

Chapter 2  
**Approaches to risk management**

## MAIN POINTS IN CHAPTER 2

### ***Types of risk***

*Risk can be categorized as production, marketing, financial, human and institutional. Production risk stems from uncertainty of factors that affect the quantity and quality of farm produce. Marketing risk exists because of the variability of product prices and the uncertainty of future market prices. Financial risk occurs when money is borrowed to finance the farm business. Institutional risk occurs because of unpredictable changes in the provision of services. And human risk refers to the risks to the farm business caused by human illness and the personal situation of the farm family.*

### ***Risk management strategies***

*Strategies have been developed to cope with all types of risks. Often farmers experience the threat of different types at the same time. Risk reducing strategies are often used in combination with one another, because no single strategy can cover all of the risk likely to be encountered. Farmers need to consider the risks simultaneously and to develop an integrated approach for better management. They need to recognize the advantages and disadvantages of each risk management option both individually and in combination. Individual farmers should select an appropriate strategy based on their goals, attitudes towards risk and their personal and financial situations.*



## INTRODUCTION

Risk occurs whenever the consequences of a decision are not entirely known at the time a decision is made. There are a number of ways to manage risk. Farmers may try to prevent an unfavourable event from happening or they may take actions to reduce the adverse consequences should the unfavourable event happen. If possible, they should do both.

Risk management strategies can be categorized as production, marketing, financial, human and institutional. While considered individually in this chapter they are often used in combination with another. Farmers choose and combine strategies based on their goals, attitudes towards risk and their personal and financial situations. Each individual farm family needs to find their own ways of coping with risk. Farmers' responses to risk are as diverse as the risks that affect their farms.

One must bear in mind that whatever strategy is chosen, it will come at a price. The price could be a direct cost such as making insurance payments, or an indirect cost such as giving up a potential gain, or more time spent managing the farm. A good farmer will try to find a balance between managing risk and making profits.

Note: The costs associated with each strategy are not discussed, as these will be unique to each farmer's situation.



## PRODUCTION RISK

Production risk stems from the uncertainty regarding the factors that affect the quantity and quality of farm produce (e.g. weather, disease, pests). It also arises with the introduction of new technologies. Several strategies can be used to reduce production risk.

### **Risk-reducing inputs**

Risk-reducing inputs are production inputs that improve the chances of better quantity or quality of farm products. Fertilizers and compost are used to reduce the risk of low yields. Pesticides and Integrated Pest Management (IPM) practices are used to reduce the risk of crop damage. Irrigation is used to reduce the risk of low rainfall.

Not all inputs necessarily reduce risk. For example, even if fertilizer is used, the crop still depends on rainfall, which may or may not be favourable. When soil moisture levels are low, using fertilizer can still result in low yields.

Farmers, however, do not experience only one kind of production risk at a time. They often experience the risk of unfavourable weather, pests and weeds at the same time. Using a single risk-reducing input, such as drought-resistant seed will not prevent low yields caused by pest and insect damage.

To determine whether an input will reduce the risk of low yields, farmers must look at a number of factors at the same time. They should think about the effect the input is most likely to have on their crop, given other factors that also affect production. For example, hybrid seeds may increase yields in years of good rainfall but produce poorer yields than traditional varieties in years when the rain is poor. Farmers must ask themselves whether the income expected by using the input is high enough to compensate

***Risk-reducing  
inputs must  
be weighed  
against the cost  
of using them***

for the increased risk involved. Essentially, farmers must weigh up the costs and benefits of using an input as a risk-reducing strategy.

### **Risk-reducing technologies**

Farmers can reduce risk by learning about and applying new technologies and practices designed to address specific risks common to their area of production. For example, new varieties of seed are being developed and livestock are being bred with certain characteristics, including the following:

- drought-resistant seed for maize;
- bird-resistant seed for sorghum;
- disease- and pest-resistant seed species;
- disease-resistant livestock species;
- livestock bred to provide better productivity;
- irrigation for high-value crops;
- crops and livestock bred specifically to improve marketability.

***Risk-reducing technologies may be difficult to implement ...***

***... but could be beneficial if successful***

In many countries there are examples of how genetic technology has created an economically viable opportunity to address some of the risks in livestock production. For example, programmes have been developed to provide higher quality cattle to local farmers to make it possible for them to access markets that offer higher prices.

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#### **An example of introducing new techniques**

A farmer in Swaziland received imported milk cows from a technical assistance project. The cows faced production risks as they could not easily adapt to the environmental conditions of Swaziland. To reduce these production risks the farmer decided to cross-breed the imported animals with local breeds, as a way to improve their disease resistance.

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### **Selecting low-risk activities**

One way to reduce production risk is to choose a farm enterprise that has a lower risk. In these situations farmers choose reliability over potential profitability. A farmer may forego an enterprise that has a high potential for income but also carries a high risk for loss, and choose instead an enterprise which is less profitable but also less risky. For example, some smallholder farmers may prefer a drought-resistant variety of sorghum or millet to high-yielding varieties that could fail in a drought.

*Farmers often prefer to continue with familiar crops and production activities with low risk*

Risk is often associated with a lack of familiarity with a variety. Although the yield of an improved variety may be more stable than those of local varieties, farmers may not have the knowledge and experience of growing the improved variety. This lack of experience could lead the farmer to assess the risk of cultivating the new variety as being too high. Farmers are usually aware of the differences in the yield variability of crops associated with the different soils, husbandry practices and other factors on their farm. Because of the many differences, one farmer may consider a particular activity high-risk while another may consider it a low-risk activity.

### **System flexibility**

Farming system flexibility is an important strategy for risk management. A flexible farming system makes it possible for the farmer to make quick or short-term changes in production and sales.

Farmers who sell cash crops may also reduce risk by using available funds to enable them to change to another enterprise if the price of the main cash crop falls.

By keeping their farm systems flexible, farmers are able to make decisions in response to changing circumstances. While working with general production plans, they should keep their options as open as possible in order to respond to opportunities and risks as they occur.

