

Understanding and using MARKET INFORMATION



For further copies of this publication
and for information on FAO's activities
related to agricultural marketing
please contact:

Market Linkages and Value Chains Group
Rural Infrastructure and Agro-Industries Division (AGS)

Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla
00153 Rome, Italy

FAX: (+39-06) 57053057
E-mail: AG-Registry@fao.org
www.fao.org/ag/ags

Understanding and using MARKET INFORMATION

by
Andrew W. Shepherd

Market Linkages and Value Chains Group
Rural Infrastructure and Agro-Industries Division

First printed: 2000
Reprinted: 2011

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

All rights reserved. FAO encourages the reproduction and dissemination of material in this information product. Non-commercial uses will be authorized free of charge, upon request. Reproduction for resale or other commercial purposes, including educational purposes, may incur fees. Applications for permission to reproduce or disseminate FAO copyright materials, and all queries concerning rights and licences, should be addressed by e-mail to copyright@fao.org or to the:

Chief, Publishing Policy and Support Branch
Office of Knowledge Exchange, Research and Extension
FAO
Viale delle Terme di Caracalla
00153 Rome, Italy

Preface

This Guide has been prepared to assist extension workers, and others in regular contact with farming communities, to advise farmers on how best to use market information. The Guide emphasizes the necessity to understand why farmers need information, how they can use it and benefit from its use, and what the available sources of market information are. Why prices change, both in the short term and the long term, how to interpret prices provided by a market information service, and how to calculate marketing costs between farmer and market are also covered. In addition, the Guide provides a number of practical ways in which extension officers and others throughout the world can work to improve their support to farmers' marketing efforts.

Contents

Preface	iii
Acknowledgements.....	vii
Introduction	1
1. Using market information	7
2. Obtaining market information	17
3. Why prices change.....	27
4. Interpreting prices quoted by a market information service	35
5. Calculating marketing costs	47
6. Using market information to get better prices	55
7. Using market information for production planning	61
Activities for extension workers – A checklist	77
Endnotes.....	81
Annex -- Gross margin analysis.....	82

Figures

- 1. A marketing chain for horticultural produce..... 40
- 2. Calculating weighted average selling price 44
- 3. A cost calculation 53
- 4. Plotting prices over a number of years..... 66
- 5. Controlling for inflation using the Consumer Price Index..... 68
- 6. The impact of inflation on prices 69
- 7. Calculating storage profitability 74
- 8. An example of storage profitability..... 75

Boxes

- 1. The effect of market information in Albania..... 11
- 2. Market information service – A definition..... 20
- 3. Common problems with market information services..... 22
- 4. Understanding inflation 67
- 5. Inflation and storage..... 70

Acknowledgements

Thanks are due to Christopher Grace, Kyaw Myint, Bridget Poon, Alexander Schalke, Edward Seidler and Michael Westlake who provided valuable comments on draft versions of this Guide. Doyle Baker and David Norman assisted with the Annex. Thanks also to 'Yuss' for the cartoons and to Tom Laughlin for his work in the planning of this series.

AWS



Introduction

PURPOSE

This Guide has been prepared to assist extension workers, and others in regular contact with farming communities, to advise how farmers can best use market information, in particular information provided by government market information services. In order to do this it is necessary for extension workers to understand:

- why farmers and traders need information and how they can use it;
- what the available sources of information are;
- why prices change, both in the short term and the long term;
- how to interpret prices provided by a market information service;
- how to calculate marketing costs between the farmer and the market.

The Guide covers all of these points and also looks at practical ways in which extension workers can assist farmers. Emphasis is both on using current information for short-term marketing decisions and on longer-term, or historical, information for decisions about what and when to produce.

MARKET-ORIENTED PRODUCTION

Farmers have always had to make decisions about what to plant, when to plant and where to sell. In the past, however, such decisions were often not very complicated. They often planted the crops that their neighbours planted, at the same time as their neighbours planted and sold to the buyer or buyers that their neighbours sold to. The situation is now changing. Many farmers now find themselves having to be market oriented and having to make individual decisions about what, when and how to market. Some of the reasons for these changes include:

- reduction in marketing activities by government bodies;
- reduction in, or end to, government production subsidies and price-setting arrangements;
- improved cultivation techniques;
- increased demand caused by greater urbanization;
- the increased opportunity for international trade in perishable produce.

These changes are briefly discussed on the following pages. They have all had an important impact on the information farmers require.

Reduction in marketing activities by government bodies

Throughout the world governments have been withdrawing from direct involvement in agricultural marketing. The most rapid example of this comes from Eastern Europe and the countries of the former Soviet Union. In these countries, centrally planned production, processing and distribution ended more or less overnight. Farmers were suddenly faced with having to identify people or companies who would buy their produce. Often they had to accept the price offered, without knowing whether this was reasonable or not.

In sub-Saharan Africa, governments have gradually been closing down cereal and other marketing boards. In many countries private traders have now taken over completely from such boards. In others, boards continue to function but are now handling only a small proportion of the crop. In the past, the boards often had one buying price, without regard to the time of year, and farmers therefore tried to sell their crop as soon as possible after harvest. Now, farmers need to identify people or companies who will buy their crop, and be sure they are getting a fair price. They may also need to decide whether it would be best to sell their crop immediately after harvest or to store it in the hope that prices will rise.

In other regions of the world changes in food marketing arrangements have been less dramatic. There has, nevertheless, been a general trend away from marketing

boards for food and other crops, towards a greater role for the private sector. Throughout the world, farmers' need for information to ensure effective and profitable marketing has never been greater.

Reduction in, or end to, production subsidies

In the centrally planned economies farms were simply instructed to rear animals, grow feed, grow wheat or potatoes, etc. This was often unrelated to market demand. Moreover, the farms did not have to worry about marketing their products as the final buyer or processor was also decided by the State, which organized the transport as well. With the end of central planning both the large farms and the individual small farmers, who took over state farms in some countries, had to change to grow crops in accordance with market demand. To do this they needed reliable market information.

In much of Africa marketing boards paid the same price throughout the country which meant that farmers in remote areas received prices which did not take account of transport costs. In some cases the transport costs exceeded the value of the crop being transported. Following marketing liberalization many farmers now find that production of staple crops in excess of subsistence requirements is no longer viable. Those in remote areas or at the end of very poor roads have to change their cropping patterns and identify new crops which have higher value-for-weight ratios and can thus absorb higher transport costs.

Improved cultivation techniques

As cultivation techniques improve, and as new varieties of seed become available, farmers are both able to cultivate new crops which they were unable to grow before, and produce “out-of-season” crops. These developments particularly apply to horticultural crops. With modern seeds and techniques, the really market-oriented farmers can consider supplying markets at times of the year when prices are high. To do this, however, they need market information in order to:

- know when prices in the market are highest;
- be able to calculate whether the higher prices will compensate them for the higher production costs involved.

Greater urbanization

Urban populations are increasing rapidly in most parts of the world. This means that a growing proportion of the world’s population is not producing its own food. Every year, more and more people become dependent on a smaller proportion of farmers to supply their food needs through the market. Farmers who have already been growing food specifically for the market are daily becoming more “commercial”; those who previously only sold

Cultivating different crops



W. Baudoin

Farmers may choose to grow new crops which allow them to obtain better incomes



H. Bammann

Producing out-of-season



W. Baudoin

Farmers may choose to extend the harvest season and produce crops before or after most other farmers



W. Baudoin

subsistence surpluses are now becoming market oriented. A greater reliance on the market by farmers means that they face greater risk of something going wrong. To minimize that risk, they need to make informed production decisions, for which they need to have as much information as possible.

Increased international trade in perishable produce

The range of fresh food products traded internationally has expanded rapidly in recent decades. This has mainly been made possible by the availability of fast and frequent air-freight capacity. Importers in developed-country markets have taken advantage of this to:

- make products available to consumers throughout the year when previously they had only been available during the domestic season;
- supply produce which has not previously been supplied;
- supply products that appeal to their immigrant or “ethnic” communities.

While the quantities of perishable produce exported are, in most cases, small in comparison with a country’s total production, they do represent an important, and potentially high-value, market for farmers.

INFORMATION REQUIRED

In many cases, as explained before, farmers now have to take greater responsibility for marketing their agricultural produce. At the same time, they also have the opportunity to supply a wider range of products. Whether they are seeking to sell their traditional products or to market new products they need to have information about markets and prices. The types of information required can be summarized as:

1. *Who and where the buyers are*, how they can be contacted, what their conditions of business are, what their preferences for varieties, packaging and delivery are, etc.
2. *Immediate, or current, prices (and supply)*, which help farmers to decide whether to sell their crop on a particular day or wait in the hope that the price will rise, or which enable them to decide if the price offered by the local trader is a reasonable one.
3. *Longer-term, or historical, price data* over a number of years, which helps farmers to decide, for example, whether it would be profitable to start growing new crops, to grow existing crops out of season or to seek to produce higher quality crops.

Assisting farmers to obtain information on how to sell

and who to sell to will only be briefly considered in this Guide¹. The main emphasis is on how extension workers can assist farmers to use the information provided by market information services. Extension services have traditionally concentrated on providing only production advice to farmers. However, as farmers become more market oriented, so must the extension workers because:

- the aim of agricultural extension should be to help farmers maximize their production potential and, hence, incomes;
- if farmers cannot sell what they produce then all the extension advice on production techniques will have been wasted.

Note: A checklist of activities for extension workers is provided on pages 78 and 79.

1 Using market information

Main points in Chapter 1

Using market information

Farmers can make use of market information to ...

- ***Reduce the risks associated with marketing***
 - *Knowing prices helps them decide whether it is worth sending their produce to the market*
- ***Decide where to sell***
 - *At which stage of the marketing chain (e.g. assembly market or wholesale market)?*
 - *At which market?*
- ***Check on the prices they are getting***
 - *Are they negotiating well with traders?*
 - *Is the quality of their products the same as other farmers' quality?*
 - *Are their agents in wholesale markets getting good prices for them?*

- ***Decide whether or not to store***
 - *Farmers can store some crops for several months if they think the price will go up*



*When farmers send their produce to distant markets
they run the risk that the price
will not even cover the marketing costs.
Market information can help avoid such situations.*

- *Decide whether to grow “out-of-season”*
 - *Modern farming techniques offer the chance to harvest crops when prices are highest*

*Market information
can help farmers negotiate with traders ...
... but it must be up-to-date.*



- *Decide whether to grow different crops*
 - *Farmers can grow new crops but they need to calculate whether they will be profitable*



*Market information can help identify
profitable production opportunities.*



USES OF MARKET INFORMATION

As was discussed in the Introduction, information is essential for farmers who wish to become fully market orientated and ensure that their production is in line with market demand. In theory, the availability of reliable market information can assist farmers to:

- reduce the risks associated with marketing;
- decide where to sell produce;
- check whether or not the prices they are offered are in line with market prices;
- decide whether or not to store;
- decide whether to grow produce “out-of-season”;
- decide whether or not to grow different products.

Reducing risks

All farmers, wherever they are in the world, face numerous risks. They obviously run the risk that bad weather will damage or destroy their crops. They also run the risk that the market prices will not be good enough for them to make a profit. Even worse than not being able to cover their production costs, farmers who take or send their produce to markets which are a long way from their farms sometimes discover that the prices they get are not even good enough to cover their marketing costs, such as transport, handling and market fees (see Chapter 5).

