

Module3: FARM MANAGEMENT AND DECISION-MAKING

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Introduction

In this module the concept of farm management will be introduced. Farm management decisions will be covered relating to the five capitals, inputs and marketing. The concept of risk will be introduced as the importance of data and information in management decisions.

Session 3.1

The farmer and decision-making

Learning outcomes:

- Understand the farm/family goals
- Understand the farmer as manager
- Understand the farm management decision-making process
- Understand the different roles family members play in the decision-making process

The farmer and decision-making

In this session you will learn to realistically visualize the decision-making boundaries of a farm.

The physical decision-making boundaries and how they extend to the farm household will be explored.

You will also cover the decisions that have to be made, who will make them and when.

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 a farmer is aware of the decision-making processes that affect farm and household, the more sustainable the enterprise will be and the more likely it will be profitable and sustainable.

The farmer and decision-making

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.

The farmer and decision-making

Two of the main features for understanding economic decision-making are;

- (i) the way farm boundaries are determined
- (ii) the ultimate social objectives for which farm goods are produced.

In this training programme we refer to the farm boundaries as 'decision-making boundaries'.

The production decision-making boundaries

We generally first think of a farm in terms of its physical enterprise boundaries; land, crops, livestock, fences etc.

Many of you are trained only in decision-making about production.

The production decision-making boundaries are just the beginning of the decision-making boundaries of the farm.

The production decision- making boundaries

Production decisions depend on a number of factors that fall outside the physical/ production area of the farm.

One of these factors is the farm family/household.

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.

Farm and family household decision-making boundaries

More and more, families require cash for things like school fees, medicines, transports, etc.

It is useful for anyone working with a farming family to understand the dynamics of the farm household and the relative decisions.

Farm and family household decision-making boundaries

Farm boundaries are determined by family structure.

There may be a family farm under the head of household, but the farm may have various sub-units 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.

Farm and family household decision-making boundaries

Traditionally men are heads of households, but there are now many variations.

Even within a clearly established arrangement, different members of the family make different decisions for the family at different times of the year.

Farm and family household decision-making boundaries

For each specific farm, you will need to identify not only the physical boundaries of a farm, but 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.

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.

Social and economic production goals

In many countries, even though the profit maximization objective is of greater 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.

Social and economic production goals

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.

Social and economic production goals

Market-orientated 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.

Short-term versus long-term view

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 for the future.

The farmer as a manager

Any farmer has two main jobs;

- (i) To take care of plants and livestock in order to get useful products
- (ii) To manage the farm; that is, making decisions about how to use the farm's resources.

The farmer as a manager

Decisions require making choices between alternatives.

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-orientated, the farmer will need to improve planning and decision-making skills.

The farmer as a manager

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.
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Key aspects of decision-making

In order to make fundamental decisions farmers need to develop understanding and skills in four broad decision areas:

Diagnosis

Planning

Implementing

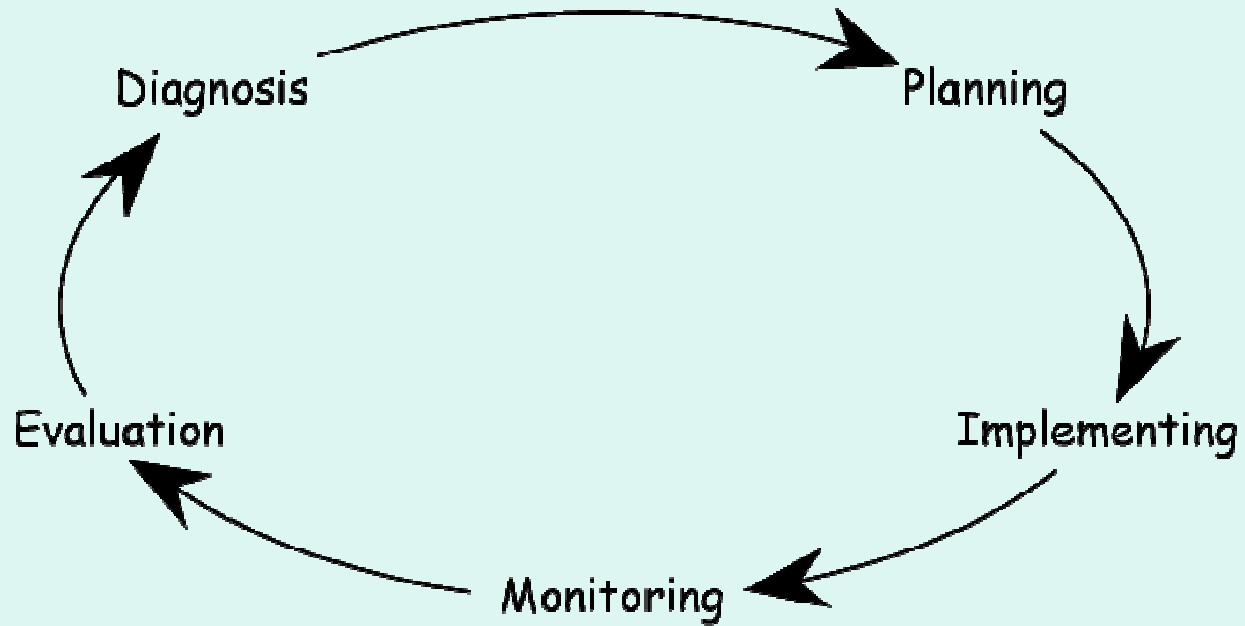
Monitoring & Evaluation

Key aspects of decision-making

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.

The four areas flow in a pattern which supports continuous learning processes about what works best for the farmer and the farm family.

Key aspects of decision-making



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 produced over several seasons.

Diagnosis

Just like a doctor with a patient, a diagnosis will give the farmer important clues about the 'health' of the farm.

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?

Planning

Once diagnosis is complete, planning can begin; decisions about what, how and how much to produce.

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.

The plan will also 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.

Things may not always work according to plan; less rainfall than expected, the price of a crop changes etc.

During implementation, plans may need to be adjusted to accommodate such changes.

Monitoring & Evaluation

Monitoring means keeping track of what is happening on the farm and the plan is a guide for monitoring.

Monitoring provides the farmer with the information needed to evaluate the success of the plan.

Monitoring & Evaluation

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.

Key aspects of decision-making

Farmers that follow these decision-making steps will have a very powerful process in their hands.

Just like a doctor, they will be able to know the 'health' of their farm business.

If the farm is healthy the farmer will know what to do again, if the farm has problems, the farmer will possibly know why and what to do about it.

Key aspects of decision-making

Such a process will increase the sustainability of the farm.

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 farm management.

Men and women in farm management decision-making

Market-oriented farm management should not, in principle, be affected by gender.

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.

Session 3.2

Resources and farm management

Learning outcomes:

- Understand the importance of maintaining value and productive power of resources
- Understand the role of farm management in the sustainable use of resources

Resources and farm management

In this session you will cover in detail the kind of decisions required which affect the use and allocation of the five capitals used by farmers.

Resources and farm management

Each decision has an impact on the farm and on the farm household.

Farmer awareness of the range of decisions and factors affecting those decisions, the better the decisions will be, the more sustainable and profitable the farm will be.

Resources and farm management

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

What to produce?

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 and when?

Where and to whom to sell and at what prices?

Resources and farm management

Underpinning all these decisions are the resources available to the farmer.

Each decision a farmer makes is essentially about how to utilize farm and household resources.

Resources and farm management

Resources or capital are categorized into five types:

Natural capital

Human capital

Physical capital

Financial capital

Social capital

Resources and farm management

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 which may completely deplete or remove the resource.

Resources and farm management

Farmers have two areas of concern:

1. Productivity of resources.
2. Profits.

To achieve both objectives, farmers will need to consider very carefully decisions about resource utilization.