### ***EXAMPLES OF FLEXIBILITY***

***Vary area of land under cultivation and/or the number of livestock kept, as a response to market changes.***

***Keep land fallow (unplanted) in times of low rainfall in order not to risk unnecessary expenditure on inputs.***

***Intensify the farming system by increasing an already existing enterprise (e.g. small stock such as pigs, sheep, poultry) if future prices are likely to be good.***

***Utilize labour rather than purchasing or hiring farm machinery.***

***Spread the time of planting and increase the area under cultivation. If an early planted food crop fails the farmer may replant with a more drought-resistant variety. If farmers feel that neither will be successful they may decide to increase the area under another staple crop for food security purposes.***

It should be noted, however, that flexibility is not possible with all enterprises. For example, tree crops are generally inflexible. The enterprise cannot be changed easily and quickly. However, coffee farmers, for example, can respond to low prices by heavy pruning – hoping that yields will be good when prices are again high.

### **Production diversification**

Diversification spreads risk and is a successful risk management strategy because not all farm enterprises and operations are likely to be affected in the same way by changing situations. Some techniques include:

- managing multiple farm enterprises together at any one time (or in the same season);
- engaging in the same farm enterprise in different physical locations;
- engaging in the same farm enterprise over successive periods of time (or seasons);
- generating income from off-farm activities.

***Managing multiple enterprises together at any one time (or in the same season)***. There are many forms of this kind of risk management strategy. For example, farmers concerned that their normal crop may fail because of pests may decide to produce more than one crop (i.e. multiple enterprises) over the same season. They will choose crops that are more resistant to pests and diseases.

Another example is intercropping, which is a common form of crop diversification. Crops that are more resistant to drought may be planted together with food crops to ensure that some return is obtained from the effort put into land preparation. In many countries, sorghum and maize are grown together; sorghum is drought resistant but susceptible to bird damage, whereas maize is liable to fail in a drought but is more resistant to bird damage.

Mixed broadcast farming, which is a traditional practice in low rainfall areas of Southern Africa, is an example of intercropping. In this case, the farmer literally mixes the seeds of three or four different crops (e.g. maize, sorghum, pumpkin) in a single bag and plants them simultaneously in the same field. This was designed specifically to protect the household food supply in case of drought. Even if two crops fail, there are at least one or two other crops that will provide food for the family.



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Women farmers preparing a field for multiple enterprises – Ethiopia

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Intercropping Laucaena and maize – Ghana

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Integrated rice, duck and fish culture – Lao PDR

*Essentially,  
diversification  
is a practical  
application of  
the saying ...*

*... “Don’t put  
all your eggs  
in one basket”*

Many farmers around the world – particularly smallholder farmers – integrate crops and livestock to reduce risk and improve their efficiency in resource use and sustainability of the natural resource base.

**To reduce risk farmers can plant crops in different areas where soil types differ**

**Engaging in the same enterprise in different physical locations.** This risk management strategy works on the understanding that the same crops grown in different areas will not meet the same fate. Perhaps a crop grown in the area surrounding the house is more likely to be infested by rodents than the same crop grown elsewhere. One piece of land may have marginally better protection against frost than another. Also, by planting crops on different soil types the farmer diversifies to avoid risk: in a dry year the crop on sandy, upland soils may fail; in a wet year the crop on wet, river-valley land may fail. Land close to a river can possibly be irrigated. By taking advantage of these differences, farmers can spread their risks and can be more assured that at least one of their production sites will succeed.

**Engaging in the same enterprise over successive periods of time (or seasons).** Farmers also diversify over time. Staggered planting can be used to manage household food supply and also to reduce the risk of water stress. If an early-planted crop does not receive sufficient rain at the flowering stage, the crop planted later may not be affected in the same way. For example, the table below shows staggered planting dates for maize in parts of Africa to reduce the risk from uncertain rainfall.

*Table 1*  
**Scheduled planting dates for maize**

Month	October				November				December			
	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4
First planting		■	■	■								
Second planting				■	■	■	■					
Third planting							■	■	■	■		

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### An example of phased livestock production

A farmer in the Manica province of Mozambique, decided to develop a commercial broiler enterprise of 1 000 units. Owing to limited capital for housing and a concern over the market, he decided to spread production and rear his broilers in batches of 250 units. By so doing he was able to spread sales and sell his chickens at competitive prices. As part of his business strategy, the farmer increased production towards one of the festival days to meet the increased demand for poultry at that time.

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**Generating income from off-farm activities.** It is difficult to separate the risks of farming from the risks of the household, particularly among smallholder farmers. In many cases, the farm and the household are a single unit. Therefore, although it is not a farming strategy, many farmers sustain their income with earnings from activities off their farm. Farmers may take part-time work in towns or on commercial farms or one of their family members may have a full-time job.

***Many farm families sustain their income with earnings from activities off their farm***

**General considerations.** Diversification of production can be used to manage price, yield, and income risk. Unlike risk-reducing inputs, the effects of which are shown on a field-by-field or enterprise-by-enterprise basis, the effects of production diversification are seen only by observing the farm as a whole. But by diversifying production practices or engaging in alternative farm enterprises, the farmer no longer uses the optimum combination of resources that gives the highest possible yield. Using different production practices on different fields may require more management time and possibly different types of farm equipment. In this way production diversification, while minimizing risk, often reduces potential farm income.

Risk-averse farmers will more likely be prepared to accept the lower income because their primary concern is to avoid risk. It is unlikely that risk-neutral or risk-taking farmers will accept the lower income because they will go for a production plan that will probably deliver the highest expected net income (over one or several seasons) regardless of risks involved. Indeed, the risk-taker might seek out more risky enterprises to gain a higher income.

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### An example of enterprise mix

A farmer has been debating the most appropriate mix of enterprises on his farm. In particular he is considering switching 0.5 ha from maize to beans. In adding this new crop he is not worried about the risk of a lower income, because in his area income from beans varies less than income from maize. Also, the pattern of price changes for produce sold is not the same. When the price of maize falls, the price of beans often stays the same. One thing he has realized though is that he has to consider this risk reduction against the expected income from beans.

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### **Reserves of inputs and produce**

The most common reserves are stores of farming inputs and farm products. As a risk-reducing strategy, these goods are set aside to reduce the impact of unfavourable events. Reserves of inputs such as feed for livestock, fertilizer and other chemicals can protect farmers from the risk of short-term input price changes. Food storage on the farm can also provide security against the risk of crop failure, although losses of stored grain due to pests can be considerable.