To give an example, tomato farmers have production costs of \$30 per 100 kg and marketing costs of \$15 per 100 kg. So, their total costs are \$45:

- If the market price is \$60 they will cover both production and marketing costs and make a profit. They will clearly send their tomatoes to market.
- If the market price is \$30 they will lose money. However, they will still send their tomatoes to market because they will cover their marketing costs and get back at least some of their production costs.
- If the market price is \$10 sensible farmers will not send their tomatoes to market because not only will they lose all the money they spent on production but they will also lose some of their marketing costs. It will be better to delay harvest until prices improve (assuming that harvest can be delayed). In the worst-case situation it may be necessary to let the tomatoes just rot in the fields.

NOTE: The \$ sign is used throughout this Guide to refer to money in general, and not to any particular national currency.

Information about market prices and about quantities supplied to markets can reduce this risk. Of course, good information cannot remove the risk altogether because seasonal prices for perishable produce can fluctuate rapidly and significantly, depending on how much of the product arrives in a market on a particular day. But having some information is clearly better than having none at all.

The availability of historical price information can also help minimize risks. For instance, it can reduce the risks associated with deciding to store a crop for sale later in the year or with deciding to grow new crops. These points are considered later in this chapter.

Deciding where to sell

It is important that the farmer should be able to sell his or her produce at a convenient place. In some cases farmers have several options. They can:

- sell at farmgate;
- deliver to a local assembly market;
- supply a wholesale market direct;
- sell directly to individual retailers or to large companies that have many retail stores or supermarkets;
- sell to companies with whom they have an agreement or “contract” to buy the crop;
- sell directly to urban consumers.

The further along the marketing chain the farmers go, the higher the price they will normally get. However, a high selling price may not mean that farmers will maximize their income. This depends on the costs involved when farmers decide to sell closer to the final consumer. It can be a lot more costly for a farmer to transport small quantities over a long distance than for a trader to transport large quantities over the same distance.

Box 1

The effect of market information in Albania*

In August 1994 the new market information service in Albania started collecting retail market prices from leading markets on the main marketing day, which was Saturday.

As a result of this new Service it rapidly emerged that there were significant differences between prices for the same crops in various markets, even markets as close to each other as 15 kilometers. Sometimes prices in one market were almost twice those in nearby markets. This was because roads were poor and telephone communication at that time almost non-existent, so farmers always preferred to supply the market closest to their farm and were unable to contact other markets to learn of their prices.

After the information about market price differences became known as a result of the Service more dynamic farmers began to deliver their produce further afield, despite the bad roads.

* C. Grace pers. comm.

TYPES OF MARKET

Assembly market is a term used to describe where farmers go to sell their produce to the traders, who will then take it to a wholesale market. It is much more efficient for traders to purchase from farmers at one or two places rather than visit each farmer individually. In fact, where roads are poor many farmers cannot be visited by truck. Assembly markets can take many different forms: in some cases they may be small areas where farmers and traders gather for a couple of hours on a regular or irregular basis, in others they may be weekly or twice-weekly markets. Normally, assembly markets are in rural areas but permanent assembly markets can often be found in small towns close to farming districts. In this case, such markets also function as local wholesale markets and perhaps also as local retail markets.

Wholesale markets can best be described as places where retailers and businesses buy their supplies. Deliveries to wholesale markets can be made by the farmers themselves or by traders who have either bought from farmers or perhaps from other, smaller traders. Although in some countries the person delivering the produce direct to the wholesale market is responsible for selling it to retailers, in most cases a wholesale trader in the market will take delivery from farmers or traders and later sell the produce to retailers.

Wholesale markets play important functions, because:

- farmers and traders can deliver their produce to one location rather than having to visit many retailers;
- retailers can buy a wide range of produce at one place;
- the trading of large quantities of produce in one place makes possible the development of market prices which reflect supply and demand. If individual traders were selling to individual retailers this would not be possible and prices would vary significantly all over a town or city.

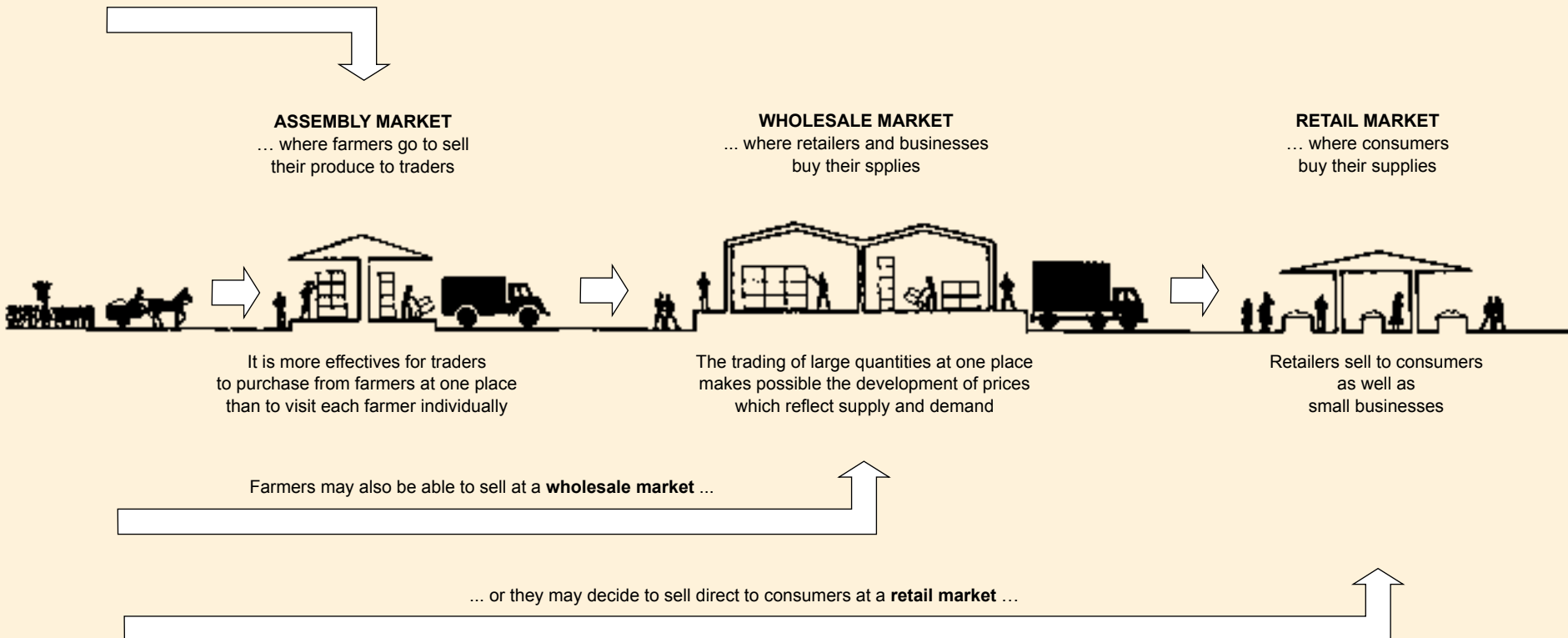
Retail markets are markets where consumers buy their supplies. The word “consumer” includes families and individuals as well as small businesses such as restaurants and street food traders (larger businesses will probably buy at wholesale markets, or even direct from the farmer). People who sell at retail markets are usually either specialist retailers who buy produce direct from farmers or farmers themselves. Of course, formal markets account for only a small part of retail sales, with consumers often having a range of choices of where to shop, from sophisticated supermarkets, through small retail shops to retailers who sell from trucks, bicycles or at the side of the road.

Farmers may be able to sell at **farmgate** ...

... but if they can take their produce
to an **assembly market**
it may be to their advantage

**THE FURTHER ALONG THE MARKETING CHAIN FARMERS GO
THE HIGHER THE PRICE THEY WILL NORMALLY GET ...**

... BUT THEIR COSTS MAY GO UP MORE THAN THEIR PRICES



Other options for farmers include ...

... selling their produce to companies under **contract farming arrangements** ...

... selling directly to **processing companies**

Similarly, selling directly to consumers is costly in terms of farmers' time. Sitting in a market all day will probably get them higher prices but it may be that they could be spending that time more usefully working in their gardens. Availability of information on market conditions at different locations or different points in the marketing chain is necessary for choosing where to market, as is an understanding of the marketing costs involved (see Chapter 5).

Checking on prices received

With good information farmers can compare the prices they are receiving with the general level of prices in the market. This is the case in Indonesia, where horticultural market prices are broadcast daily for all of the major production areas. If farmers receive prices lower than those broadcast they may, for example, conclude that they should seek out other traders in future, negotiate more forcefully or try to improve the quality and presentation of their produce. Broadcast prices in Indonesia are also used by farmers as a starting point in negotiations with traders the following day.

Checking prices is particularly important for farmers who send their produce "on consignment" to agents or wholesalers in wholesale markets. Farmers have no advance knowledge of the prices they will receive and depend on their agents to get the best prices for them.

These arrangements require that the farmers trust their agents to get the best price possible. Even where such trust exists, however, it is still useful if farmers can compare the prices they receive with the reported market prices.

Deciding whether or not to store

Farmers growing perishable crops clearly have relatively little choice about when to sell them. They may be able to advance or delay harvest by a few days but, basically, they have to sell the crops when they are mature. On the other hand, farmers producing grain crops such as maize and paddy rice, or crops such as onions, potatoes and apples, may be able to store them in expectation of higher prices later, always assuming that they have suitable stores.

Where a government market information service has been functioning for several years it should be able to make available data about seasonal price trends. From this, farmers, guided by extension workers, can get an idea about the seasonal pattern of prices. However, the exact pattern in any year depends on the size of the harvest. Where there is a good harvest prices may not rise by very much over the year and storage may not be very profitable. On the other hand, when the harvest is poor prices may go up a lot and farmers who store may do very well. Chapter 8 gives examples of how to calculate the likely returns from storage.

Produce which can be stored may fetch higher prices later



FAO/17831/A. Conti

Maize – Zambia



FAO/16183

Potatoes – Ecuador



FAO/19776/G. Bizzarri

Rice – Myanmar



FAO/18937/G. Bizzarri

Garlic – Honduras

Deciding whether to grow produce “out-of-season”

A further advantage of having historical data on seasonal price trends is that farmers can make informed decisions about when to produce. In the past most farmers faced the problem that when their seasonal crops were ready for harvest so were the crops of most other farmers. As a result they had to accept low prices. However, with modern farming techniques and new varieties it is now often possible to extend the harvest season and produce crops both before and after most other farmers.

Seasonal price data will give farmers a good idea of the prices they are likely to get from out-of-season production. However, the fact that they will almost certainly get higher prices doesn't mean they should immediately plan to produce out of season. If things were that simple all farmers would be doing it. Out-of-season production generally involves higher investment costs (for example, for plastic tunnels); higher production costs (for example, for pest-control chemicals) and may well result in lower yields. Extension workers therefore need to be able to help farmers to calculate their likely production costs and relate these to expected selling prices.

Deciding whether to grow different crops

If new crops can increase their incomes, farmers are often keen to try to grow them. In some cases recent government policy changes have now made it almost

essential that some farmers diversify into new crops. For example, in Africa the closure of marketing boards which in the past had often guaranteed the same buying price throughout a country, may mean that those farmers living in areas where marketing costs are high find that the return on crops such as maize no longer justifies the costs. Such farmers need, with assistance from extension officers, to be able to calculate whether growing other crops may be more profitable. Information on past market prices is essential for them to make such decisions.