Resources and farm management

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; good farm management demands sustainable use of resources.

Resources and farm management

Maintaining and improving the value and productive power of farm resources, sustains profits.

Good farm management embraces sustainable agriculture and supports sustained profits from the farm.

Resources and farm management

One of the key decision areas of a good farm manager is maintaining the farm's resources.

Reducing the vulnerability of a farmer's natural, human, physical, financial and social capital will help ensure that they are productive for many years.

Resources and farm management

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 resources 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.

Farm management decisions : 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.

Farm management decisions : natural capital

Natural capital is run down and destroyed by one of two forces:

1. Acts of nature such as droughts, wind and floods
2. Deliberate acts of humans such as over-grazing, harmful production practices.

Farm management decisions – natural capital

Some actions that can be taken by farm managers to enable land remaining productive and to help make sure that common property also remains productive are:

Improved land reclamation

Introduction of soil conservation measures

Development of better integrated on-farm livestock production activities

Farm management decisions – natural capital

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

Farm management decisions: 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, technology choices and how the farm family earns its income.

These decisions represent the way the family sees itself and the way it sees its farm.

Farm management decisions : human capital

With the change in economies in Africa, the availability and the cost of labour are changing and with it farmers now face serious questions.

Farmers 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.

Farm management decisions: human capital

You 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.

Farm management decisions: human capital

Some technical or practical factors that might also be taken into account include:

- (i) Issues of land rights and inheritance
- (ii) Who is allowed to work outside the home
- (iii) The effect of HIV/Aids and other health issues on 'head of household'.

Options for alternative labour sources

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

Changing farm enterprises and combinations

Increasing productivity

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.

Farmers 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 should consider adding or changing crops carefully. This can be a very effective way to increase farm profitability and cope with labour productivity problems.

Some possible changes include:

Intercropping

Introducing a new crop

Increasing productivity

There are a number of ways to increase labour productivity ;

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

Increasing productivity

Good relations means treating labourers justly, paying fair wages and providing good supervision for hired labour.

Increasing productivity

NOTE

Increased productivity based on intensification of cropping techniques together with mechanization often results in increases in labour constraints.

Farm Management decisions; physical and financial capital

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.

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 which might earn a higher rate of return.

Once capital has been invested in durable assets it is committed and flexibility is lost.

Long-term capital decisions in different enterprises

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.

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, capital is lost.

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.

Animals being kept for meat, milk, eggs or other products should be kept fit and healthy, so to produce efficiently. Only in this way can the farmers get high gross margins for their livestock.

Farmers want and need to protect investments. If the animal dies before producing, capital is lost.

Livestock

In cases where farmers cannot afford to raise livestock, they can also hire.

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.

Buildings

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.

There is no use in filling a building with stored produce where it will be losing value; if produce can be sold at a good price, it should be sold.

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 like threshers, mills or oil-presses; adding value to their products before taking them to market.

Heavier power-driven equipment

This includes 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.

Hiring is often cheaper than buying.

Heavier power-driven equipment

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.

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?

Short-term decisions about physical and financial capital

Farms also require short-term decisions which 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?

Short-term decisions about physical and financial capital

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 need to anticipate what long-term effect short-term decisions will have.

Farm management decisions: social capital

Some farm management decisions involving social capital affect the farm directly.

Other farm management decisions involving social capital affect common property, such as in the case of common forests, grazing land and water to which the farm family has access.

Decisions affecting the farm directly

1. What are the sources of crop land 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?

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?

Farm management decisions: social capital

All these decisions have an impact on the farmer's resource base and income.

Farm household decisions are inseparable from the social relations of farming.

Farm management decisions: social capital

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.

Farm management decisions: social capital

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.

Social capital can also promote better use of natural and other resources, if managed correctly.

Farm management decisions: social capital

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

Participatory decision-making in allocation of credit and inputs for farm enterprise development

Farm management decisions: social capital

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 grass roots level:

- Higher productivity
- Reduced costs
- Increased efficiency
- Building of democratic group organization
- Enhanced self-reliance among the poor

Farm management decisions: social capital

The strength of social capital arrangements lies in the processes that they offer and their economic and social benefits.