As is the case with all risk management strategies input and product reserves come at a cost. One obvious cost of holding reserves is their actual value. Resources held in reserve are tied up and do not earn a return. This can affect both the net income and cash flow negatively.

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Traditional village grain storage – Malawi

© FAO/23002/I\_Balderi



Stone grain storage containers used by villagers – Mali

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Woman farmer showing her new metal grain storage to neighbour – Bolivia

*Grain storage  
provides  
security  
against the risk  
of crop failure ...*

*... for both  
family needs ...*

*... and future  
market sales*

*With share lease agreements production and sales risks are borne by both tenant and owner*

### **Share leases**

In some countries where land tenure arrangements permit (e.g. among small-scale farmers in Latin America), share leases for crop and livestock production are a common risk management strategy. Under such schemes the landowners usually pay part of the operating expenses and, in return, receive a portion of the crop or livestock produced instead of a cash rental payment. In this way the risks of low production, low selling prices, or high input costs are shared between the tenant and the owner. Under share-lease arrangements tenants require less working capital for farm operations and credit may consequently be more readily available.

### **Custom farming**

Custom farming involves a farmer entering into an agreement with a custom operator to carry out various farm operations. It is also sometimes referred to as “contractor” farming. The advantage (or risk saving value) of this strategy is that operational costs can be fixed. Instead of facing the risk of high equipment costs, the farmer contracts someone else to do this work.

Custom farming can also be applied to livestock feeding. Under such arrangements livestock producers feed cattle or small stock owned by other farmers on their own plots for a fixed price. In either case, some farmers may undertake only part of a production activity as a means of reducing risk.

*The advantage of custom farming is that operating costs can be fixed in advance*

Farmers can either contract operators to work their land or be contracted as an operator to work the land of other farmers. Contracting an operator can reduce the risk of high equipment costs. A farmer with equipment, contracted as an operator, receives alternative income and makes more efficient use of equipment. Custom cattle feeding and custom farming allow farmers to focus on production.

Summary of issues related to  
production risk management strategies

***RISK REDUCING INPUTS***

***Production inputs that improve the chances of  
better quantity or quality of farm products***

**Positive factors**

- Reducing the likelihood of low or unstable yields

**Negative factors**

- Could increase risk as its usefulness depends on the type of input used and a combination of effects
- Access to capital may be restricted
- Could increase costs of production

Production risk management strategies  
(continued ...)

***RISK REDUCING TECHNOLOGIES***

***Applying new technologies and practices  
designed to address specific risks  
common to areas of production***

**Positive factors**

- Could result in higher crop yields
- Could make more cost-effective use of crop inputs

**Negative factors**

- Its usefulness depends on the type of technology designed and its overall effect on the farm business
- Access to capital may be restricted
- Could result in an increase in costs of production



***SELECTING LOW RISK ACTIVITIES***

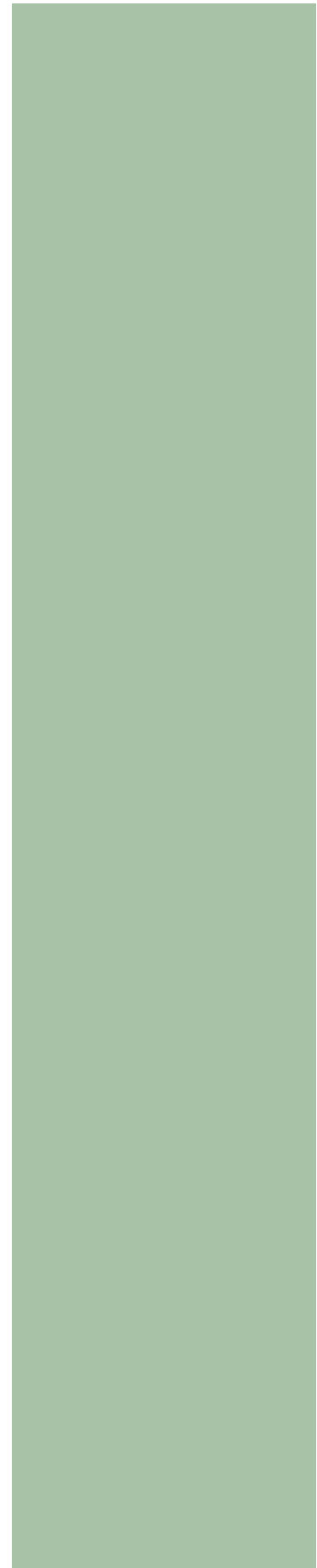
***Choosing reliability over potential profitability  
as a way to reduce production risk***

**Positive factors**

- Could provide a safety net in terms of food security

**Negative factors**

- Results in a reduction of potential farm income
- Could have a detrimental effect if the enterprise, crop or variety is new



Production risk management strategies  
(continued ...)

***SYSTEM FLEXIBILITY***

***Having flexible farming system reduces risk by enabling quick or short-term changes in production and sales.***

**Positive factors**

- Fast change-over to alternative enterprise if prices / costs become adverse

**Negative factors**

- Might result in a trade-off between higher income and lower income enterprises

## ***DIVERSIFICATION***

***Diversification reduces the impact of risk by spreading risk over several farm enterprises***

### **Positive factors**

- Reduction in income variability
- Can ensure adequate cash flow, debt obligations and family living expenses

### **Negative factors**

- If the yields of two commodities are interrelated risk may not be reduced
- Increases risk as a result of the need for more complex cropping systems
- Results in increased capital requirements for additional enterprises

Production risk management strategies  
(continued ...)

