs, a farmer may decide not to plant when rainfall is low. Intensive small stock farmers raising pigs or poultry might vary the use of their housing in response to price changes. If farmers believe prices will be good, they may increase production by intensifying the use of the facilities. If they believe prices will be low, they may try to increase efficiency and cut costs. However, the costs associated with maintaining flexibility are often higher than farmers are willing to pay.

***Maintaining reserves.*** Reserves are a quantity of something stored for the future or for possible emergencies. They can be kept by farmers in the form of money, physical inputs, final products and food. Keeping reserves of inputs and products could protect farmers from the risk of price changes. Food reserves also provide some security against the risk of crop failure.

*Risk, vulnerability and sustainability (continued)*

**Spreading crop and livestock sales.** Spreading sales means making several sales of a product during a year and can be used to reduce risk. Farmers with marketing flexibility can spread cash sales and obtain a price similar to the seasonal average price. This method of selling enables a farmer to avoid selling all production at the lowest price in the market.

**Partial processing.** Drying perishable products, such as vegetables, fruits and meats, can also be used as a strategy to reduce risk. Dried foods can be sold or used at times when the particular food item is out of season or in short supply. This strategy can be used together with spreading sales and maintaining reserves.

**Traditional institutions and social arrangements.** The customs and organization of traditional society tend to provide the individual family with a measure of security against risk. As part of a survival strategy, the close bonds between community members has resulted in mutual assistance and self-help when required. This may relieve the situation in cases of sickness, injury or death to an individual member, although it is less effective in situations where risk affects the entire community as a whole.

**Maintaining resources.** One of the key strategies to reduce the effect of risk is to maintain the farm's resources. Proper care of land, infrastructure and equipment; keeping labour healthy and well-trained; wise investment of cash; prompt repayment of debt and being trustworthy in all their dealings — all of these will help to reduce the vulnerability of a farmer's natural, human, physical, financial and social capital from the affects of risk.

*Risk, vulnerability and sustainability (continued)***Sustainability**

Sustainability is, in a sense, a balance between risk and vulnerability. As stated earlier, the more vulnerable a farm is, the less sustainable it is. In terms of farm management, it is useful to assess sustainability in terms of the vulnerability of the farm's resources. Such an assessment can be made in terms of the following basic factors:

- availability
- accessibility
- affordability
- appropriateness
- reliability (trustworthiness)

**Availability.** A resource is considered available when it is in regular supply. In some African countries, there is a shortage of land. In other countries labour is in short supply. If farm profits are dependent on a resource that is in short supply, the farm is vulnerable and therefore less sustainable.

**Accessibility.** A resource is considered accessible when it is available and within reach of the farmer. In many African countries, land is accessible only to men, not women. Markets often require membership, and membership is exclusive. Some social capital is accessible only by select members of the community. Similarly, credit may be conditioned upon private ownership of land, making it inaccessible to many smallholder farmers. If a farmer plans a farm around a resource that cannot be readily accessed, then the farm is more vulnerable, making it less sustainable.

**Affordability.** A resource is considered affordable when it is available at a price that allows for profits. Many technologies are not accessible to smallholder farmers because the technologies are available only at high prices.

*Risk, vulnerability and sustainability (continued)*

Sometimes this is a problem of quantities, other times it is a problem of exclusivity. Either way, the most suitable resource in terms of production efficiency may simply cost too much.

**Appropriateness.** Many resources are available and accessible, but not appropriate to the farmer's particular situation. For example, a vegetable farmer looking to hire land needs to make sure that the land is suitable for irrigation. Often, inputs, such as seed and fertilizer, are available only in quantities too large for the farmer to handle. Often equipment choices are limited to those that require large land sizes to make them viable.

Another aspect of appropriateness is social or cultural acceptability. In many African cultures, pork is taboo. Thus, even if it is a profitable enterprise, it may be inappropriate.

As with the other factors, when the profitability of a farm relies on a resource that is inappropriate, the farm is less sustainable.

**Reliability (trustworthiness).** A resource is considered reliable when it produces consistent performance or behaviour. Land that is known to be in good condition is reliable. A supplier that supplies the right inputs at the right time is reliable. Reliability is linked to trustworthiness. Can a farmer trust the supplier to deliver according to his word? Will the equipment or seed variety perform as advertised or promised? Is the market information usually correct?