Session 3.3

Inputs, markets and farm management

Learning outcomes:

Understand the range of decisions farmers make about inputs, equipment and markets

Understand the role of the extension worker in supporting the farmer in making decisions about inputs, equipment and markets

Inputs, markets and farm management

This session provides checklists for you to help farmers make decisions about inputs, equipment and markets. It also helps you identify your role in the farmer's decision-making process.

Decisions about inputs

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.

Decisions about inputs

Inputs can be obtained from a number of sources:

- The farmer 's own farm
- Another farm
- Private suppliers
- Local general dealers
- Farmer 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 there are a number of questions a farmer should ask:

Is it technically effective?

Is it of dependable quality?

Is its price reasonable?

Is it available locally when a farmer needs to use it?

Is it offered for sale in appropriate sizes or amounts?

Qualities of inputs (supplies and equipment)

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?

Qualities of inputs (supplies and equipment)

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?

Qualities of inputs (supplies and equipment)

Price relationships:

A farmer should not buy fertilizer or other inputs just because its price is low.

The inputs must also be effective and of a certain quality.

In all events the farmers must take into account the price, especially the relationship between prices and inputs and the prices the farmer can get for farm products.

Qualities of inputs (supplies and equipment)

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.

Qualities of inputs (supplies and equipment)

Quantity offered for sale:

The size of the containers in which many supplies are offered for sale is also important.

Frequently containers hold more than a small farm needs at any one time and the farmer 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

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.

Maintenance costs money, so as with all farm management decisions, the value of the maintenance must be measured against the income it generates.

Decisions about the market

Decisions about markets are among the most important decisions farmers will make.

They can also be among the most difficult to make because markets generally represent the unknown.

Farmers cannot be certain of the supply of farm products, the demand for certain products and the market prices.

Decisions about the market

Farmers can make decisions which are informed by knowledge of how markets have performed in the past.

They can make decisions based on the best available information regarding the following market issues:

The market

The product

The marketing chain

Decisions about the market

What can farmers learn about the market for the products they want to sell?

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?

The market : 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?

The market: prices and pricing

- 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? What is the percentage mark-up? 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?

The market : 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 advance notice of changes in their ability to provide the goods?

The market: marketing costs and margins

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

The market: 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)?

The product: competition

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

The product: market potential

- What demand needs 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?

The product: 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?

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?

The marketing chain : handling

- Who can/should handle the product?

The marketing chain : 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?

The marketing chain: 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?

The marketing chain: delivery of products

- 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?

Supporting farmers with inputs and making decisions

You have an important role in assisting farmers making management decisions about inputs, equipment and markets.

You can help farmers to ask the right questions about sources of inputs and equipment, and about the inputs and equipment themselves.

Supporting farmers with inputs and making decisions

You 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

Supporting farmers with inputs and making decisions

You can help farmers with reliable information about markets including:

Prices

Quality requirements

Handling

Packaging and transport

Niche marketing opportunities

Supporting farmers with inputs and making decisions

Remember

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

Session 3.4

Risk, vulnerability and sustainability

Learning outcomes:

- Understand the concept and different types of risks
- Understand farm-family strategies to cope with risk
- Understand the concepts of vulnerability and sustainability

Risk, vulnerability and sustainability

This session introduces the concepts of risk and sustainability. You will learn about the different types of risk and what makes farmers and their farms vulnerable.

You will work with the idea of mapping sustainability to locate areas in the farming system that need strengthening.

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.

What is risk?

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.

Risks are usually not under the control of the farmers themselves, so 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.

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.

Production and technical risk

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.

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.

Marketing or price risk

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 and personal risk

Human risk refers to problems of human health and personal relationships that affect the farm business.

Illness and death threaten and disrupt farm performance through loss of labour or reduced productivity of labour.