In other cases farmers may be considering diversifying into new crops to take advantage of market opportunities. In Nepal, for example, the existence of many microclimates in the hilly areas means that crops which were in the past considered seasonal can, in fact, be grown in one place or other for most of the year. Working closely with the Nepalese Government, an FAO project identified market opportunities for various crops and related these to the ability of different areas to supply at different times of the year, using new varieties where appropriate.

2 Obtaining market information

Main points in Chapter 2

Obtaining market information

Possible sources of market information ...

- ***Government-run market information services***

- *Are independent and thus likely to be unbiased*
- *Offer information over several years*
- *Provide information that can be used to help farmers get better prices and plan for production, such as what to plant or when out-of-season production can be advantageous, but ...*
- *Do not always reach the smaller farmers*
- *May not be up-to-date or information may be made available too late to be of any use*
- *May not be very accurate*
- *Provide little analysis*



*Government market information services
are not always up to date.*



*Farmers are also not always
the most reliable source of information*

- **Traders**
 - *Often have up-to-date information, but ...*
 - *Will want to buy products as cheaply as possible*
- **Other farmers**
 - *Can be an important source of information about local markets, but ...*
 - *May not have an accurate idea of the prices they received*
 - *May exaggerate prices they received*
- **Other sources, including ...**
 - *Price boards in markets*
 - *Extension workers*
 - *Non-Governmental Organizations (NGOs)*
 - *Agro-processors*

SOURCES OF MARKET INFORMATION

In many developing countries and countries in transition, government-run *market information services* (MIS) may not be the main source of market information for farmers. Some countries still do not have such services and, where MIS are operated, they often provide inadequate information. Small farmers often rely more on word-of-mouth information from *other farmers* and from *traders*. As telecommunications improve rapidly, many farmers are beginning to seek information by telephone directly from the major markets.

Box 2

Market information service – A definition

FAO defines an MIS as a service, usually operated by the public sector, which involves the collection on a regular basis of information on prices and, in some cases, quantities of widely traded agricultural products, from rural assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policy-makers and others.



A. Schalke

An up-to-date notice board of market information can be of great help to farmers



Anon

Other farmers can be an important source of market information, particularly about local markets



Often the best sources of information for farmers are extension workers



Modern farmers are in constant touch with buyers – even when in the field!

Government-run market information services

The main strengths of government-operated MIS are that they are independent and are not likely to give deliberately biased information, which may not be the case with traders or, indeed, other farmers. A further strength is, or at least should be, that they are able to put together information about price trends over a number of years. As noted, this information can be used to make decisions about what to plant and about out-of-season production. Information provided by farmers or traders, on the other hand, is almost always by word of mouth and forgotten within a couple of days.

The majority of governments recognize the importance of market information and try to provide at least a basic service. In doing so, the aim is to:

- create “transparency” so that everyone involved in production and marketing knows what the market prices are;
- reduce the likelihood of local or regional shortages because traders can act in response to price information to supply deficit areas;
- put farmers in a position where they are better able to bargain with traders;
- indicate possible, profitable production opportunities for farmers;
- improve policy formulation through the availability of better information.

Box 3

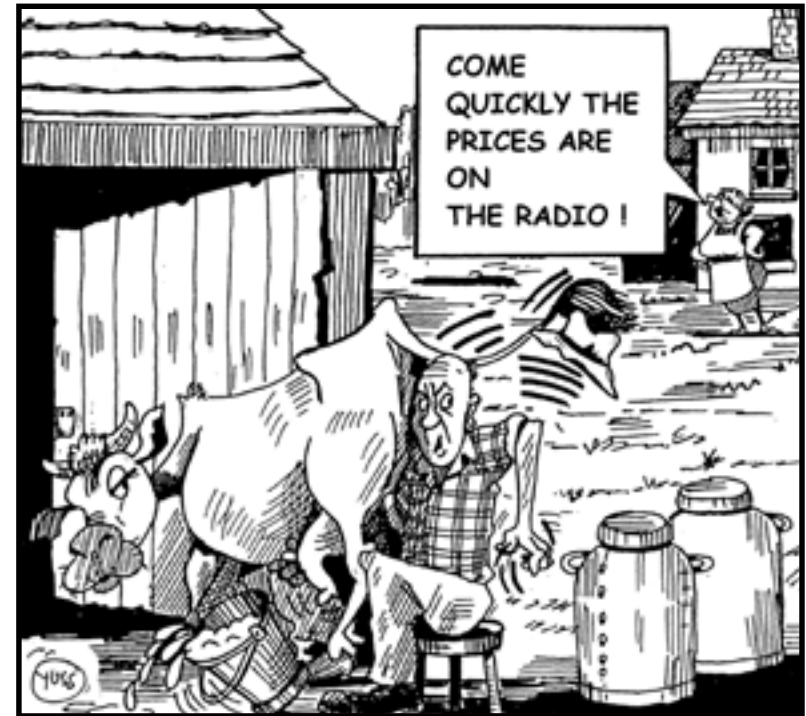
Common problems with market information services

- they often pay a lot of attention to collecting large quantities of information but are then very poor at making that information available to farmers;
- they pay inadequate attention to the quality of the data collected, which can be poor and not an accurate reflection of prevailing market prices;
- they collect and disseminate information on prices too infrequently. Prices of horticultural produce in major markets are constantly changing but MIS may collect price information weekly or even every two weeks. While such information can be used for long-term planning purposes it does not really help farmers to negotiate with traders or to decide whether or not to send produce to market;
- they publish information in a form which is unsuitable for some farmers. Some MIS publish market prices in newspapers but do not broadcast them on the radio. In some countries newspapers only reach rural areas slowly: in many a high proportion of farmers cannot read;
- they broadcast information on the radio but in the wrong languages and at the wrong times for farmers to be listening;
- they construct notice boards in villages or markets in order to tell farmers what the prices are, but then forget to update the information on the boards, which eventually become broken down. Alternatively, they leave prices on the boards with no date, so that farmers have no idea to when the prices refer;
- they report prices for a particular product without making it clear to which variety the prices refer;
- where volume units of measure are used (e.g. “boxes,” “tins,” “sacks”) they report prices for such measures, without noting that the size of such containers often varies within a country;
- they convert prices to standard weights (usually kilograms) which, in some countries, farmers may not understand;
- they report information on prices in urban city markets, but farmers have no way of understanding what these prices mean to them;
- they provide farmers with market prices but give no analysis of trends and rarely provide information about quantities supplied or other important commercial information (such as roads which are blocked) which could affect supply.

Market information services have a variety of ways to get information to the users. Radio and, where available, television are the best forms of communication as they allow farmers to learn quickly about price changes, but many MIS have problems in paying for such broadcasts. National and local newspapers are also used. Some MIS publish bulletins and distribute these by post, either free of charge or for a fee, but the circulation of such bulletins is usually limited and delayed. Extension services often publicize MIS information, either by making bulletins available to farmers or by reproducing the information on notice boards. At a much more sophisticated level, many countries now make information available through Internet sites. The use of SMS text messaging is rapidly growing in popularity.

The recommendations made in this Guide assume that farmers and extension workers have market information services in their countries. It is, however, important that extension workers are aware of the limitations of many MIS and take these into account when helping farmers to interpret and use price information. Problems that can be faced by MIS are listed in Box 3.

In many countries market information services are doing a good job, and in others they are working hard to overcome problems. Almost all suffer from a shortage of money to do the job properly. Nevertheless, there appear to be few alternatives to government bodies providing market information. There is no way that small farmers can be



*Radio broadcasts are not always
at the most convenient time for farmers.*

realistically expected to pay for information and, anyway, collecting payment would be almost impossible. There are a few market information services which are privately operated but these concentrate on selling information to large farmers, as well as traders and processors. Other MIS try to sell detailed information to larger farmers, while making simpler information available to all.

Traders

When farmers deliver produce directly to urban markets or “consign” it to agents in those markets then the agents or traders in the markets are their main source of information and this information is completely up-to-date. Some farmers may be able to telephone in advance to find out the price before going to market or sending the produce. All farmers can, on arrival at the market, check with other farmers about the prevailing prices (as noted below, however, this may not always produce reliable information). Frequently, farmers deal with the same wholesale agent or trader for many years and have come to rely on that wholesaler to provide accurate information. Nevertheless, it is useful for farmers to occasionally check with other traders and farmers in order to be sure that the wholesaler they work with is being honest.

Information available to rural traders on urban market prices is almost certainly more up-to-date than that provided by market information services. Not only do traders regularly visit these markets and so find out the

prices for themselves, but they also learn about market conditions from other traders. Increasingly, traders are now in direct contact with markets by standard telephone and, where available, cell phone.

Clearly, traders want to make a profit. One way to do this is to ensure there is a big difference between the price they pay farmers and the price they get when they sell the produce. This difference must certainly cover all their marketing costs. They will probably negotiate with farmers by claiming that urban market prices are lower than they actually are. Even where a country has a good market information service which provides information on a daily basis, traders can still argue that their sources of information are more up-to-date than those of an MIS. Farmers who may not be able to afford a radio, let alone a cell phone, are in no position to argue.

However, where there are many traders the opportunity for individual traders to push the price down is limited. If the difference between the buying and selling price is too high other traders will see the chance to increase their profits, not by paying lower prices but by handling more produce.

Thus, where there is competition between traders there is scope for farmers to increase the prices they are paid. However, farmers still need unbiased information so that they can negotiate from a position of strength. While MIS may not be able to provide information which

is sufficiently up-to-date for farmers to negotiate on a daily basis, the information they provide should at least enable farmers to know what the price trends are. If, for example, the trader the farmer usually deals with is offering the same price as before but the recent price reports from the MIS show that prices have been going up, then the farmer should be in a stronger position to argue.

Other farmers

Other farmers can be an important source of market information, particularly about local markets. At the same time, it should not be assumed that information from farmers is always reliable. Reasons for this include:

- farmers will remember the total price they received, but may not have known the exact weight that they sold (particularly when using non-standard containers), and thus cannot provide reliable information on the price per kilogram;
- farmers may tend to exaggerate the prices they receive. They may want other farmers to think that they are either (1) very good at negotiating with traders or (2) producers of top-quality produce which gets the best prices.

Other information sources

Some of these are briefly described below.

Price boards in markets. Sometimes markets collect prices, either together with or independently from the market information service, and display these on notice boards at the markets. Clearly, this information is only of use to those farmers who visit the markets and of little use to farmers who prefer to sell at farmgate. Nevertheless, managers of markets should be encouraged to collect market prices wherever possible and make this information available to farmers.

Extension workers. Potentially the best sources of information for most farmers are extension workers. As will be explained later in this Guide, a good extensionist should be able to identify local buyers for various crops, and find out what prices they are paying and their terms and conditions. If the extension service has marketing specialists at headquarters then the extension worker can get in touch with them to get information about markets further away. In the long term, extension workers can keep records of prices reported by the MIS and plot them on graphs so that farmers can visit them and see the seasonal fluctuations. In the short term, extension workers can help farmers understand the MIS broadcasts, and it is the main purpose of this Guide to help them do this.

Non-Governmental Organizations. NGOs are often involved in marketing improvement activities. However,

these organizations often only reach a small proportion of farmers. Also, NGOs, like government ministries, sometimes get carried away with the idea of encouraging production, without paying too much attention to the market for the produce. Nevertheless, NGOs can carry out many of the activities identified for extension workers in this Guide (see also pages 78 and 79).

Agro-processors. For crops which are not sold in markets, the main outlet is usually agribusiness companies. These will normally provide information about their buying prices on request (in person or by phone) and often place notice boards outside their premises detailing those prices.