If a farmer must rely on a resource (particularly a human resource such as labour or supplier) and it is not reliable or trustworthy, the farmer is highly vulnerable and their farm is not sustainable.

*Space for notes  
and questions  
for the facilitator*

## Sustainability analysis

In your farm teams, use the maps and lists you created in Module 2, Sessions 2–3, to review the capital base of your farm. Look at each resource in each capital grouping and discuss the sustainability of the resource. Sustainability is really an assessment of risk. The only difference is that, in addition to looking at what is uncertain, it also looks at what is known about the stresses and shocks to the farming resources. Use the information provided below to begin your assessment.

*Sustainability can be assessed  
by considering the following questions*

### **Production and technical risks (natural capital; physical capital)**

- \_\_\_ What do you know about the weather, soils, pests and diseases that might negatively affect your crops? Are there times of the year when rainfall is short or when certain diseases occur?
- \_\_\_ Are you using a new technology that you are uncertain about?
- \_\_\_ What is the condition of your land? Is it getting better or getting worse?
- \_\_\_ What is the condition of your buildings and equipment? Is it getting better or getting worse?
- \_\_\_ How does the condition of roads, communications and other infrastructure affect access to or use of the resource?
- \_\_\_ How does the transport system in your area/region affect input supply, access to markets, access to lands?

*Sustainability analysis (continued)***Marketing or price risk** (financial capital)

- \_\_\_ How reliable are your markets? Have they been stable or are they changing (positively or negatively)?
- \_\_\_ How stable have prices been over the last few years?
- \_\_\_ Have they been stable or are they changing (positively or negatively)?

**Financial risk** (financial capital)

- \_\_\_ How have interest rates changed in the last few years?
- \_\_\_ What is your relationship with the moneylenders you use?
- \_\_\_ How reliable are these moneylenders?

**Institutional risk** (social capital)

- \_\_\_ How reliable are your suppliers of inputs and information (e.g. seed, fertilizer, credit, traction)?
- \_\_\_ How effective is the social capital system in your community for shared inputs (labour, land, inputs)?

**Human or personal risk** (human capital)

- \_\_\_ What is the health status of your labour supply (i.e. incidence of AIDS, malaria)?
- \_\_\_ How reliable is your hired labour supply? Is it affected by migrations or other factors?
- \_\_\_ How effective is the social capital system in your community for shared labour?

An example of a sustainability analysis is provided on the following pages. A worksheet for recording a sustainability analysis is provided in Handout 3.4C.



*Sustainability analysis (continued)*

Note: the example here is based on the unpacking of the Thebete household.

Sustainability table

Capital	Sustainability (e.g. limiting factors)
<p style="text-align: center;"><i>Natural</i></p> <ul style="list-style-type: none"> <li>• 1 field</li> <li>• Usually millet and groundnuts</li> <li>• Access to stream</li> <li>• Access to a variety of common natural resources; thatch, herbs, weaving grass, building materials</li> </ul>	<p>Drought last year; planted only millet. Ate next year's groundnut seed (cannot plant this year). Weeds limited millet harvest</p> <p>Usually dry May – Nov</p>
<p style="text-align: center;"><i>Human</i></p> <ul style="list-style-type: none"> <li>• Own labour in fields</li> <li>• Knowledge of which crops to grow under different conditions</li> <li>• Natural resource management</li> <li>• Weaving skills</li> <li>• Physically strong (carrying and building)</li> <li>• Children help with selling</li> </ul>	<p>FFW* takes time May use FFW as backup instead of NRM** strategy to cope with drought</p> <p>Dependency</p>