Labour migration to towns and cities reduces availability of labour to farms.

Types of risk

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

Vulnerability can be defined as the ability to recover from a stress or a shock.

Stresses erode the productivity or value of capital.

Part of coping with risk is reducing vulnerability.

The less vulnerable the resources, the more sustainable the farm.

Vulnerability and the effect of risk

High vulnerability leads to greater negative effect 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.

Vulnerability and the effect of risk

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 make a trade-off between maximizing profits and minimizing risks.

Risk - reducing strategies

The ways a farmer deals with risk depends on their personality, family situation 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.

Risk - reducing strategies

Decisions also depend on the situation of the farmer.

Generally, the higher the demands on the family for cash, the less likely the family will be able to absorb risk; it is more vulnerable.

Strategy : 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.

Strategy: Diversification, growing many things

Diversifying means producing more than one enterprise together on the farm. This can be done by producing more than one crop or combining with livestock.

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 farmers' income is not totally dependent on a single enterprise.

Strategy: Diversification, growing many things

Intercropping is a common form of diversification, but the benefit of diversification is often offset by increased costs.

The second enterprise may make very little money.

The income the farmer makes from the two crops may not be as high as if the farmer specialized in growing just one crop.

Strategy : 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 micro-climatic factors.

But in order to increase the scale of their crop production, farmers must cultivate over a wide area which costs more money; the protection from risk needs to be weighed against the reduced income.

Strategy : 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.

Strategy: 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.

Farmers may use pesticides and fungicides to reduce the risk of low yields.

Strategy: Selecting and changing production practices

Profits 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.

Strategy: Selecting and changing production practices

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.

Strategy: 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.

Strategy: Maintaining flexibility

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.

Strategy: 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.

Strategy: 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.

Strategy: 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.

Strategy: 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.

Strategy : Maintaining resources

One of the key strategies to reduce the effect of risk is to maintain the farm's resources.

Sustainability

Sustainability is in a sense a balance between risk and vulnerability.

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.

Accessibility

Some social capital is accessible only by select members of the community.

Similarly, credit may be conditioned upon private ownership of land, making it not accessible to many smallholder farmers.

If a farmer plans a farm around a resource that the farmer cannot readily access, then the farm is more vulnerable, making it less sustainable.

Affordability

A resource is considered affordable when it is available at a price which allows for profits.

Many technologies are not accessible by smallholder farmers because the technologies are available only at high prices.

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.

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 which require large land sizes to make them viable.

Appropriateness

Another aspect of appropriateness is social or cultural acceptability.

In many African cultures, pork is taboo. So even if it is a profitable enterprise, it may be inappropriate.

As with 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 (Trustworthiness)

Reliability is linked to trustworthiness.

Can a farmer trust the supplier to deliver according to his/her 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) that is not reliable or trustworthy, the farmer is highly vulnerable and the farm is not sustainable.

Session 3.5

Information and farm management

Learning outcomes:

Understand the role of information in farm management

Understand the difference between data and information

Understand sources of data and information

Understand the role of the extension worker in collecting and utilizing management information

Information and farm management

This session explores the role of information in farm management decision-making. Also it explores your role in supporting farmers in locating and using information.

Farmer decision-making

Farmers are constantly making decisions.

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, control and monitor farm activities and to make more efficient use of their limited resources.

Farmer decision-making

The better skilled farmers are in using data and information, the better their farm decisions will be.

In addition to being able to access and interpret data and information and to communicate this with farmers, you will also need to help farmers develop these skills.

Farmer decision-making

Assisting farmers to obtain information to make input, production and marketing decisions is an important part of your 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.

Farmer decision-making

As farmers become more market-oriented, you must also become more market-oriented.

If farmers cannot sell what they produce, then much of your advice on production techniques will have been wasted.

Farmer decision-making

Farmers' circumstances are not static.

There are often changes occurring that influence the farming operations.