***INPUT RESERVES***

*Farming inputs and farm products that are set aside to reduce the impact of unfavourable events.*

**Positive factors**

- Provides supplemental cash reserve in the light of unexpected expenses
- Increases liquidity of the farm

**Negative factors**

- Ties up resources that do not generate a return
- Net farm income may be reduced because of the cost of establishing and maintaining a reserve

***FOOD RESERVES***

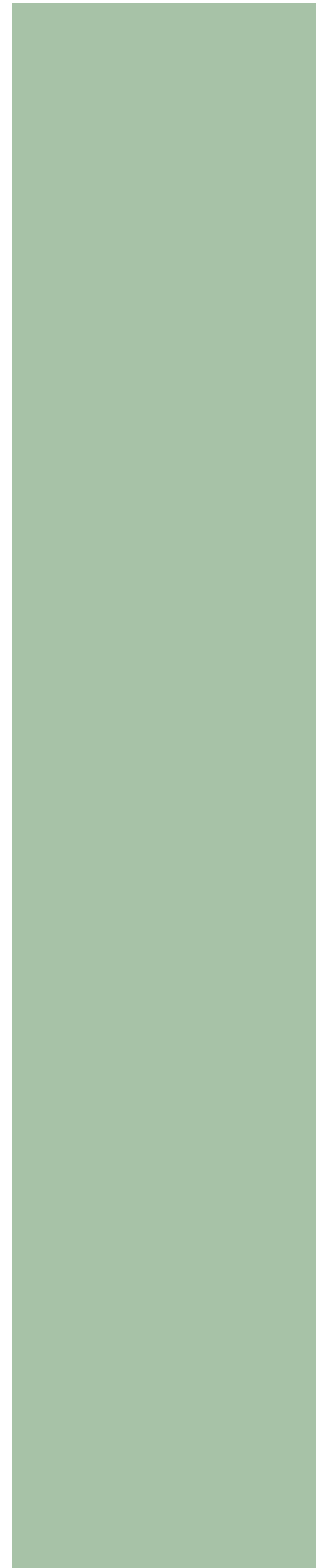
*Farm produce that  
is stored on reserve to provide  
security in case of risk*

**Positive factors**

- Food security
- Increases flexibility

**Negative factors**

- Danger of spoilage



Production risk management strategies  
(continued ...)

***SHARE LEASES***

*Input costs are shared between tenant and the owner and thus reducing risk to either.*

**Positive factors**

- Divides risk and results in less working capital requirement for the tenant farmer

**Negative factors**

- Creates dependency situations

***CUSTOM FARMING***

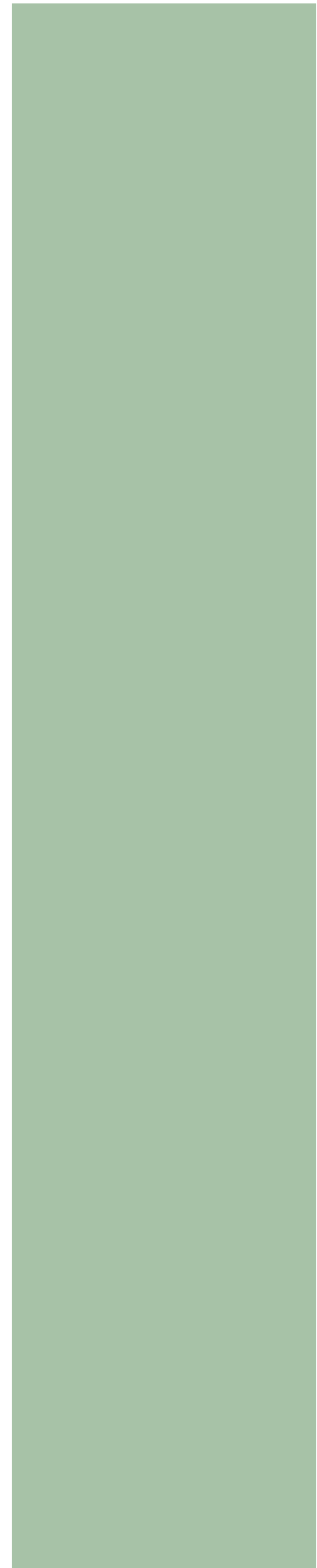
*Custom farming involves a farmer entering into an agreement with a custom operator to carry out various farm operations*

**Positive factors**

- Divides risk and results in less working capital requirement for the tenant farmer

**Negative factors**

- Reduction in potential income



## MARKETING RISK

Marketing risk exists because of the variability of product prices and the uncertainty of future market prices that the farmer faces when making the decision to produce a commodity. Several methods can be used to reduce price variability or to set a satisfactory price before the crops or livestock are ready for sale. These are discussed below.

### Spreading sales

If the farmer is producing a crop that can be easily stored after harvest, parts of the crop can be sold at different times during the year. The farmer can watch for changes in the market and sell when prices are most favourable. This particularly applies to food grains and for seasonal produce that can be stored (e.g. apples, potatoes and onions). However, storing produce has risks, entails high costs and sometimes loss. Livestock sales can also be spread throughout the year if managed properly in terms of feeding, calving and other livestock husbandry operations. This strategy may or may not increase income for the farmer but it reduces risk and provides the added benefit of ensuring a regular cash flow throughout the year. Again, in all cases farmers need to balance the costs and benefits.

*It is important  
that farmers  
realize both costs  
and benefits  
of storage  
and on-farm  
primary processing ...*

*... and ensure  
that income  
generated covers  
the costs involved*

### An example of adding value by drying

A farmer decided to process vegetables by solar drying and to selling them at times of short supply. By so doing he avoided having to sell his produce at times where the market was flooded and prices were low. This marketing strategy increased his farm income. Primary processing can be a way of avoiding losses in storage or low market prices.



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Apples being picked for export will require storage – Afghanistan

© FAO/23001/K.Iversen



Potatoes on sale in the bags in which they have been stored – Bolivia

© FAO/22690/J.Spaul



Selling potatoes and onions after harvest – Azerbaijan

*Produce that  
can be stored,  
can be sold  
later on in  
the season*

**Direct sales**

For some farmers, selling directly to final consumers may be a way to enhance profitability and reduce risk. Small-scale farmers near population centres may especially benefit from direct sales to final consumers. However, the farmers need to be sure that they can sell everything taken to market. Otherwise they may end up worse off than selling to traders. They also need to be sure that the higher prices they will get from retail sales will cover the extra costs they will incur.

**Contractual agreements to sell produce and buy inputs**

Price uncertainty could be greatly reduced if farmers could make advance contracts with buyers of products. Contractual agreements can be made with a private individual or company. The farmer often knows in advance the prices that will be received. For example, a livestock feed-mill may contract to buy a farmer's grain at an agreed price or a tobacco company may do the same for the tobacco crop. Some companies that buy produce from farmers at harvest time also sell inputs to farmers.