\* FFW: Food for work

\*\* NRM: Natural Resource and Environmental Management



*Sustainability analysis (continued)*

Sustainability table

Capital	Sustainability (e.g. limiting factors)
<p style="text-align: center;"><i>Physical – Own</i></p> <ul style="list-style-type: none"> <li>• 1 goat</li> <li>• A few chickens</li> <li>• 1 hoe</li> <li>• Household stock</li> </ul> <p style="text-align: center;"><i>Physical – Community</i></p> <ul style="list-style-type: none"> <li>• Rural roads to enable marketing of surplus crop</li> <li>• Church</li> <li>• Primary school</li> <li>• Clinic</li> <li>• 2 boreholes (working)</li> <li>• 1 hand-dug well (working)</li> <li>• 2 other wells (dry)</li> </ul>	<p>Sold cow to feed family</p>
<p style="text-align: center;"><i>Financial – Own</i></p> <ul style="list-style-type: none"> <li>• Income from wild fruit</li> <li>• Income from basket weaving</li> </ul>	<p>Prices low; over supply</p>
<p style="text-align: center;"><i>Social</i></p> <ul style="list-style-type: none"> <li>• FFW safety net</li> <li>• Wild fruit</li> <li>• Tenure security, which enabled her to retain her land after husband's death</li> </ul>	<p>Dependency</p>

## Worksheet — Recording sustainability analysis

Capital	Sustainability (e.g. limiting factors)
<i>Natural</i>	
<i>Human</i>	

*Worksheet – Recording sustainability analysis (continued)*

<b>Capital</b>	<b>Sustainability (e.g. limiting factors)</b>
<i>Physical</i>	
<i>Financial</i>	



## Information and farm management

*This session explores the role of information in farm management decision-making. It also explores the role of the extension worker in supporting farmers in locating and using information.*

---

### *Opening statement*

*Farmers require timely and appropriate information at every stage in the farm management decision-making process. Let us begin this session by reviewing Handout 3.5A (Information and farm management).*

---

*The outline on the following pages is provided to help the facilitator conduct the review.*

### Outline of Handout 3.5A (Information and farm management)

#### Farmer decision-making

- Farming is essentially about making decisions.
- To make profitable decisions, farmers need data and information.
- Extension workers need to be good at communicating with farmers and passing on new knowledge and skills.
- Extension workers need to have knowledge of sources of information and be able to obtain it quickly.
- Farmers make a range of decisions about inputs, production and markets.



#### For inputs, farmers need to know

- Who are the reliable suppliers?
- Where can they obtain credit?
- What is a fair interest rate for loans?
- What inputs are available/which are the most appropriate inputs?
- What prices will ensure profit/how will prices affect profit?

#### For production, farmers need to know

- What resources do they have available/what is their condition?
- What crops/enterprises are best suited to their resources?
- What skills are needed for each enterprise?
- What inputs and labour are required for each enterprise?
- What technologies are most appropriate for their resources?

**For markets, farmers need to know**

- What markets exist?
- Where can they sell their products?
- What are the quality requirements?
- What are the packaging and related requirements?
- How can they get their products to the various markets?  
What will this cost?
- What prices can they expect for their products?
- How will prices affect profits?

These questions represent a great deal of data and information. Good farm management depends on good, reliable and relevant information.

**Extension workers:**

- Need to be good at communicating with farmers and passing on new knowledge and skills.
- Must have knowledge of sources of data and information and be able to obtain it quickly.
- Must have the ability to assess the value and relevance of bits of information in solving particular problems in the local situation.
- Must know the difference between data and information.

**The difference between data and information**

- "Data" refers to the raw numbers and facts such as prices, costs, quantities.
- "Information" is data that is processed in a way that is useful for decision-making.

### **The relationship between data, information and decision-making**

- Data is useful only when it has been processed into information.
- Data must be processed in a way that will make it relevant to the farmers' individual situations.
- It is one of the tasks of the extension worker to turn data into such information. Some guidelines to help with this are:
  - The combining and interpretation of the data needs to match the issues of real concern to the farmers (these may differ for different groups of farmers).
  - The level of detail needs to match the educational level and literacy of the farmer.
  - The use of definitions of terms and methods of presentation must make sense to the farmer's numeric background and technical knowledge.
  - The level of complexity of the message must be suited to the farmer and the farming system.
  - Graphics and other visual diagrams will be particularly useful in focusing the farmer's interest and aiding understanding.

### **Data and information sources**

Farmers and extension workers can obtain data in two ways:

- They individually or together collect data first hand (also called primary data).
- They can use data collected by someone else.

#### **Sources of first-hand data**

- farmers;
- farmer records;
- community, group, church/religious leaders;
- government officials, including extension staff;
- remote sensing and computer terminals;
- weather stations and laboratories.



Sources of data collected by others (secondary data)

- lending institutions;
- veterinary and fishery institutions;
- publications and journals;
- television and radio programmes;
- development projects;
- NGOs (non-governmental organizations);
- agricultural input dealers;
- national statistics.