3 Why prices changes

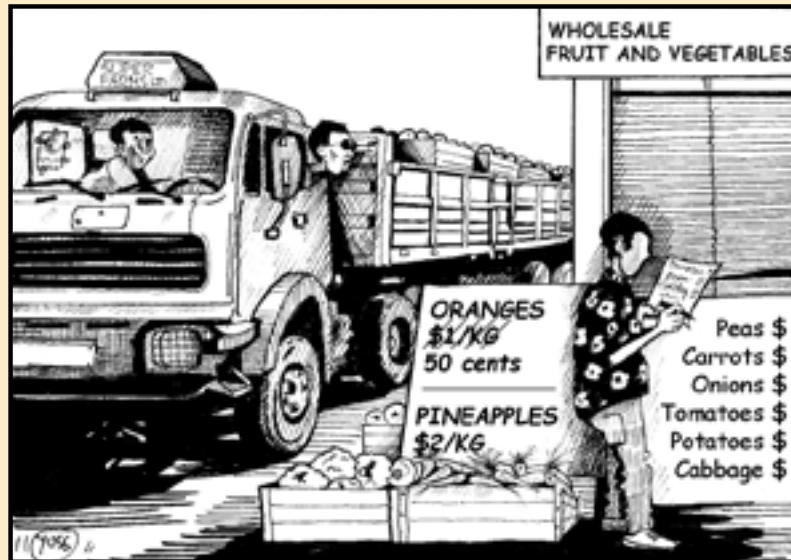
Main points in Chapter 3
Why prices change

Overall, prices depend on ...

- **Supply**, or what people are able and prepared to sell at a certain price
- **Demand**, or what people are prepared to buy at a certain price

Short-term price fluctuations can be caused by ...

- How much of the product is on sale on any day
- Short-term demand changes
- The availability of competing products



Prices can fluctuate considerably in response to sudden supply changes.



*At certain times
of the year
demand for certain
crops goes up ...
... as do prices.*

***Longer-term price fluctuations
depend on ...***

- ***Supply***, which is influenced by
 - *How much farmers planted*
 - *The weather*
 - *Farmers' own consumption needs*
 - *Whether farmers store or not*
- ***Demand***, which is influenced by
 - *The price*
 - *The price of competing products*
- ***Time of the year***
 - *There is a seasonal price pattern for most crops, particularly annual crops*

HOW PRICE IS DETERMINED

In a market-oriented system the price of a product is determined by *supply* and *demand*. Basically, a balance is achieved between what people are prepared to supply at a price and what people want to buy. This is referred to by economists as a “market equilibrium” price. As the price of a product rises the quantity which will be supplied also rises and the quantity demanded falls, or vice versa. The market price will rise or fall until the quantity supplied or demanded is the same, or in “equilibrium”.

It is important to note that:

- *Supply* is what people are prepared to sell at a certain price. While supply is influenced by production it is not always the same as production. For example, as noted earlier, farmers may sometimes grow perishable crops and not harvest them because the price is too low. For less perishable crops, farmers or traders may decide to store them in the hope that prices will rise, rather than sell them immediately. When prices do rise they may take the products out of store to sell. At this time supply is equal to production harvested for immediate sale plus products taken out of store;
- *Demand* is not how much people would like to buy, nor what they should buy for a healthy diet. It is how much they are prepared to buy at the market price.

This chapter briefly looks in a simple way at the influences on prices. It starts by considering short-term price fluctuations, particularly for fairly perishable products. Prices can fluctuate significantly on a daily basis, or even during one day. It then considers long-term price movements, over a period of one year or longer. As already noted, market information services can be valuable in providing information about both types of price movement; the first to enable farmers to make immediate decisions about when to harvest and the second to help them plan their plantings.

SHORT-TERM PRICE FLUCTUATIONS

The main causes of short-term price changes of fresh produce are:

- the amount of produce on sale in the market on a particular day and the quantities sold in the previous few days;
- short-term demand changes;
- the effect of competing products on demand.

Quantities available

As a general rule, prices in wholesale markets will be closely related to the quantities arriving at the markets on any particular day. Thus, if a wholesale market receives 1 000 kg of oranges on a Monday and the wholesale buying price per kilogram is \$1.00 it can be expected that if 1 000 kg arrive in the market on Tuesday the buying price will be much the same. However, this may not always be the case. For example, for one reason or other (e.g. bad weather or a transport strike) there may have been no oranges delivered to the market at the end of the previous week. This will have created a shortage and prices on Monday will go up as retailers will compete to buy oranges to sell to consumers who have run out. By Tuesday, it will be clear that the supply is back to normal, and market prices may well go down, even though the quantity supplied is the same.

Although production of perishable crops in a particular area can be highly seasonal, many countries have several producing areas, each of which may have a slightly different season. Thus, farmers in one area may be the only suppliers of a particular crop in one particular week and market prices will be high. However, in the following week produce from other producing areas may come on to the market, and prices will fall. In order to maximize their returns, farmers in the first area will try to maximize their sales in the first week (e.g. by selling produce which is not fully mature) while producers in the second area will use similar techniques to bring forward their sales.

Short-term demand changes

If traders expect that the supply will increase in the coming days (e.g. if they know that a coastal ship loaded with oranges is due to arrive soon) they will be prepared to pay less for oranges as the time of the arrival gets closer. Thus, while 1 000 kg of oranges may have obtained a price of \$1.00 on Monday, by Wednesday the price may be down to \$0.75, because demand had gone down in expectation of lower prices when the ship arrives. Of course, many markets do have suitable facilities for produce storage. These will tend to even out price fluctuations for those products which can be stored.

Demand from consumers is usually higher at the beginning of weekends. For one thing shops in many countries are closed for one day of the week and thus people shopping on a daily basis may want to buy twice as much fresh produce on the day before. This may push up prices a little, although farmers and traders will also adjust their supply to take account of this. Over weekends the pattern of demand also changes. People are likely to cook more in their own homes and may eat special foods only at weekends. On the other hand, businesses which mainly supply lunches to workers may well shut at weekends and therefore will not be buying fresh produce. National holidays and religious days can have a big effect on demand. Some products are mainly grown for these holidays. For example, in the Maldives Islands it is common to eat watermelons at Ramadan; in the United States pumpkins are mainly grown for Halloween. But

demand for all produce is likely to increase as families celebrate holidays with special meals.

Competing products

If only oranges are available in the wholesale market, then the prices will be fairly high. However, in the following days other fruit may also become available. Retailers, and hence consumers, will then have a choice between, for example, oranges and mangoes and pineapples. Thus, although the quantity of oranges delivered to the market may stay the same, the price will go down, because some people who would have bought oranges will now switch to other fruit. In order for the wholesalers to sell all the oranges delivered to the market they may have to lower the price.

A good market information service should be in a position to provide information not only about prices but also about supply. In practice few MIS do this. It is therefore important that extension workers who advise farmers on marketing are aware that prices of some crops, particularly the more perishable, can fluctuate rapidly and significantly.

LONG-TERM PRICE CHANGES

The main factors which influence long-term market price developments for agricultural products are:

- supply;
- demand;
- time of the year.

Supply

While the quantities available in a market on a particular day may lead to short-term price fluctuations, other factors influence the long-term price trend. In the case of perishable produce which cannot be stored for any length of time, or for which there is no suitable storage, the main impact on prices is seasonality of production. Thus, for a crop such as tomatoes the price trend will depend primarily on when the crop reaches maturity in the main producing areas.

In the case of staple foods such as paddy (rice) or maize, and other crops which can be stored for lengthy periods, such as potatoes, onions and garlic and fruits such as apples, the market price is not so much related to what is supplied to markets on a daily basis as to what is produced in a season or year.

Supply to the market can be influenced by:

- *How much was planted.* If prices in one year are bad, farmers will often respond by planting less in the next year. This will lead to lower production and higher prices, so encouraging more plantings in the following year and a consequent fall in prices. This cyclical nature of production and prices is quite common. Successful farmers are sometimes those who do the opposite to what is being done by other farmers.
- *The weather.* Inadequate rains can have a significant effect on production levels for all crops not grown with irrigation.
- *Farmers' family requirements.* Farmers have first of all to feed themselves and their families. This can exaggerate the effects of a poor harvest on the quantities supplied to the market. For example, if a country produces one million tons of rice in a normal year and farmers keep one half of that for their families, then 500,000 tons are available to be sold on the market. However, if the harvest is poor and goes down to 750,000 tons farmers may still want to keep 500,000 tons for their families, so leaving only 250,000 tons to sell on the market. Thus, a decline in production of 25 per cent could actually lead to a decline of 50 per cent in the quantity sold.
- *The price.* Where they have suitable stores farmers usually have the option of selling immediately or of storing in the hope that prices will rise later in the

season. Their decisions about how much to store and how much to sell will depend on their need for money after harvest, on the price and on their knowledge of likely price trends. If farmers sell a large proportion of their crop immediately after harvest, this will inevitably lead to lower market prices, although the effect may be reduced if traders and millers decide to store large quantities.

Demand

Demand is influenced by:

- *The price.* If the market price is high consumers will reduce their purchases. In the case of some products such as fruits, significant reductions can often be made because consumers do not consider them to be essential parts of their diets. However, for staples such as rice, maize, roots and tubers and for other important crops (e.g. in some societies, chillies and onions) it is more difficult to make significant reductions in the quantities consumed. If prices go up people may eat slightly less, and they may also be more careful about how much they cook in order to waste less. They may continue to buy the same quantities but buy a lower quality, for example, rice with a higher percentage of broken grains or unsifted maize meal instead of supersifted. They may also buy other products which they see as being of better value, if such products exist.

If the market price is low consumers will probably increase their consumption, buy better quality and, if they can afford to, be less careful about avoiding waste. But a person can only eat so much rice or maize, so consumers who can already afford adequate quantities will not increase their consumption by much. Instead, they are likely to use the money saved on staple foods to buy larger quantities of fruits and vegetables than they would normally consume.

The interrelationship between supply and demand and prices for foods is therefore quite complex. A change in the price of one product can affect the demand and, in turn, the price of an entirely different product. In general, it can be seen that supply is likely to fluctuate much more than demand and thus production changes will normally have a greater impact on prices than demand changes.

Time of the year

For annual crops, while the level of prices can be expected to vary from year to year according to the general level of price inflation and the size of the harvest, prices will usually follow the same seasonal pattern. For a country which begins its harvest in April or May it can be expected that consumer prices will be rising in the December to March period. In April they may stay more or less the same until the end of the month and then prices begin to fall as much of the new crop becomes available. Prices

will then fall until June or July and then start to rise slightly, rising more steeply towards the end of the year. Such fluctuations will obviously be less dramatic in a country which has two harvests of the main staple food (e.g. many rice-producing countries) but there are still likely to be seasonal price fluctuations.

As already noted, one of the important benefits of a market information service is that it can provide long-term information which helps farmers to know the seasonal price trends for various crops. This information may offer few advantages to farmers in the case of staples such as rice and maize but for horticultural crops, particularly those which a farmer has not previously grown, it is very important to be aware of seasonal price variations so that the most profitable production decisions can be made.

4 Interpreting prices quoted by a market information service

Main points in Chapter 4
**Interpreting prices quoted
by a Market Information Service**

*To advise farmers
extension workers need to know
to what stage in the marketing chain
the quoted price refers*



*There is often confusion between wholesale selling prices
and wholesale buying prices.*

*Wholesale quantities are sometimes sold in retail markets ...
... here again, there can be confusion regarding the prices.*



Is it ...