Farmer decision-making

Whenever there is a change in the circumstances of a farmer, it may be necessary for you to review the situation with respect to target farmers, suitability of recommended technologies and the introduction of new enterprises.

Staying on top of these changes requires a good command of relevant data and information.

Farmer decision-making

You have an important role in the process of information gathering, interpretation, and dissemination.

They can be a vital element in feeding information to the farmer and the rural community.

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?

Farmer decision-making

You 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, you have to have knowledge of sources of data and information and be able to obtain it quickly.

Farmer decision-making

Sources of data and information 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

Retailers

Farmer decision-making

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, etc.

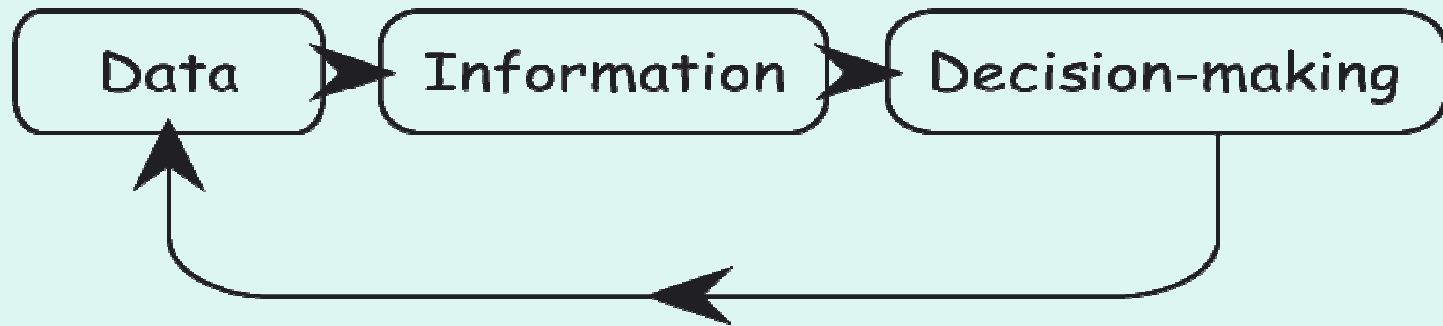
Information is data that is processed in a way that is useful for decision-making.

What is the difference between data and information ?

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.

The relationship between data, information and decision-making



Data can be categorized into different types, all of which should facilitate the decision-making process

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

What is the difference between data and information ?

Data is useful only when it has been processed into information.

Farmers need information that will help them make decisions about their farms.

Data must be processed in a way that will make it relevant to the farmers' individual situations.

It is one of your tasks to turn data into such information.

Guidelines for changing data into appropriate information

1. The combining and interpretation of data needs 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:

1. They individually or together collect data first hand; Primary data.
2. They can use data collected by someone else; Secondary data.

Data collected first-hand

Primary data is the data you and the farmer collect either independently or together.

The data is collected directly from respondent(s).

The table on the next slide gives some examples of first-hand data.

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

Data collected by others

Data used by a farmer or yourself, which has been collected by others.

The data could have been collected for some other purpose different from that of the farmers or your needs , but it can still be very useful.

There are a number of these sources available to you and farmers which can be seen on the next slide.

Source	Type of data and information
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 rural enterprise 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 farmer and rural entrepreneurs and rural entrepreneurs exactly what he or she can get. Comparing historical farm yields to that of similar farms in the same area is an additional source of information on how the farmer and rural entrepreneurs and rural entrepreneurs can improve farm performance.)

Your role in data and information...revisited

As farmers become more market-oriented, you must also become more market-oriented.

Gathering data and information on your 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 your job.

Your role in data and information...revisited

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).