### **Extension worker's role in data and information**

As farmers become more market-oriented, extension workers must also become more market-oriented. Their role includes:

- gathering data and information on their own;
- working with farmers to gather data;
- working with farmers to process data into useful information;
- helping/training farmers in data gathering and processing skills.

Extension workers need to be familiar with how farmers obtain data and information so that they will be better able to facilitate the process. Special care must be taken to ensure that data and information is not only about production; input and market information is just as vital to the profitability of the farm.

***Exercise introduction***

*When farmers begin to look for information or data, they should first understand what they need to know. Searching for information must answer a question. In order to find the 'right' answer, they must ask the 'right' question. Exercise 3.5A (Information flow) will help you to identify some of these questions.*

## Exercise 3.5A

### Information flow

**Purpose:** To explore the flow of information based on the different uses. (Participants should have read Handout 3.5A prior to this exercise.)

**Method:** Group discussion, diagramming.

**Materials:** (i) Handouts 3.5B (Diagram – Information flow map), (ii) flip chart paper or newsprint, (iii) thick marking pens, (iv) strips of paper, each with one of the following words: environment, production, technology, labour, finance, market, input supply.

*Allow 50 minutes for this exercise*

### Procedure

#### Part one

1. Organize the participants into their farm teams. Give each team 3–4 sheets of flip chart paper.
2. Using the information from Module 1 Session 4 and what has been learned so far, the participants should discuss the information flow as they pertain to their farm teams. Where can they get data and information about: production, environment, technology, finances, inputs, markets and labour?

Illustrate the table below to assist them, indicating the type of information needed, the source of information and its flow.

Type of information	Source of information	Location	Flow of information	Reliability (high, moderate, low)

Production information started with a researcher, which may be communicated to the extension worker and then onto a group of farmers.

*Exercise 3.5A (continued)*

In another case, market information may start with farmers, be communicated to a different group of farmers, then to an extension worker and back to another group of farmers. The final column should provide an indication of the reliability of the information received.

3. The groups should proceed to draw an information flow map. See example in Handout 3.5B. The information map should indicate where the farm/farmer gets information, location and type of information received. Different thickness of arrows can be used to indicate the sustainability (reliability, appropriateness, etc.) of the source information.
4. Ask each team to share its flow map. Encourage discussion about where and what type of information is most commonly received by the farm/farmer.

**Part two**

*Allow 20 minutes for this*

5. Give each team a strip of paper with one of the following titles: environment, market, production, technology, finances, inputs and labour. Distribute one sheet of paper to each of the groups. One group, for example, will receive a sheet of paper with production given as a heading. Each team should then select a single enterprise from their virtual farms. Using their assigned area of information they should agree on a question that they would like to answer and for which they will need information (e.g. for 'environment' a question might be: what technology is most environmentally appropriate for my farm?).
6. Using the results from part one (i.e. information flow), make a mind map of the information they would need and the source of that information to answer their question.

*Exercise 3.5A (continued)*

7. When the mind maps are done, ask each team to present and explain their mind maps. As the teams present, encourage discussion from the rest of the participants.

Possible discussion questions:

- What type of activities on the farm are affected or impacted by the information?
- What is the effect of lack of information on the enterprises?

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**Learning points**

- Information requirements change depending on the question being asked.
  - The same data may be used to answer different questions, thus it is important that farmers know clearly the questions that they want to answer.
  - The extension worker needs to carefully assess how to support and assist the farmer in making decisions about inputs, equipment and markets.
- 

*Keep these mind maps.  
They will be needed in Session 4.9*



*Space for notes  
and questions  
for the facilitator*

## Information and farm management

### Farmer decision-making

Farmers are constantly making decisions. They make decisions about their farm resources. They make decisions about what to produce, how to produce, how much to produce, and where and when to sell.

Farmers require timely and appropriate information at every stage in the farm management decision-making process. Information is needed to diagnose the farm, to set objectives, to plan, implement and control farm activities, and to make more efficient use of their limited resources.

Information is also needed to allow the farmer to monitor and evaluate the performance of the farm. The better skilled farmers are at using data and information, the better will be their farm decisions.