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**An example of a contract agreement**

A farmer runs a small-scale commercial chicken broiler operation. He is considering whether to enter into a production contract with an integrated broiler company. The company would supply the farmer with chicks and technical advice on feeds, health and housing throughout the production cycle. In return for handing over management decisions, his income risk is greatly reduced, market access is guaranteed and access to capital ensured. The farmer has to weigh up these potential benefits against his reduced managerial freedom and the risk that the contract might be terminated after he has made considerable investment in broiler facilities.

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Marketing contracts can be either verbal or written agreements between farmers and buyers. The contracts often set the price for produce sold and the quality of the produce expected.

***Forward pricing***

Forward pricing is a practice where the buyer and producer agree on a price for the sale of crops or livestock in advance of delivery. An agreement is reached to deliver the crop at an agreed price, quantity, quality and time. This practice enables farmers to reduce the risk that the price they receive for their output might not cover production costs.

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**An example of forward pricing for vegetables**

In the case of vegetable production, it is sometimes possible for a farmer to negotiate a predetermined price with a buyer. The price is often set at a level below the expected market price at harvest time. The farmer has to guarantee that supplies are delivered to the buyer according to the agreement; at the volume, quality and time set. This provides the farmer with a guarantee of the price to be received. In this way the risk of low prices is reduced. However, such agreements do not allow farmers to enjoy the advantages of possible price increase that may occur over the harvest period.

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Forward pricing is particularly relevant for highly specialized or perishable products, and is also common for “niche” products although it is not widely used by small-scale farmers at present. The box on the following page shows some forms of pricing arrangements used by larger commercial farmers in more developed countries.

## ADVANCED PRICING ARRANGEMENTS

### Cash forward contracts

Agreements that are based on an exchange of produce at a specified future time. They allow farmers to establish a price for later delivery. The contract specifies the price, quantity and quality of produce to be delivered at an agreed post-harvest date. The contract also indicates the penalty to be paid if the farmer fails to deliver.

### Deferred pricing contracts

Contracts where the price is determined later at some specified date. Ownership is transferred before the price is set.

### Deferred payment contracts

Contracts where the current price and delivery of the produce is set but there is delay in the receipt of payment. It transfers ownership to the buyer at delivery but allows the seller to set the price later.

### Minimum price contracts

Provide farmers with a floor price for duration of the contract. They offer the farmer protection against a drop in price below a minimum level, while still leaving the final pricing until a later date.

### Futures contracts

Agreements that are made for a specified future time. The risks are transferred to another business that is more willing to accept them. Here the contract is sold and bought instead of the actual produce.

## **Building trust**

For farmers involved in contractual relationships the most critical issue is agreeing on the price with the buyer and developing trust. The nature of the business relationship is that both buyers and sellers try to obtain the best deal. Farmers aim at negotiating the highest possible price to maximize their profits and buyers try to ensure that low prices are paid so that they can also maximize their profits. Farmers need skills in negotiating contracts in order to arrive at an acceptable agreement. Even though agreement can be reached there are still risks involved for both the farmer and buyer. Problems are often related to:

- agreement on the weight of the crop;
- agreement on the quality of the produce;
- calculating the money owed to farmers;
- failure of buyers to buy agreed quantities;
- failure of farmers to supply agreed qualities.

Both parties need to build trust and realize that the long-term advantages of a fair relationship should outweigh any short-term benefits of failing to honour the agreement. Although there are likely to be periods when products are sold at a loss, a sustainable production-marketing relationship is one in which both parties involved make a profit. For arrangements to continue for a long time they need to be financially sustainable. Both parties must benefit. The long-term success of such an arrangement depends on the capacity of farmers to negotiate with buyers and to ensure that they work well together. The position of farmers during negotiations with buyers can be improved by extension staff by:

- informing the farmers of the range of buyers available;
- encouraging the farmers to grow crops for which there is a strong demand;
- ensuring that farmers are aware of prevailing market prices and the conditions of purchase;
- advising farmers to calculate the break-even cost of production and marketing.

***There are risks  
involved for both  
the farmer  
and the trader***

***In a fair relationship  
long-term advantages  
should outweigh  
immediate benefits  
to either side***

### **Market price information**

A key element in managing price risk is market information, especially price information. Farmers should track price information relevant to their products. They should try to establish if there are seasonal, annual or other cyclical price trends for those products. Sound knowledge of market prices alone is not a risk management strategy. However, having such information strengthens a farmer's position to be able to forecast more accurately future price events. It will help farmers make basic decisions about their farm, including decisions about the level of inputs, production and choice of market. It will help farmers to better assess the risk of various products, production programmes, and market options. Market information can be divided into short- and long- term (see below).

**Short-term market information** helps farmers make instant marketing decisions on selling their products. This includes:

- up-to-date price information;
- up-to-date information on supply and demand.

**Longer-term market information** can be used to make planting decisions and plan marketing strategies. This includes:

- quarterly or annual price reports from market Information services;
- contacts of companies providing services (e.g. transport, storage), and inputs (e.g. seeds, fertilizers and packaging);
- descriptions of the marketing chain.

Summary of issues related to  
marketing risk management strategies

***SPREADING SALES***

***Storing a crop after harvest,  
and selling it at different  
times during the year  
or carrying out primary processing***

**Positive factors**

- Spreads the risk of price fluctuations
- Could stabilize income

**Negative factors**

- Could result in a decrease in gross revenue if prices are less than expected
- May require introduction of new varieties and new husbandry practices
- May result in an increase in storage costs
- Requires adequate financial resources
- May result in storage losses of stored produce

Marketing risk management strategies  
(continued ...)