- *An assembly market price?*
- *A wholesale market buying price?*
- *A wholesale market selling price?*
- *A retail price?*

*To use price information farmers need to know
how their quality compares with that in the market.*

*It is important that extension workers
have a good knowledge
of how marketing systems function
and the types of market
that farmers can use*



*Selling directly to consumers in retail markets
can be costly in terms of farmers' time ...
... reliable information on market conditions is essential.*



*Other factors influencing the relevance
of price information for farmers include ...*

- *Variety of product to which the price refers*
- *Quality of the product referred to*
- *Day and time the prices were collected*

WHAT PRICES ARE BEING QUOTED?

Market information services provide price information in a variety of forms. In order to give farmers a good idea of what the prices quoted on a radio or printed in a newspaper mean for them it is important to know exactly what prices are being quoted. There are at least four questions which need to be asked:

- to what stage in the marketing chain does the quoted price refer?
- to what variety and what quality does the price refer?
- on what day were the prices collected?
- at what time of the day was the price collected?

PRICES AT DIFFERENT STAGES OF THE MARKETING CHAIN

Prices recorded by an MIS could be:

- assembly market prices;
- wholesale buying prices;
- wholesale selling prices;
- retail prices.

In some cases MIS may quote several different types of price in one broadcast, depending on the markets and products being referred to. Sometimes this may be deliberate, as it reflects the way the marketing system operates. In other cases the MIS may itself be confused about the different types of price. Where there is any doubt, extension workers should always contact the MIS to obtain clarification about which price is being quoted.

Assembly market prices

Assembly markets can best be described as places where farmers come together to meet with traders. At these markets traders buy produce from the farmers and then send it to urban wholesale markets or, occasionally, retail markets or processors. Knowledge of the prices at which traders buy is often the most useful for farmers because the prices refer to a location relatively close to their farms and because they do not have to make difficult calculations to translate market prices into farmgate prices. However, the prices are difficult and expensive for an MIS to collect because many countries have a large number of assembly markets and MIS generally have limited funds. Thus only a few countries collect and disseminate assembly market prices.

Wholesale buying prices

Wholesale marketing practices vary widely around the world and there are at least four basic methods of operation, as listed on the next page. Within each of these

methods there are numerous variations in actual trading practices.

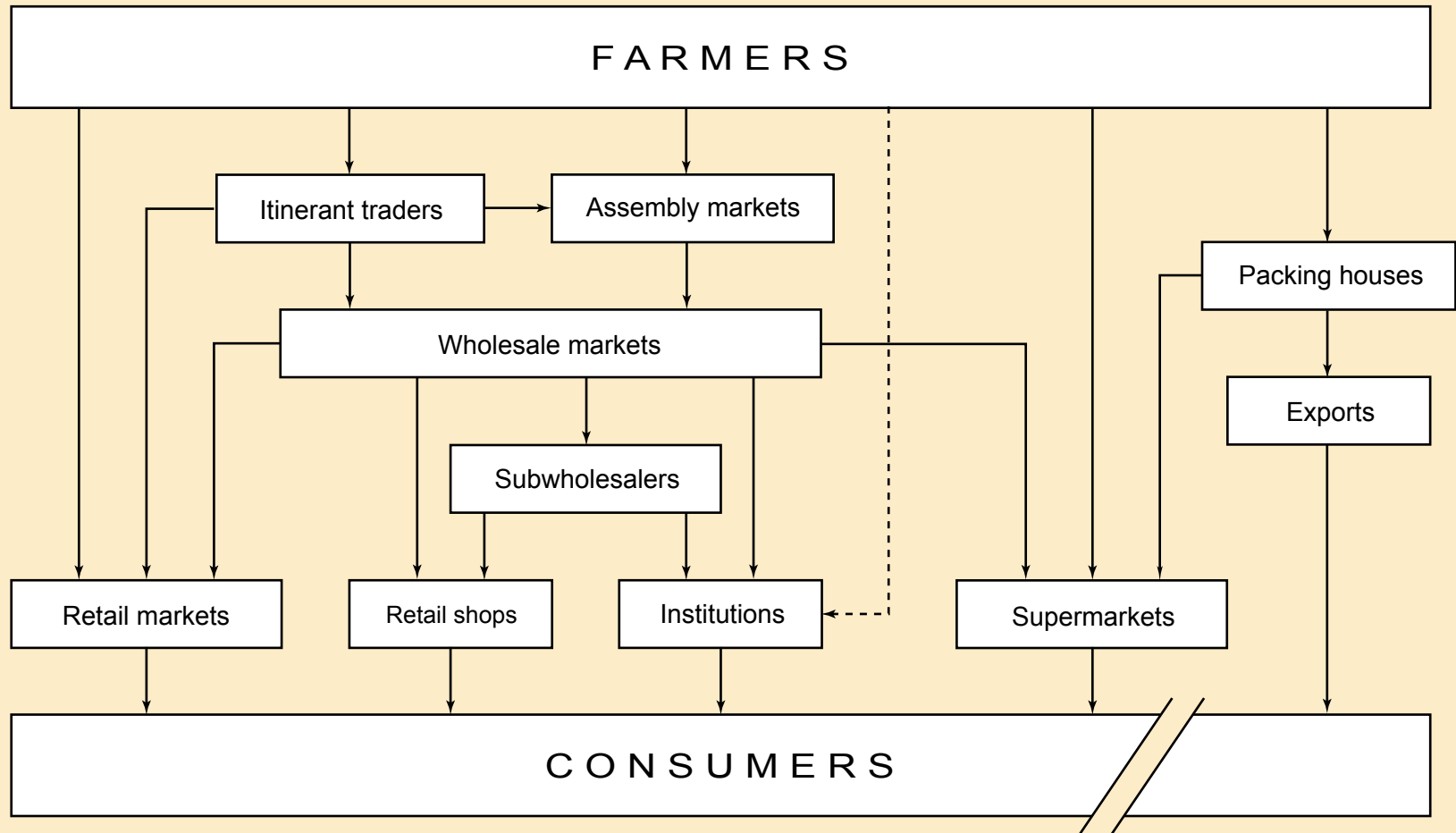
- produce is sold by a farmer or trader at an agreed price to a wholesaler who is permanently based in the market. He or she then sells the produce (perhaps mixed with that of other farmers) to retailers, occasionally to consumers and sometimes to subwholesalers who will, in turn, supply retailers;
- produce is consigned by a farmer or trader to a wholesale agent who is based in the market. This agent sells the produce at the best price he or she can get, charging the farmer or trader a fee (usually a percentage of the selling price) for doing so;
- produce is consigned by a farmer or trader to a wholesale agent in a market or perhaps to the organization which owns or operates the market. The agent or market operator then auctions the produce to the highest bidder and charges the farmer or trader a fee for doing so;
- a farmer or trader takes the produce directly to a wholesale market (often a parking area more than a market) and sells it from the back of his or her truck to sub-wholesalers, retailers and, occasionally, consumers. In some such markets, particularly in Arab countries, there may be agents who do not directly handle the produce but act as roving intermediaries between the sellers and buyers in order to arrange the sales. For this they charge a commission.

As can perhaps be seen from the above descriptions there is often no *wholesale buying price* because the produce is sold on commission. In these cases it is relatively easy to calculate an approximate *wholesale buying price* by deducting the commission charged by the wholesale agent from the *wholesale selling price*. Where wholesalers buy and sell it can often be difficult to obtain the wholesale buying price as market traders are generally reluctant to provide information on the prices they pay. They are often, however, prepared to give information about selling prices and this information can be checked with the buyers.

Wholesale selling prices

The price the retailer pays to buy the produce is the *wholesale selling price*. This is a price which is most often quoted by market information services. If an MIS quotes the *wholesale selling price* for those markets where the wholesalers buy and sell produce rather than act as agents, this information is less useful than the *wholesale buying price* for farmers because they do not know how much profit is being made by the trader. Thus, where this system of wholesaling operates, market information services should really provide information on the *wholesale buying price*, if at all possible. Where this is not done, extension workers will need to contact marketing experts in the Ministry of Agriculture or the managers of the markets to get some idea of the margins made by the traders. In practice these margins will vary significantly.

Figure 1
A marketing chain for horticultural produce



Different stages of marketing chains



FAO/17515/R. Faidutti

Farmgate – Uganda



A. Schalke

Assembly market – Indonesia



Bucharest Wholesale Market

Wholesale market – Romania



H. Barmann

Retail market – Papua New Guinea



R. Wills

Packing house – Korea



Anon

Exporting – Barbados

Retail prices

These are the prices the consumers buy at. Retail prices are sometimes collected by market information services but in many cases this information is used mainly for statistical purposes, such as for calculation of a Retail Price Index (RPI), and is of little use to farmers. If a farmer sells his crop to a trader, who in turn sells it to a wholesaler, who sells it to a retailer who then sells it to a consumer, then it is difficult for the farmer to use that final consumer or retail price to estimate what he is going to get from the trader.

Retail prices are likely to vary widely depending on where the product is sold and the service provided by the retailer. Usually, when an MIS quotes a retail price this refers to the price in an important urban retail market. However, this price may be a lot less than the price charged by a small retailer in a suburban area, particularly when there are few other retailers, or by someone who travels from door-to-door retailing produce.

The more developed marketing systems are, in terms of the ease with which produce can be moved from farmer to consumer, the less likely farmers are to sell directly to retail consumers. It usually costs the farmer more to take the produce to the market than the benefit he or she gets in terms of higher prices. In most cases only those farmers who live in or close to towns and cities can really justify the costs and time involved in travelling to markets.

In some cases, however, knowledge of retail prices is very important for farmers. This mainly applies to the formerly centrally planned countries of Central Europe. In many of these countries agricultural marketing systems, particularly for horticultural produce, have yet to fully develop to take the place of the former system. Few wholesale markets exist and farmers often find it necessary to take their produce directly to urban retail markets. Here again, however, confusion can exist about exactly what price is being referred to. Some farmers may sell only larger quantities to other retailers, even though they are in a “retail” market, while other farmers may just sell small quantities to individual consumers.



OTHER FACTORS

Variety and quality

On any day there may be several, or even many, varieties of a particular product on sale in urban markets. Where these varieties differ significantly in terms of consumer appeal and price then the market information service should report the prices for each variety. This is not always done. Furthermore, although the MIS may collect prices for

different varieties, lack of time for radio broadcasts means that it is not always possible to broadcast all of the prices.

Where the MIS supplies just one price (e.g. for tomatoes), then farmers really need to know to what variety that price refers and the usual price relationship between that variety and the varieties they are growing. It is important that the MIS be consistent and collect information about the same variety or varieties every day. If not, the price information provided will be of very little value to farmers.

It is common for farmers to feel angry because the prices they receive are much less than the market prices quoted by the MIS. Often the reason for this is that the quality of their produce is not as good as the produce to which the prices refer. It is, of course, not easy for market information services to collect prices when there are large variations because of quality. In the past MIS have generally collected prices for what is described as *Fair Average Quality*, although the meaning of this has often been difficult to define. More recently, MIS have begun to record a *range of prices for each product*. Often the range used excludes prices for the worst quality and the top quality if it is not in good supply, and covers, perhaps, 90 percent of the produce sold on any one day.

Farmers therefore need to have a good idea of the quality of their produce in relation to that on offer in urban

markets. By looking at what their neighbours produce they can see how their quality compares with that of farmers in their immediate area. By visiting the urban market they can see how their quality compares with that of farmers in a wider area. Where the urban market is some distance away and rarely visited by local farmers, extension workers can assist by organizing visits (see Chapter 9).