In addition to being able to access and interpret data and information and to communicate this with farmers, extension workers will also need to be skilled in helping farmers develop these skills as well. Assisting farmers to obtain information to make input, production and marketing decisions is an important part of an extension worker's work. It is not sufficient to provide information on production only; input and market information is just as vital to the profitability of the farm.

*Information and farm management (continued)*

Therefore, as farmers become more market-oriented, extension workers must also become more market-oriented. If farmers cannot sell what they produce, then much of the extension advice on production techniques will have been wasted.

Further, farmers' circumstances are not static. There are often changes occurring that influence the farming operations. Changes in prices of products might lead to changes in the combination of enterprises, in the pattern of resource use or in management practices. Therefore, whenever there is a change in the circumstances of a farmer, it may be necessary for the extension worker to review the suitability of recommended technologies and new enterprises. Staying on top of these changes requires a good command of relevant data and information.

Clearly, extension workers have an important role in the process of information gathering, interpretation and dissemination. They can be a vital conduit, feeding information to the farmer and the rural community.

In brief, farmers make a range of decisions within the full decision-making boundaries of their farms. They make decisions about inputs, production and markets.

INPUTS → PRODUCTION → MARKETS



*Information and farm management (continued)*

For inputs, farmers need to know:

- Who are the reliable suppliers?
- Where can they obtain credit?
- What is a fair interest rate for credit?
- What inputs are available/which are the most appropriate inputs?
- What prices will ensure profits/how will prices affect profit?

For production, farmers need to know:

- What resources do they have available?  
What is their condition?
- What crops/enterprises are best suited to their resources?
- What skills are needed for each enterprise?
- What inputs and labour are required for each enterprise?
- What technologies are most appropriate for their resources?

For markets, farmers need to know:

- What markets exist?
- Where can they sell their products?
- What are the quality requirements?
- What are the packaging and related requirements?
- How can they get their products to the various markets?  
What will this cost?
- What prices can they expect for their products?
- How will prices affect profits?

*Information and farm management (continued)*

Each of these questions represents a great deal of data and information. Good farm management depends on good, reliable and relevant information.

Extension workers need to be good at communicating with farmers and passing on new knowledge and skills. In order to be effective as agents of information exchange, they have to have knowledge of sources of data and information and be able to obtain it quickly for many of the problems that the farmer faces. Sources could include: the experience of good farmers, the extension service itself, private companies, research workers, up-to-date reference books, libraries, friends, teachers, agents selling equipment and inputs, transport companies, traders, wholesalers and retailers.

An important skill is the ability to assess the value and relevance of bits of information in solving particular problems in the local situation. It is also important to know the difference between data and information.

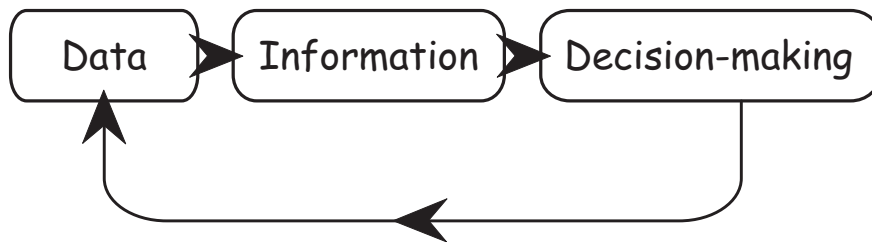
**What is the difference between data and information?**

"Data" refers to the raw numbers and facts such as prices, costs, quantities. "Information" is data that is processed in a way that is useful for decision-making.

Information increases farmer's knowledge, which leads to improved decision-making and thereby results in higher income and livelihood outcomes. Access to appropriate information empowers farmers and assists them in their efforts to become more food secure and more profitable.

*Information and farm management (continued)*

The relationship between data, information and decision-making is shown below.