***DIRECT SALES***

***Selling directly to final consumers  
as a way to enhance profitability  
and reduce risk***

**Positive factors**

- Usually leads to higher prices
- Creates opportunity for useful marketing strategy (direct contact with buyers)
- Has the potential to increase profits

**Negative factors**

- Entails transportation and other marketing costs
- Could take up a lot of the farmer's time



## ***CONTRACT ARRANGEMENTS***

*A practice where the buyer and producer agree on a price for the sale of crops or livestock in advance of delivery*

### **Positive factors**

- Guarantees a fixed price
- Expands the choice of marketing to different time periods
- Secures a market outlet
- Generates a predictable cash flow
- Contract can be tailored to the quantity / quality of the product that the farmer has to offer
- Schedules deliveries that better fit with labour, the quality of the produce and logistics

### **Negative factors**

- Success depends on the product and the contract
- Usually requires maintaining particular quality, handling and packaging
- Loss of opportunity for farmers to take advantage of premium prices
- Loss of flexibility
- Could involve substantial cost for the farmer
- Contractual terms may be disadvantageous for the less powerful party
- Increases the risk if there is a yield shortfall
- Might introduce other types of risk in marketing
- High transaction costs of information

Marketing risk management strategies  
(continued ...)

***CONTRACTS WITH BUYERS***

***Agreeing on the price  
in advance of the sale***

**Positive factors**

- Can be developed by providing farmers with market information
- Best developed through person-to-person contact

**Negative factors**

- Both traders and farmers may not honour contracts
- May require organization of farmers to strengthen their negotiating position
- Takes time to develop

### ***BUILDING TRUST***

*Requires negotiations that result in a 'fair relationship' that provide long-term advantages to both parties that need to outweigh any immediate benefits to either side*

#### **Positive factors**

- Trust between parties can help reduce risk
- Ensures sustainability of contractual relations
- Can be achieved by providing farmers with market information

#### **Negative factors**

- Traders often take advantage of farmers
- Difficult to ensure as each party tries to maximize their profits
- Requires organization of farmers to strengthen their negotiating position

Marketing risk management strategies  
(continued ...)

***MARKET PRICE INFORMATION***

***The tracking of relevant price information is a key element in managing price risk***

**Positive factors**

- Assists in formulating risk management strategies
- Short-term information helps farmers make decisions on selling their products
- Longer-term market information is used to make planting decisions and plan marketing strategies

**Negative factors**

- Requires interest among farmers or extension workers to keep records
- Market information services can be costly to implement
- Substantial costs in gathering and processing information



## FINANCIAL RISK

Financial risk occurs when money is borrowed to finance the operation of the farm business. This risk is caused by uncertainty about future interest rates and repayment schedules, changes in the loan collateral, and the ability of the farm to generate the cash flow necessary for credit repayments.

In some countries small farmers have become bankrupt as a result of indebtedness. Farmers may purchase expensive inputs on credit, but with the failure of rainfall and consequent low yields may be unable to repay their loans. The failure to assess the financial risks associated with lending has a direct impact on their livelihoods. In some cases farmers have even committed suicide. This emphasises the risk of farming and the need for extension workers and farmers to be aware of the need for appropriate risk management.

The three aspects that need to be considered in managing financial risk are listed here.

*The availability and cost of credit  
and the repayment schedule.*

*The farmer's liquidity or ability  
to generate cash flow.*

*The farmer's ability to maintain  
and increase capital.*

In the face of this, there are a number of strategies to manage financial risk.

### **Credit**

Many factors influence a farmer's decision to borrow money, including: attitude toward risk; the size and type of farm operation; the farmer's relationship with input suppliers and output purchasers; the willingness of lenders to provide loans at conditions acceptable to the farmer. Increasing the capital available to farmers through lending enables them to expand their farm businesses but this, in turn, obliges them to repay outstanding debts and creates the risk of loan default. Increased debt raises the likelihood that farmers would be unable to meet their financial obligations in a year of low returns. Highly indebted farmers operate in an environment of greater financial risk.

### **Liquidity**

Liquidity is the ability of the farmer to raise cash. *What can a farmer do if an unfavourable event happens? Does the farmer have ready cash or other assets that can be easily converted to cash to cover his or her financial obligations?* Assets tied up in land and machinery are the most difficult to convert to cash, while stored inputs or products are easier to convert. Cash held at home or in a bank provides the best protection.

***Savings with high liquidity are most easily converted to cash ...***

In the case of non-cash assets, conversion to cash is generally done by selling the asset. High liquidity means that the farmer can fairly easily convert assets to cash without the assets losing much value in the transaction. It is often very useful to maintain high levels of liquidity to provide a financial cushion against the risk of low income or increased debt. However, if all farmers in an area have to sell stored crops at the same time, the price will fall and the liquid assets will be less valuable.

***... assets that are easily converted should be sold first***

As a risk management strategy, the farmer should start by selling assets that are most easily converted to cash. Less liquid assets should be sold only if and when additional cash is needed.

### **Leasing assets**

Assets are hired or rented out to another farmer for a specified period and at a specified price. The asset

remains the legal property of the owner. Farmers can lease land, machinery, equipment or livestock. Leasing assets generates additional income and spreads the cost of paying for and maintaining the asset. It also allows farmers to use equipment that might otherwise not be profitable to buy.

### **Managing the phasing of investments**

This refers to decisions made by some farmers about the timing of the purchase of assets. Rather than buying all the necessary equipment at one time, the farmer may spread the purchases out over time – over the year or even over several years. In this way, farmers can limit (or perhaps even avoid) debt and at the same time build equity.

### **Contingencies**

Contingencies are often included in farm enterprise budgets as a way of building risk into the business decisions of the farmer. They are a deliberate overestimation of costs to account for the risk of unexpected increases in the cost of inputs, materials and capital items. Contingencies can generally be used in three ways when drawing up an enterprise budget:

- to cover cost increases;
- to cover costs (often a variety of small items) that have not been specifically identified but which the farmer knows are likely to arise;
- to cover the cost of unexpected items that may have been overlooked in the original estimation.

In each case, the farmer knows from experience that there is a possibility (therefore a risk) that this additional cost will occur. Based on that experience, the farmer can add some cost as a contingency to those costs anticipated over a growing season or year. In practice, in the case of cost increases, a contingency allowance is calculated as a percentage of the specifically identified cost (e.g. labour, ploughing, fertilizer) and is then added to that cost. The other contingency items are often included as a separate cost entry calculated as a

percentage of the total costs. The amount included is usually determined by the experience of the individual farmer. It is not usually just a random amount.