Another way for extension workers to help is to encourage farmers to grade their produce before selling it. Traders sometimes buy mixed qualities and sizes from farmers at prices which reflect market prices for the lowest grades. They then sort the produce so that they can get higher prices for some of what they purchased. In the case of grains, traders often have to clean what they buy from the farmers before they can sell it in the wholesale market or to a miller. Farmers may not appreciate that this is done and that this means they will get a lower price than they may have expected.

When were prices collected?

When prices are broadcast on the radio or printed in newspapers it is essential that farmers know to what day they refer. Sometimes MIS can be fairly slow at processing and disseminating information. For example, if prices are broadcast daily at 20.00 in the evening do they refer to market prices that morning or market prices on the previous day?

Figure 2

Calculating weighted average selling price

Assume an example involving a consignment of **100 kg** of tomatoes as follows ...

50 kg sold at \$2.00	=	\$100
20 kg sold at \$1.40	=	28
20 kg sold at \$1.00	=	20
5 kg sold at \$0.40	=	2
(5 kg which cannot be sold)	=	–

Total Revenue = \$150

Then the average selling price per kilogram is...

$$\$150 \div \mathbf{100\ kg} = \$1.50$$

It is clearly important that farmers have this information when they are negotiating with traders. If prices are collected on a Monday morning and not broadcast until Tuesday evening, they are already two days old by the time the farmers sell their produce on Wednesday morning. The more up-to-date the information available to farmers the better they will be able to use the MIS for negotiation purposes.

Day of the week

When MIS only provide information once or twice a week it is particularly important to know what day of the week prices refer to. Often, market prices are higher towards the end of the week as consumers make purchases in preparation for the weekend. Thus, if a farmer sends products to the market at the beginning of the week on the basis of an MIS report on prices at the end of the previous week he or she may be disappointed.

Time of the day

Market information services usually collect prices at the same time every day. This is often early in the morning at the time when urban wholesale markets are frequently most active. However, in some cases the MIS may not collect prices at the most active time, because it is inconvenient for the price collectors.

If the MIS collects prices at the busiest time of day, when produce is at its freshest and most appealing, then

the prices collected and disseminated to farmers will usually be the highest prices recorded that day. However, the average price received during the day may be lower. Indeed, some of the produce may prove impossible for the wholesaler to sell. Thus the price reported on the radio or in newspapers may reflect the selling price for some of a farmer's produce, but not necessarily all. Figure 2 illustrates a possible situation.

A good market information service should advise farmers periodically on how to interpret the prices it disseminates. Such advice should include an approximate indication of the average selling price compared with the price quoted by the MIS. Extension workers can then assist farmers to make necessary calculations.

The units prices are quoted in

In many countries units for market transactions are not standardized. Sales are made on the basis of a "box", "bag", "sack", "tin", etc. rather than using kilograms or lbs. In several countries the size of these containers may vary from place to place. For example, a "sack" may hold 90 kg of maize in one part of a country and 50 kg in another. Where market information services quote prices by container, not by weight, farmers need to make sure that the containers being referred to are the same as those they use.

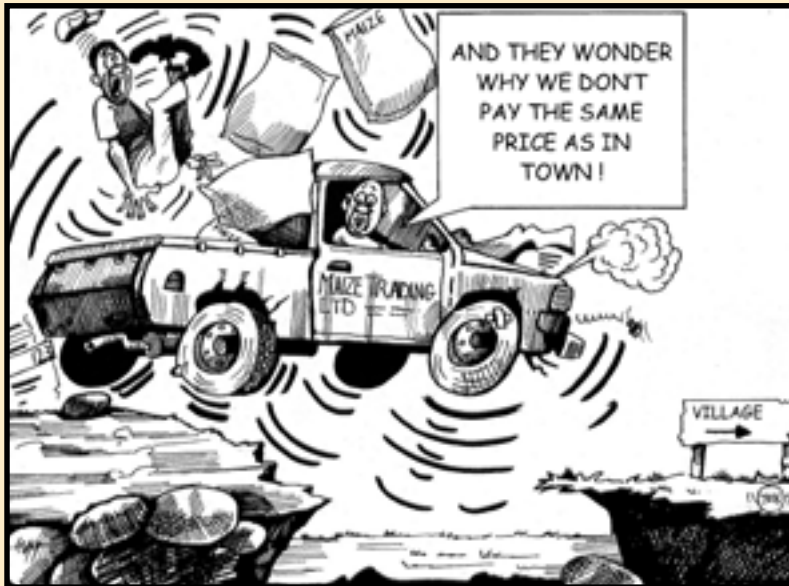
5 Calculating marketing costs

Main points in Chapter 5

Calculating marketing costs

Extension workers and farmers need to understand marketing costs in order to convert prices quoted by the MIS into farmgate prices

Types of marketing cost include ...



Transport costs can make a big difference between the market price and the farmgate price.

Calculating the transport cost per kilogram can sometimes be difficult.



- *Preparation and packaging*
- *Handling*
- *Transport*
- *Losses*
- *Storage*
- *Processing*
- *Capital costs*
- *Fees, commissions and unofficial payments*

*Sometimes, losses
can be a significant marketing cost.*



Also, traders will need to make a profit

- *The farmgate price is therefore
the trader's selling price
minus ...
the marketing costs
and the trader's profit*

Example of a cost calculation

(see page 53)



*There are many costs which need to be included
in the marketing cost calculations.*

There is likely to be a significant difference between the wholesale market buying price and the price the farmer receives at his or her farmgate. Farmers need to understand the reasons for this. They also need to be able to do some basic calculations in order to convert the prices quoted by the MIS into realistic farmgate prices.

TYPES OF COST

Traders are frequently accused by farmers, extension workers, politicians, etc. of exploiting farmers. Occasionally such accusations are justified. However, in many cases the big differences between traders' buying and selling prices can be explained by their marketing costs.

Examples of these costs are:

- preparation and packaging;
- handling;
- transport;
- losses;
- storage;
- processing;
- finance;
- fees, commissions and unofficial payments.

Preparation and packaging. After traders buy produce from farmers they often clean and grade it and then transfer it to packaging appropriate for long-distance transport and for sale at the wholesale market or elsewhere. This involves several costs, including labour costs and the cost of the packaging. Sometimes the trader owns his own packing shed, and this is also a cost which has to be covered.

Handling. At all stages in the marketing chain produce will have to be packed and unpacked, loaded and unloaded, put into store and taken out again. Each of these many individual handling costs will not amount to much, but the total of all such handling costs can be significant.

Transport. Transport costs will vary mainly according to the distance between the farmer and the market. But they will also depend on the quality of the roads. A

farmer living close to a main highway will probably face much lower transport costs than one living at the end of a rough road which is often impassable and causes damage to trucks.

Sometimes transport costs are a simple matter to calculate because the farmer pays a set price per kilogram to the transporter. When the price charged is on a “per container” basis the calculations become more complex because the amount carried in a container may vary. Calculations become even more difficult when traders hire a complete truck and transport a variety of crops, or when the trader uses his own vehicle. When the transport cost cannot be calculated directly it is best to use the rate per kilogram quoted by transporters, assuming that there is such a rate.

Losses. Product losses are common. Even if nothing is actually thrown away products may lose weight in storage and transit (e.g. through moisture loss). Thus one kilogram of a product sold at retail level cannot always be compared with one kilogram sold by the farmer. Sometimes very high losses can be recorded, particularly for perishable fruits and vegetables. Losses will probably be highest in the main season when “gluts” of produce mean that much has to be thrown away unsold. In general, the longer the distance between farmer and consumer, the higher the likely loss.

There can also be quality losses during marketing. This is not calculated as a marketing cost because it will be reflected in the price received at market. However, farmers do need to take such quality losses into account when assessing the likely price their produce will get at market, in comparison with the prices reported by the MIS.

Storage. This is an important cost for many products. Where a trader has to store produce between the farmer and market then the costs of this need to be considered. Chapter 7 considers how farmers can take storage costs into account when calculating whether to sell crops immediately after harvest or hold them in hope of price rises.

Processing. When farmers sell crops to agro-processors or to traders who then sell to the processors it is difficult to relate the price of the finished product to that of the raw material sold. Grains such as rice and maize have to be milled and in working out the total marketing costs we need to consider the conversion factor from unmilled to milled grain as well as the value of any by-products. Farmers should not really try to do this but should, instead, understand the marketing costs between their farms and the factory and relate these costs to the buying price of the factory.

Finance. To operate, a trader may have to borrow money from the bank. The interest paid on that money is a cost.

If a trader uses his or her own money we cannot say that there are no costs since he or she could have left the money in the bank to earn interest instead of using it for trading. The cost to traders of using their own funds is thus the interest they are not receiving.

Fees, commissions and unofficial payments. The costs considered above are the major costs faced in marketing agricultural produce. But there are many others which, when added up, can have a considerable impact. For example, traders have to pay *market fees*. Often they will have to pay to have their produce weighed. Traders normally have to be licensed and pay official *licence fees*; in some countries they have to pay unofficial fees or *bribes* at various road blocks en route to the market. Official taxes are sometimes levied when people wish to pass through an administrative district. All these costs have to be built into calculations.

Profit margins

Traders do not trade in order to provide a service to rural farmers. They trade in order to make money for themselves and their families. Thus they must make a reasonable profit on most of their transactions. What is “reasonable” is, of course, the subject of debate. A profit can perhaps be said to be “reasonable” if it provides an incentive for a trader to trade. If profits from trading in agricultural produce drop below a certain level then

traders will decide to use their time and money to do something else which makes more money. If extension workers or farmers calculate marketing costs they can work out the difference between the wholesale buying price and the price offered by the trader plus the marketing costs. Is this difference a “reasonable” sum for the trader to keep for him or herself or should the farmer try to get a higher price?

Calculating costs

An earlier FAO publication² goes into some detail about how to calculate marketing costs and this should be referred to. It must be stressed that costs must be calculated. The approach taken by many officials and politicians to say something like “*the farmers only get 30 percent of the market price – therefore they are being exploited*” is totally wrong. The percentage that the farmer gets depends on the costs, on the marketing system and on the price. Each case needs to be examined on its own merits.

A typical cost calculation is shown in Figure 3. In this example it is assumed that the trader buys at the farmgate and takes the produce to the wholesale market to sell. The \$ sign is used merely to illustrate the calculations and should not be seen in any way as representative of actual costs.

Figure 3

A cost calculation

Assume that traders buy tomatoes from farmers at the farmgate at \$0.50 per kilogram. The traders pack the tomatoes in reusable wooden boxes containing 10 kg and then take them to a wholesale market where they are sold to retailers at a weighted average selling price of \$0.90 per kg. Trader losses amount to 10 percent so they sell only 0.9 kg of every kilogram purchased.

Traders' gross profit is calculated as follows ...