*Data can be categorized into different types, all of which should facilitate the decision-making process. They are summarized as follows:*

Categories	Specific data
Technical and physical	<p><b>Soil characteristics:</b> soil type, soil texture, soil analysis data, etc.</p> <p><b>Weather:</b> rainfall, humidity, temperature, storms, drought</p> <p><b>Land characteristics:</b> slope, topography, elevation, carrying capacity, etc.</p> <p><b>Production:</b> yields per unit of land, yield per unit of labour</p> <p><b>Production technology:</b> fertilizer, disease control, seed variety, harvest and post-harvest technologies, etc.</p> <p><b>Labour:</b> source of labour, seasonal labour distribution, gender, etc.</p>
Economic	<p><b>Prices:</b> prices of inputs and products</p> <p><b>Buyers:</b> prices, quality requirements, terms of payment, etc.</p> <p><b>Supply and demand:</b> conditions</p> <p><b>Sources of credit:</b> conditions, terms of payment, interest rates, etc.</p>
Social	<p><b>Community culture:</b> customs beliefs and traditions</p> <p><b>Community organization:</b> farmer associations, cooperatives, civic groups, religious groups, etc.</p>
Institutional	<p><b>Support services:</b> extension, research, banking, etc.</p> <p><b>Private organizations:</b> NGOs and other private organizations</p> <p><b>Government organizations:</b> International (e.g. UN), regional, national, provincial, local</p>
Political	<p><b>Government:</b> policies and priorities</p>

*Information and farm management (continued)*

Data is useful only when it has been processed into information. And farmers need information that will help them make decisions about their farms. Therefore, data must be processed in a way that will make it relevant to the farmers' individual situations. It is one of the tasks of the extension worker to turn data into such information.

The following guidelines will help extension workers change data into appropriate information:

1. The combining and interpretation of the data need to match the issues of real concern to the farmers (these may differ for different groups of farmers).
2. The level of detail needs to match the educational level and literacy of the farmer.
3. Use definitions of terms and methods of presentation that make sense to the farmer's numeric background and technical knowledge.
4. The level of complexity of the message must be suited to the farmer and the farming system.
5. Graphics and other visual diagrams will be particularly useful in focusing the farmer's interest and aiding understanding.

**Data and information sources**

Farmers and extension workers can obtain data in two ways:

- They individually or together collect data first hand.
- They can use data collected by someone else.

*Information and farm management (continued)*

**Data collected first-hand.** This is also called primary data. Primary data is the data an extension worker and farmer collects either independently or together. The data is collected directly from respondent(s). The following table gives some examples of data that can be collected first-hand.

Source	Type of data collected
<b>Farmers</b>  Semi-structured interviews, questionnaires, direct observation, case studies, etc.	Data on farm inputs, farmgate prices, yields, etc.
<b>Farmer records</b>  Examination of farm records	Historical production and marketing information including crop yields, livestock production and cost (Note: Production records might show how successful the farmer was at managing the farm in the past. The combination of historical results and the risk preferences of the farmer is useful in the planning process as well as to identify possible risk management strategies for the future.)
<b>Community, group, church/religious leaders</b>  Key informant interviews, semi-structured interviews	Information about members of the community or population under study to identify lead farmers with whom the extension workers can work  Information about the status of social capital arrangements
<b>Government officials, including extension staff</b>  Key informant interviews, semi-structured interviews; review of government documents	Information relating to land holdings, the farmers benefiting from government programmes or involved in trials and demonstrations, etc.  Information about farmer-led initiatives, farmer responses to technologies and about government initiatives (e.g. infrastructure development) that may impact on farmers' decisions
<b>Remote sensing and computer terminals</b>  Direct reading from instruments	Technical data relevant to agriculture
<b>Weather stations and laboratories</b>  Review of published data; direct readings	Rainfall, soils, vegetation, etc.

*Information and farm management (continued)*

**Data collected by others.** Data used by a farmer or extension worker, which has been collected by others is usually called secondary data. The data could have been collected for some other purpose different from that of the farmers or extension worker, but it can still be very useful. There are a number of these sources available to farmers and extension workers.

Source	Type of data collected
Lending institutions	Data on lending for agricultural enterprises and ventures
Veterinary and fishery institutions	Data on livestock numbers and fish population stocking rates. This data is often useful when planning grazing schemes or fish farming enterprises
Publications and journals	Any issue related to farm management
Television and radio programmes	Data is provided on a regular basis particularly on market prices of major agricultural commodities
Development projects	Baseline surveys and evaluations
NGOs (non-governmental organizations)	Wide range of issues, depending on their particular areas of focus
Agricultural input dealers	Product specifications, performance, prices, availability, etc.
National statistics	Historical yield and price information (Note: national data is often an average of the information collected from many farms and as such it does not tell the farmers exactly what they can get. Comparing historical farm yields to that of similar farms in the same area is an additional source of information on how farmers can improve farm performance.)