Including a contingency item in a farm budget is a useful planning tool that shows the direct impact of an unfavourable event such as product price decreases, yield failure and cost increases on farm profit. If the calculation shows that the impact of the unfavourable event is too great, the farmer may not want to take the risk and will have to make some other plan for the farm. If the farmer goes ahead as planned, including the contingency and the unfavourable event occurs the farmer is covered. The farmer knows what to expect. If the event does not occur, the farmer enjoys additional gains.

### **Insurance**

Some farmers, usually the “better off” more commercial farmers, can insure their farms against major risks, which have a low chance of occurrence but may have very adverse consequences. Such events include:

- the death of a farmer or a family member;
- sickness and accidents that disable the farmer;
- fires or other hazards that destroy capital items;
- loss of crops by hail, storms and floods.

***Crop insurance  
is a simple  
risk management  
strategy ...***

***... what is covered  
is clear and  
the cost is  
immediately  
known***

The farmer usually pays an insurance company (private or public) to provide protection against the consequences of these major risks. If the unfavourable event occurs, the insurance pays out compensation in terms of the insurance agreement. Crop or weather insurance is a simple risk management strategy. What is covered is clear and the cost is immediately known. However, farmers need to make careful calculations to determine the impact of the cost of the insurance (i.e. the premium) on their net income. It is rare that insurance is offered to smallholder farmers and affordable for them to use.



Summary of issues related to financial risk management strategies

***HOLDING LIQUID ASSETS***

***The holding of assets that can be used to meet cash demands***

**Positive factors**

- Avoids the cost associated with liquidating capital assets or taking out another loan
- Does not disrupt the asset structure of the farm business

**Negative factors**

- Smallholder farmers unlikely to have many liquid assets

Financial risk management strategies  
(continued ...)

***SELLING AND LEASING ASSETS***

*Selling easily convertible assets  
for cash and renting assets  
for extra income and for covering  
the costs of the asset*

**Positive factors**

- No need for repayment commitments
- Improves the renter's flexibility to respond to market conditions
- Reduces the long-term fixed payment on borrowed capital

**Negative factors**

- Could limit the short-term borrowing capacity because of the possible reduction in assets, which could be used as collateral to obtain a loan

***MANAGING THE PHASING OF  
INVESTMENTS***

***Timing set for  
the purchase of assets***

**Positive factors**

- Maintains management control with the farmer
- Can match the timing of investments with the cash flow situation of the farm resulting in lower repayment commitments
- Improves the farmer's flexibility to respond to market conditions

**Negative factors**

- Could delay capitalization and result in a lower rate of growth of the farm business

Financial risk management strategies  
(continued ...)

***CONTINGENCIES***

*A deliberate overestimation  
of costs to account  
for the risk of unexpected  
increases in the cost of inputs,  
materials and capital items*

**Positive factors**

- Simple way to internalize risk in farm budgets

**Negative factors**

- Estimates and forecasts of contingencies may be overstated or understated

## ***INSURANCE***

***An agreement that is designed to provide protection in the form of compensation against the consequences of significant risks***

### **Positive factors**

- Provides reliable level of cash flow
- Can offset harvest failure

### **Negative factors**

- Not applicable to all types of risk
- High cost, not very common among smallholders
- Having insurance may negatively influence farm management decisions and may lead to farmer taking unnecessary risks

## INSTITUTIONAL RISK

Institutional risk refers to unpredictable changes in the provision of services, such as the supply of credit and purchased inputs, and information from both formal and non-formal institutions. It also refers to uncertainties concerning government policies that affect farming. There are a number of strategies to manage institutional risk.

### **Traditional institutions and social arrangements**

The customs and organization of traditional societies 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 have resulted in mutual assistance and self-help when required. Generally, the more fortunate and able members of the community are obliged to help their kinsmen or neighbours in times of need. This may relieve the situation in cases of sickness, injury or death of an individual member; however, it is less effective in situations where the entire community suffers. For instance, failure of rainfall or an attack of crop pests may affect all community members in the same way.

*Close bonds between community members have resulted in mutual assistance and self-help when required*

### **Producer groups**

When farmers have sufficient trust in each other there is scope for them to work together informally as a producer group in order to reduce some of the risks associated with credit mobilization, the purchase of inputs and marketing. Groups for credit and marketing purposes can produce:

*Producer groups can reduce some of the risks associated with credit mobilization, the provision of inputs and marketing*

- economies of scale in input procurement, loan administration and marketing of produce;
- capital accumulation through savings and credit mobilization;
- timely delivery of services.

The risk reducing function of farmer groups comes from the pooling of capital of individual farmers into a common fund, collecting and disseminating information to its members, and bulk buying and marketing.

Producer groups also serve to provide information to their members on the sources of additional financing, the potential prices of produce sold, the cost of inputs purchased, and the quality of those inputs and final products. Information of this kind shared with their members enables them to better cope with the many risks affecting the farm household system.

The first step in the process of group formation is for farmers to understand the benefits of working together and to show commitment to coordinate their activities.

### **Cooperatives**

Forming and participating in more formal cooperative organizations also provides farmers the opportunity to benefit from volume sales of produce, bulk purchases of inputs and supplies, and the mobilization of credit. Cooperative marketing involves:

- consolidating loads to facilitate bulk buying by traders or bulk transport;
- sharing transport to reduce costs;
- negotiating jointly with buyers;
- purchasing inputs collectively to reduce costs;
- mobilizing savings and credit, with members providing mutual guarantees.

Credit for individual farmers is more easily accessible through cooperatives and at lower transaction costs. Loan default and the costs of collecting delinquent loans can similarly be reduced when individuals are jointly liable for group loans. However, cooperatives and similar groupings are sometimes the source of risk for farmers, (e.g. when the managers or officers misappropriate the funds).

***Cooperatives provide members the opportunity to benefit from volume sales.***

Summary of issues related to  
institutional risk management strategies

***TRADITIONAL INSTITUTIONS AND  
SOCIAL ARRANGEMENTS***

***Traditional societies provide security  
against risk through strong  
community bonds***

**Positive aspects**

- Social obligation to assist the most vulnerable
- Economy of information collection and dissemination

**Negative aspects**

- Social conflict could result in unsustainability
- Risks suffered by the whole community are not mitigated



## ***PRODUCER GROUPS***

*Unions between farmers that are built on trust and designed to alleviate the risks associated with credit mobilization, the purchase of inputs and marketing*

### **Positive aspects**

- Group enterprises provide confidence for more vulnerable group members
- Economies of scale in service provision
- Organization of farmers improves negotiating power with buyers and traders
- Organization of farmers ensures economy of information collection and dissemination

### **Negative aspects**

- Potential for group conflict and poor sustainability
- Potential for mismanagement

Institutional risk management strategies  
(continued ...)