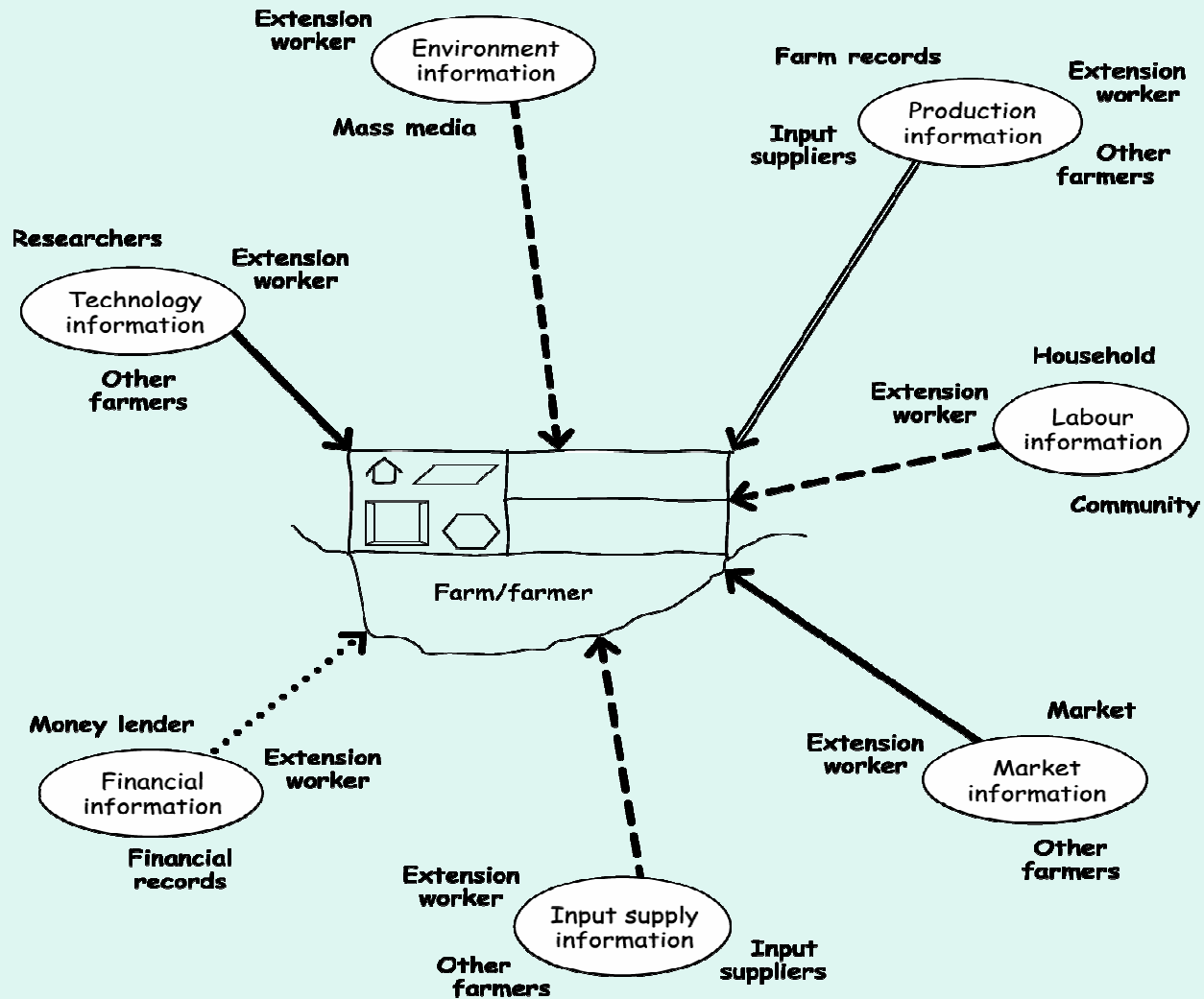
Input data comes from contact with suppliers.

Your role in data and information...revisited

When you are familiar with how farmers in their area currently obtain data and information, you 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 |

Module 3 :Review

- Do you believe that the overall purpose of the module has been achieved ?
- You should have a good understanding of the critical role of the farmer as a decision-maker related to resources, inputs, markets, risk, vulnerability, sustainability and information.