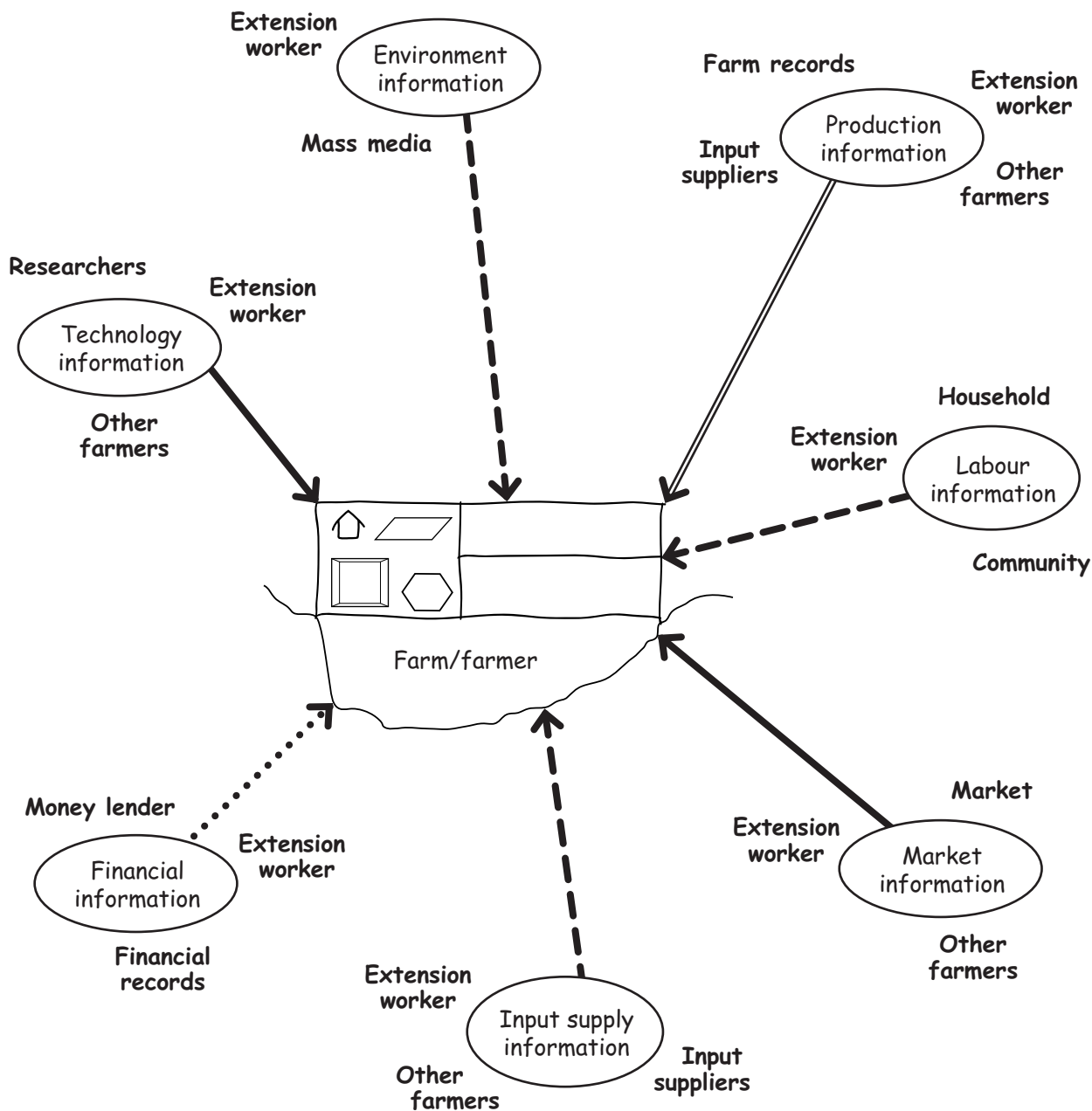
*Information and farm management (continued)***Summary of an extension worker's role  
in data and information**

As noted earlier, as farmers become more market-oriented, extension workers must also become more market-oriented. Gathering data and information on their own, working with farmers to gather data, working with farmers to process data into useful information, and helping/training farmers in data gathering and processing skills are all important parts of an extension worker's work.