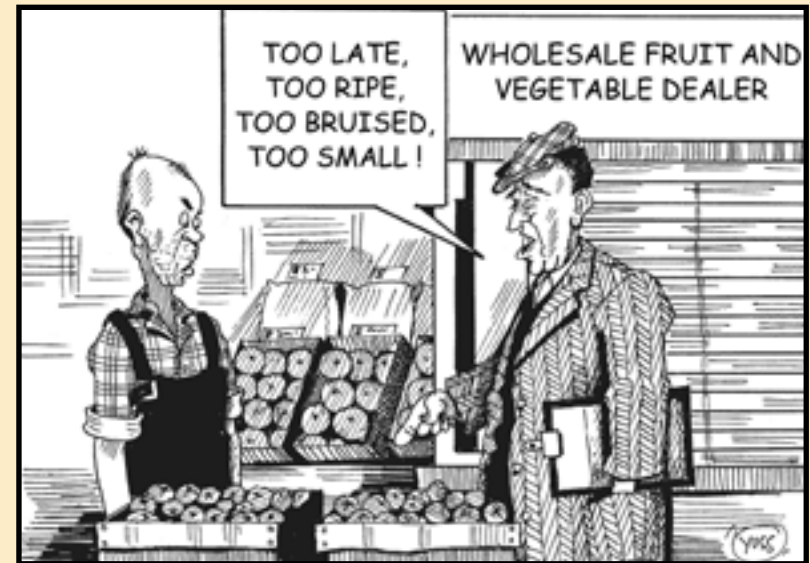
	Per kg purchased
Purchase of tomatoes from farmers (1kg x \$0.50)	\$0.50
Packaging (\$0.50 ÷ 10 kg box)	0.05
Labour employed by wholesaler to pack, load and unload	0.02
Transport to wholesale market (\$1.50 per box ÷ 10 kg)	0.15
Cost en route such as road blocks	0.01
Market fees	0.01
Market agent's fees	0.02
<hr/>	
Total costs	\$0.76
Quantity sold (0.9 kg x weighted average selling price of \$0.90 per kg)	0.81
<hr/>	
Trader's gross profit	\$0.05

6 Using market information to get better prices

Main points in Chapter 6
**Using market information
to get better prices**

Farmers can use market information to ...

- *Check on prices they receive
if produce is sent to a wholesale market*
 - *Is the wholesaler
getting a good price for the farmer?*
 - *Is the wholesaler being honest?*
 - *What other reasons could there be
for the farmer's price being less
than that reported by the MIS?*
- *Check on prices they receive
if produce is sold in local markets*
 - *Is the farmer getting the same price,
or better, than other farmers?*



*There may be reasons
why the farmer doesn't get the price quoted by the MIS ...
.... the farmer needs to investigate these.*

*Extension workers should be able
to help farmers calculate marketing costs.*



- ***Follow price trends***
 - *If the MIS reports that prices are going up farmers are in a stronger position to negotiate with traders*
- ***Calculate farmgate prices***
 - *With knowledge of marketing costs (see Chapter 5) extension workers and farmers can convert prices quoted by an MIS to a realistic farmgate or local market price*

GETTING BETTER PRICES

The ability of a farmer to negotiate with traders depends mainly on the number of competing traders operating in the farmer's area. If there is only one trader then the scope for negotiation in the short run is fairly limited. If there are several traders, the scope is much greater, particularly if the traders are all gathered together at an assembly market.

Farmers can use market information to get better prices in different ways. They can:

- check *actual prices* received;
- follow *price trends*;
- calculate *farmgate prices*.

Check actual prices

Farmers who send their produce directly to a wholesale market can, as discussed in Chapter 2, use the reports by the MIS to check that the prices they are receiving are in line with those in the market as a whole. If that is not the case they need to find out why and ask the wholesale agent for an explanation. On a daily basis there may be sizeable variations between prices the individual farmers get and the reported market prices. However, over a few weeks these variations should even themselves out so that, *on average*, a farmer should expect to get the same

price as that reported by the MIS less, of course, the marketing costs.

Where a farmer's prices are consistently below the reported market price, the wholesaler may give several explanations. Possible explanations were discussed in Chapter 5. Perhaps the farmer's produce arrives late in the day and is either sold in the evening when prices are lower or on the following morning when fresher produce has arrived to compete. Perhaps the variety is one which normally gets a lower price. Perhaps the quality is not good or the farmer mixes several different qualities into one package. Perhaps the produce is damaged in transit and the farmer really needs to improve the quality of his or her packaging. It is, of course, also possible that the wholesaler is being dishonest. However, a farmer cannot really form an opinion on this without visiting the market, assessing the condition of his or her produce when it arrives there, seeing how and when the produce is sold and comparing his or her produce with that sent by other farmers. It can also help to discuss matters with market traders other than the one the farmer works with.

Follow price trends

If a radio report of the market information service on, say, Wednesday evening, advises that the price in the urban wholesale market went up then farmers selling to traders at assembly markets should be able to argue that the price they get when selling on Thursday morning should also go up.

However, for farmers to argue for better prices they must either have sold produce in the assembly market on the Tuesday (when traders were probably buying produce for sale at the wholesale market on Wednesday) or must have a very good idea of what prices the traders were offering on Tuesday and Wednesday. Local extension services can perhaps assist farmers by monitoring assembly market prices on a daily basis and posting the prices on a notice board at the entrance to the assembly market. Although such activities may involve too much work for an individual extension officer, a regional or provincial headquarters of the extension service, which is based in the same town as the assembly market, could consider assisting in this way.

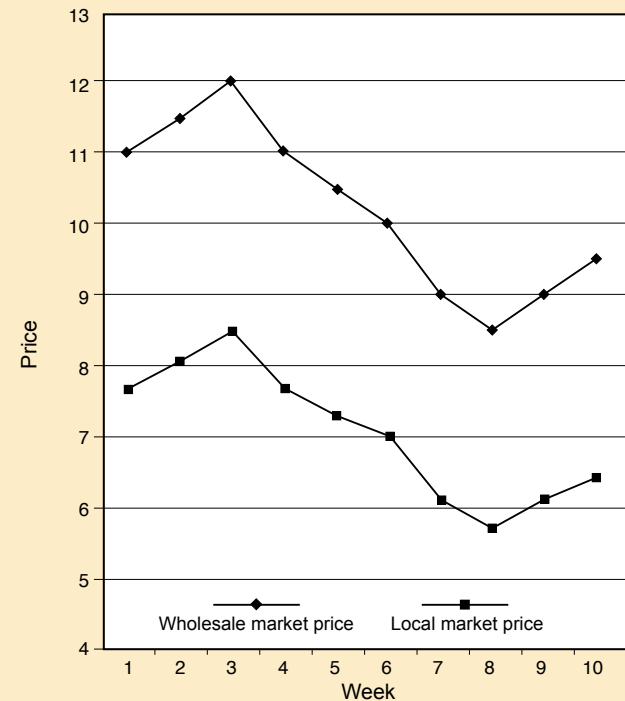
Daily or weekly prices in the assembly market could also be plotted on a chart and compared with daily or weekly prices in the wholesale market (see example). In this way farmers would be able to get a better idea of the relationship between the prices quoted on the radio and the prices they are likely to receive.

Calculate farmgate prices

Farmers who do not have the opportunity to sell direct to wholesale markets or at local assembly markets but, instead, sell to visiting traders at their farms have to be able to do some calculations in order to negotiate successfully. They need to know, firstly, what their produce is likely to sell for at the wholesale market and, secondly, what sort

Example Estimating local market prices

If the MIS announces that the wholesale market price was \$10 farmers could look at the chart to see what the assembly market price was the last time the urban market price was \$10. If, for example, it was \$7 then they could use this figure as a minimum they want to get in their negotiations with traders.



of marketing costs the trader incurs. As noted in Chapter 5, this is an important area where extension workers can be of assistance.

Unfortunately, it is often not possible to make very detailed estimates of marketing costs and margins. It may be possible to develop a general idea of a trader's probable costs, but it must always be remembered that these costs can change rapidly. For example, the major cost is nearly always transport. But transport costs are very dependent on how much is being transported. If a trader has to go to the market with a half-empty truck, the transport cost per kilogram will be double the cost than if the truck were full. Thus, when produce is in short supply and market prices are going up, it may also be the case that marketing costs are going up, and vice versa.

Nevertheless, a farmer who knows the wholesale market price and has an approximate idea of the marketing costs of the trader is in a much better position to negotiate than one who has no idea of either. Extension workers can help farmers by indicating the likely margin that the trader requires and by updating this information whenever possible.

7 Using market information for production planning

Main points in Chapter 7
**Using market information
for production planning**

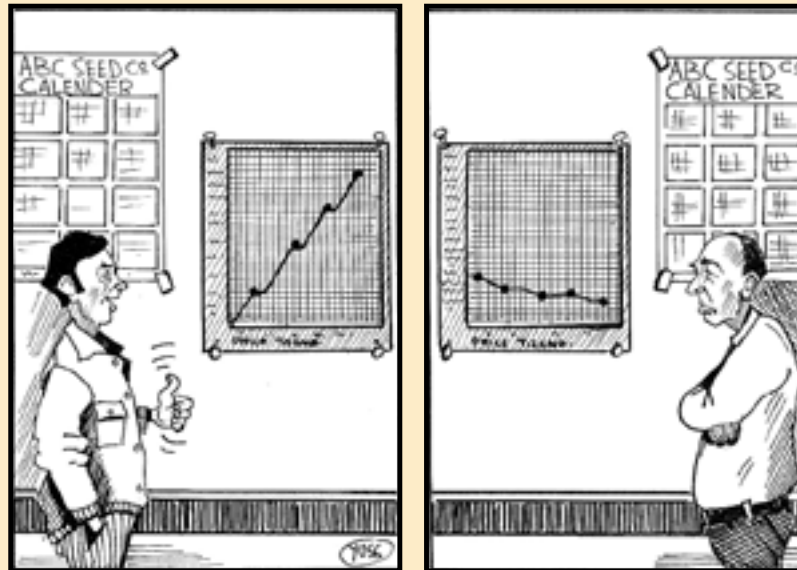
*Activities which extension workers
need to carry out before
they can advise farmers include ...*

- *Charting price movements
from information supplied by the MIS*
- *Controlling for inflation*

Then they can help farmers to ...

- *Decide whether to grow new crops
and when to grow them*
- *Decide whether to grow existing crops
at different times of the year*
- *Decide whether or not to store*

*Controlling for inflation
is essential
and can often result
in a very different
picture of price trends*



*Before diversifying
into new crops
it is important
to be sure how
they will be marketed.*



Extension workers will also need to learn about ...

- *How to grow new crops*
- *Calculating profitability*
- *Sources of seeds or planting material for the new varieties*
- *Suitable out-of-season crops*
- *Techniques for out-of-season production and the costs involved*
- *Costs of storage*

While many farmers can use market information to negotiate with traders few, if any, small farmers are able to make the calculations necessary to decide whether or not they should plant different crops or plant existing crops at a different time. For this they require assistance from extension workers, NGOs or others. Some of the calculations are perhaps too complex even for extension workers and are best done by the MIS itself, or by the head office of the extension service.

ACTIVITIES IN SUPPORT OF PRODUCTION PLANNING

Some of the activities that need to be carried out, either at local or national level, in order for farmers to use market information for production planning, are:

- charting price movements;
- controlling for inflation.

Charting price movements

Extension workers can assist farmers by plotting price movements of the various crops grown in their areas. This can be done weekly, using prices broadcast by the MIS. Alternatively, if the MIS publishes annual reports it can be done every year when these reports become available. A problem with this is that many MIS do not publish annual reports and, where they do, they are often very late.

With the increased availability of computers, charts or graphs of price trends can be easily prepared. However, it may be some years before computers are available to all extension workers. Thus, more traditional ways of preparing charts will have to be used by many.

Plotting price movements on graph paper is relatively simple. A line drawn along the bottom of the paper (known as the “X” axis) can be divided into 52 equal distances, one for each week of the year. A line up the left-hand side (the “Y” axis) can be used to indicate the prices. To avoid prices frequently “going off the top of the page” the price values for this axis can be calculated as follows. Take the maximum price of the previous year and insert a price scale so that that maximum price would be plotted somewhere between half and three-quarters of the way up the side of the page, so leaving room for a title and for higher maximum prices this year. If there has been significant inflation then it will be necessary to adjust the scale (for example, if the highest price last year was \$18 but the country has had 100 percent inflation, then

a highest price for this year of at least \$36 should be allowed for).