**COOPERATIVES**

*Formal organizations,  
which provide members with  
the benefit of volume sales of produce,  
bulk purchases of inputs and supplies,  
and the mobilization of credit*

**Positive aspects**

- Economies of scale in bulk purchase of inputs
- Savings in transaction costs for mobilization of capital
- Economies of scale for bulk marketing of produce
- Economy of information collection and dissemination

**Negative aspects**

- Potential for mismanagement
- Requirement for strong financial management and good communication with members
- Need to employ efficient and well-motivated management
- Need for the cooperative to be properly equipped and have the necessary facilities and equipment to carry out its objectives



## HUMAN AND PERSONAL RISK

Human risk refers to the risks to a farm business caused by illness and the personal situation of the farm family. It also covers issues that relate to hired workers.

### Human resource management

An aspect of managing risk for larger farmers is good human resource management. This includes:

- selecting casual workers with suitable skills and experience;
- ensuring workers are employed according to the relevant law (including fair pay);
- regular communication;
- ensuring the safety of workers;
- providing adequate supervision and discipline.

*Strategies  
to guard against  
unexpected changes  
in availability  
and productivity  
of labour*

### Labour planning

Another aspect of human risk management involves strategies to guard against unexpected changes in the availability and productivity of labour. Careful labour planning, such as using a seasonal labour calendar, ensures that farmers know exactly what and how much labour is needed at various times during the production season.

### Labour productivity

To address labour productivity risks larger farmers may replace hand labour with animal power, tractors or motorized implements. Different production programmes including changing farm enterprises and enterprise mixes may also be looked at. Intercropping, improving farm layout, introduction of labour-saving technologies and similar actions can all contribute to a risk management strategy.

*Overcoming  
the risk of  
poor labour  
productivity by  
substituting  
hand labour with  
animal power  
or motorized  
implements*



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Ploughing by hand – Malawi



© FAO/14811/P.Johnson

Ploughing with animal power – Phillipines



© FAO/21725/A.Proto

Ploughing using a tractor – Serbia

Summary of issues related to human and personal risk management strategies

***HUMAN RESOURCE MANAGEMENT***

***The reduction of human risk by ensuring that workers with suitable skills and experience, are selected and by providing communication, supervision and a safe working environment.***

**Positive aspects**

- Increases labour productivity
- Reduces labour problems

**Negative aspects**

- May involve additional labour costs
- Requires more managerial time

Human and personal risk management strategies  
(continued ...)

***LABOUR PLANNING***

***Strategies that guard against  
unexpected changes in the  
availability and productivity of labour***

**Positive aspects**

- Protects against changes in labour availability

**Negative aspects**

- May involve additional labour costs



## **RISK MANAGEMENT STRATEGIES: THE NEED FOR COMBINATIONS**

All of the strategies described in the previous sections are aimed at generating greater security for the farmer. However, it is for the farmer to decide if the benefits gained outweigh the direct or implied cost of the strategy. Making this decision involves a number of steps:

- Identify the most appropriate strategy.
- Determine the degree to which risk may be reduced (i.e. the benefit).
- Identify the cost of implementing the strategy.
- Weigh up the costs and benefits and decide whether or not to implement the strategy.

***The farmer must  
decide if the  
benefits gained  
outweigh the cost  
of the strategy***

It is important to note that some aspects of costs tend to be more important than others in choosing between risk management strategies. Also the various kinds of risk to which a farmer is exposed do not occur in isolation. Over the years a farmer will experience the consequences of many risks. It is therefore necessary to consider all of the risks involved and develop an integrated approach to manage them.

Often a risk management strategy to cover one risk may increase another. Take, for example, a farmer who decides to diversify his crop to cover production risks. The choice of crops could increase marketing risks because, although the new crop is likely to be profitable, there may be a higher risk of price fluctuations.

Farmers should develop a broad range of strategies that take into account the advantages and disadvantages (benefits and costs) of each risk management option individually and in combination.

Key questions that can help a farmer make these decisions:

- *What risks is the farmer facing? What is the likelihood of these unfavourable events occurring? What are the consequences of these risks?*
- *What risk management strategies are available to the farmer?*
- *What effect do the risk management strategies have on the events or consequences faced?*
- *What are the economic benefits and costs of the options?*
- *How do these benefits and costs vary for each of the farm enterprises?*
- *How do the best risk-reducing options fit together? How do they affect one another in terms of costs and benefits and in terms of creating new risks?*

When farmers explore these and similar questions, they will be in a better position to decide on the range of risk management strategies that are most effective for their farm. These strategies should take into account their household and farm goals, their attitude toward risk and their unique family, household and farm situations.



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### An example of combining risk management strategies

Farmer Joe has been growing food for family consumption much of his life. At times he has managed to produce surpluses of grain which he sold in the local market. The income from these sales slowly built up allowing him to diversify into a higher value farm enterprise; egg production.

Owing to poor rains last years maize harvest failed and some of his chickens died after contracting Newcastle disease. Farmer Joe was worried about what to do over the next season. He needed to take decisions that would not be risky and threaten the family food security. Farmer Joe decided to seek out drought resistant seed for his maize crop. He also decided to vaccinate his remaining layers (**risk reducing inputs: technologies**). The farmer was also concerned about the price he was likely to receive from the sale of maize at harvest time. He also enquired about the kind of prices he could get for his eggs in different markets (**market price information**). He decided to sell some of his maize in the local market (**direct sales**) but negotiated an agreement with a local trader who he knew well (**building trust**) for a fixed price at the next harvest season (**forward pricing**). He also learned that some farmers had formed a producer group for egg marketing and were supplying local schools in the area. The schools were also paying a fixed price with a written agreement drawn up (**contract pricing**) for the eggs bought. Farmer Joe also discovered that the group provided its members with veterinary services and group members assisted each other at peak times in collecting eggs.

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