Most farmers tend to develop information from processing data gathered from their own experience. They may gather production data from their own farms or from other farmers. Market data often comes from contact with traders (buyers). Input data comes from contact with suppliers. When the extension workers are familiar with how farmers in their area currently obtain data and information, they will be better able to facilitate the process.

Special care must be taken to ensure that data and information is not only about production; input and market information is just as vital to the profitability of the farm.

Diagram — Information flow map



Key

→	Available, stable reliable	.....→	Short supply, unstable
- - - - ->	Available, declining reliability	====>	Oversupply, untrustworthy



## Review of Module 3

*In this segment the participants have explored the critical role of the farmer as a decision-maker for each of the five types of "capitals" used in farm management. (This review also includes an exercise.)*

*The facilitator may handle the exercise in one of two ways. If time permits and the participants are not too tired, then the exercise can be done in the classroom. Otherwise, if it fits into the timing well, it can be given as an overnight assignment and the participants can report in the morning. (The facilitator can then continue with the review outline following the exercise.)*

### Review exercise 3

## Farm management decision-making

**Purpose:** To ensure that the learning outcomes have been attained.

**Method:** Group discussion, mind mapping.

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

*Allow 90 minutes for this exercise*

### Procedure

1. Randomly divide the participants into five teams. Give each team two sheets of flip chart paper and a set of marking pens.
2. Assign each group one of the sessions to work on: Group 1—Session 1, Group 2—Session 2, etc.

3. Each group is to work on two tasks:

Task 1: Develop a mind map of the main learning points as they relate to the learning outcomes. (Draw this on the flip chart paper).

Task 2: Draw a picture that can be used to tell farmers about the points raised in the mind map developed in Task 1. The picture should be farming related. It is not a diagram, but a picture of a farm or market, etc.

4. When each group has completed their mind map and picture, ask them to present them to the rest of the participants. Encourage discussion and guide the discussion where necessary to ensure the 'correct' learning has taken place. The learning outcomes and key learning points for each session are set out below.

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

### **Session 3.1**

#### **The farmer and decision-making**

*Purpose of this session:*  
*To explore the concept and dynamics of decision-making.*

#### **Learning outcomes**

Understanding (i) farm/family goals,  
(ii) the farmer as manager,  
(iii) the farm management decision-making process,  
(iv) the different roles of family members in farm management decision-making.

### **Session 3.2**

#### **Resources and farm management**

*Purpose of this session:*  
*To explore the utilization of farm and household resources.*

#### **Learning outcomes**

Understanding (i) the importance of maintaining the value and productive power of resources,  
(ii) the role of farm management in sustainable use of resources.

### **Session 3.3**

#### **Inputs, markets and farm management**

*Purpose of this session:*  
*To review the kinds of decisions required concerning inputs brought onto the farm and about the marketing environment.*

#### **Learning outcomes**

Understanding (i) the range of decisions farmers make about inputs, equipment and markets, (ii) the role of the extension worker in supporting the farmer in making decisions about inputs, equipment and markets.

### **Session 3.4**

#### **Risk, vulnerability and sustainability**

*Purpose of this session:*

*To weigh the costs and benefits of various risk-reducing strategies.*

#### **Learning outcomes**

Understanding (i) the concept and different types of risk,  
(ii) farm-family strategies to cope with risk,  
(iii) the concepts of vulnerability and sustainability.

### **Session 3.5**

#### **Information and farm management**

*Purpose of this session:*

*To explore the value and importance of information for farm management.*

#### **Learning outcomes**

Understanding (i) the role of information in farm management,  
(ii) the difference between data and information,  
(iii) sources of data and information,  
(iv) the role of the extension worker with farm management information.

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#### ***Closing questions***

*Ask the participants if they believe that the overall purpose of the module has been achieved and if they have improved their understanding of (i) the farmer/farm family goals (ii) the farmer decision-making process (iii) farm management and marketing decisions (iv) risk management practices and sustainability and (v) information requirements for better decision-making.*

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**A farmer must make many short- and long-term decisions about inputs, production and marketing. In Module 3 we shall explore the range of decisions to be made, who makes them and what information is needed to make good farm management decisions.**