The price scale for the “Y” axis should be chosen to make plotting of prices as easy as possible. The maximum price expected should be rounded up to a figure which can, when divided by the number of horizontal lines on the page, give a figure which can easily be plotted.

For example, if there are 200 lines on the left-hand axis then:

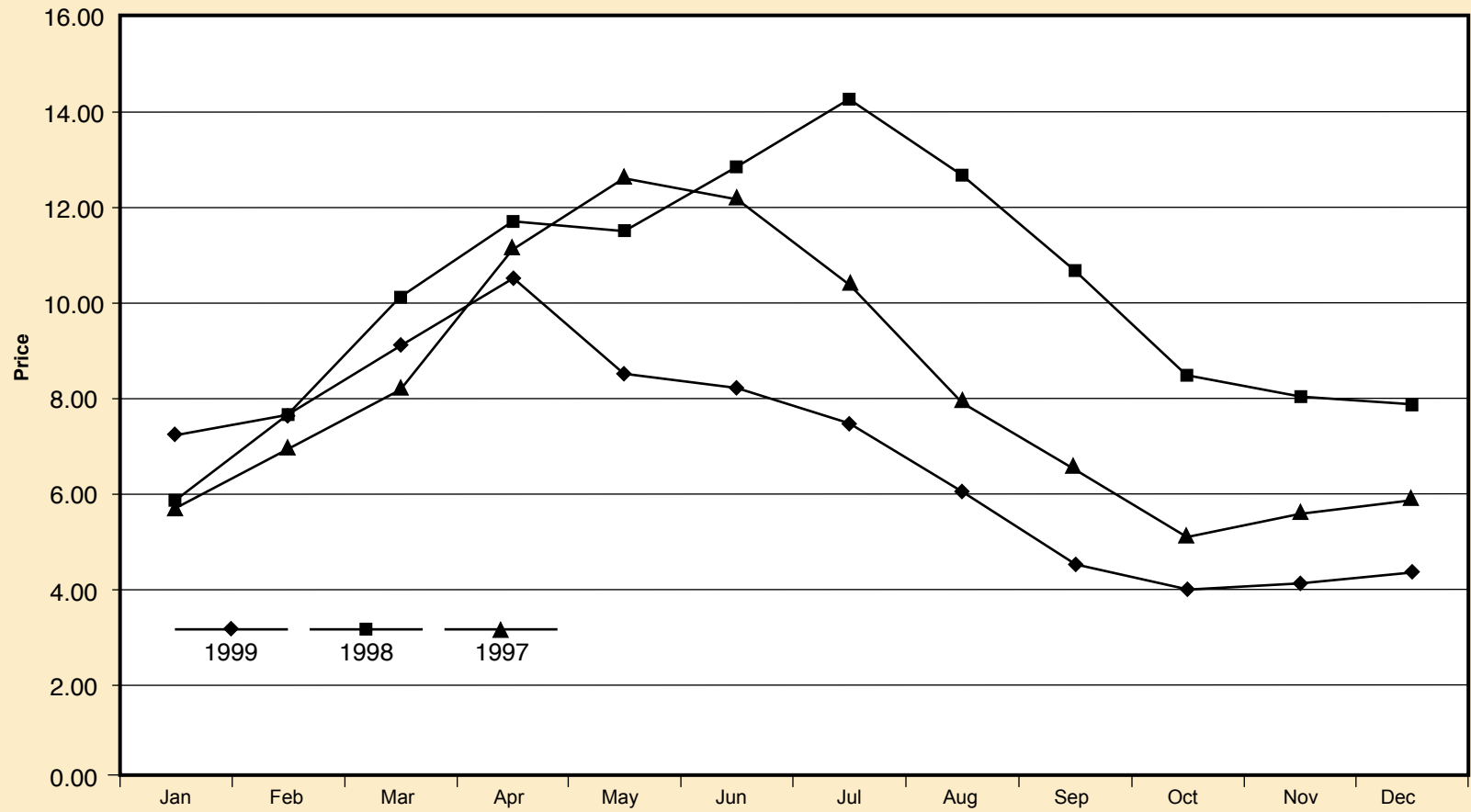
- if the expected maximum price is \$360, make the maximum on the “Y” axis \$400 so that each line represents \$2.
- if the expected maximum price is \$1.35, make the maximum on the “Y” axis \$2.00 so that each line represent \$0.01.
- if the expected maximum price is \$27, make the maximum on the “Y” axis \$40 so that each line represents \$0.2.

Note: If price movement charts are made available in extension offices they can be consulted by farmers who want to see how prices behaved in earlier years, as well as how they are behaving in the present year.



*Extension workers can help farmers
by plotting graphs of price trends.*

Figure 4
Plotting prices over a number of years



For farmers who are interested in seasonal price movements it can be useful if prices for several years are plotted on the same graph (see Figure 4). This can best be done using different colours for each year in order to avoid confusion when lines cross each other. Farmers may hope that, occasionally, because of unusual factors, they will make much more money than they expected. But their planning has to be done on the basis of a normal year. However, when discussing with farmers annual prices plotted on a chart, extension workers should not fail to draw attention to those years which were clearly unusual and not representative of normal price trends, so that the farmers understand the risks they may face, for example, as a result of unusual weather or other abnormal factors.

Controlling for inflation

Unfortunately, many countries continue to experience rapid price increases and extension workers must bear this in mind when advising farmers on which crops to grow, on whether to store and on when to market. Many farmers have problems in understanding the concept of inflation and in realizing that although the price they get for their crop is going up they may not necessarily be better off. In fact, inflation can turn an apparently profitable activity into a loss-making one.

As an example, consider the case of farmers who have two choices in selling their paddy rice. They can sell to a trader or miller who will pay \$100 a ton in cash

now or they can sell to a trader who will pay \$110 in two months time. However, if inflation is five percent per month the “real”, or inflation adjusted, (see Box 5) price in two months time is slightly less than \$100. So there is no reason for the farmer to sell to the second trader as the trader is not offering a higher price in real terms.

In the case of farmers planning to go in for off-season production, they may consult a price graph in an extension office and note that the price in January 2000 was \$4 per kilogram whereas the price in July 2000 was \$6 per kilogram. Although they know that their production costs would be slightly higher in July than in January, they may decide, on the basis of the graphs, that in the year 2001 they would try to grow the crop for harvest in July, not

Box 4

Understanding Inflation

Since it is often difficult for farmers to understand the idea of inflation, extension workers can help them understand by relating farm prices to the cost of growing things. For example, if the farmers sell their paddy for \$100 in May, how many bags of fertilizer will they be able to buy with that money? How many will they be able to buy in November? Inflation means that they will be able to buy less in November than in May.

January. However, if inflation in the country is such that prices are doubling every year then, approximately, prices between January and July will have gone up by one half. So, the “real” price was the same and the farmers would have lost money because their production costs were higher.

To control for inflation (i.e. deflate) it is necessary to have up-to-date Consumer Price Index figures or, if available, the Rural Price Index. These are normally supplied by government statistics departments but a problem is that the information is often not available in a published form for many months or even years after the Index is calculated. Even if the information is available reasonably quickly, it can be difficult for individual extension officers to get hold of it. Government extension services could consider circulating this information: alternatively the MIS could do this.

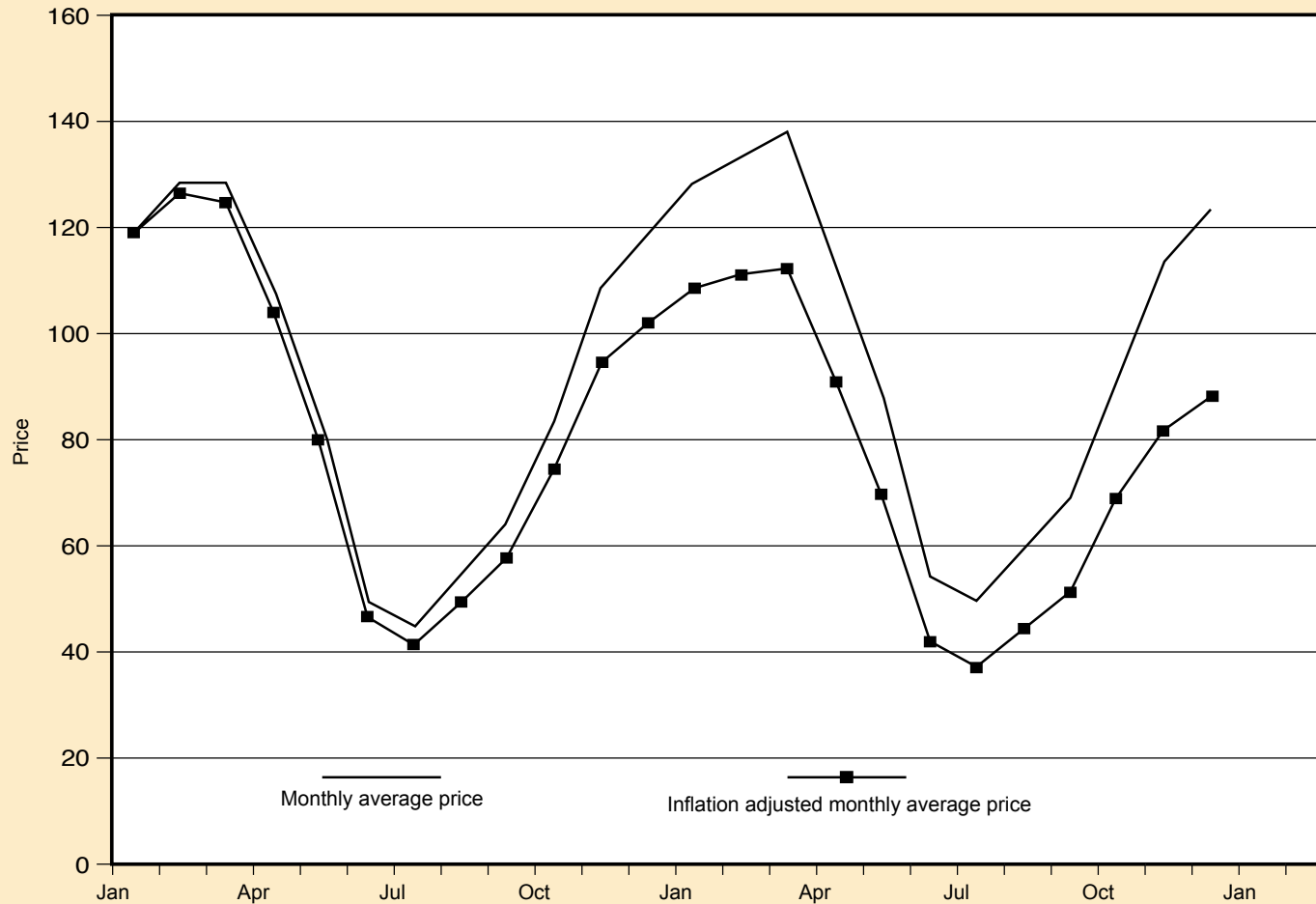
It is essential that the inflation information is available on a monthly basis. If annual inflation figures are used to deflate monthly prices this will lead to considerable inaccuracies and the higher the rate of inflation the greater the inaccuracies. If they have monthly information on inflation and prices, extension workers can deflate prices without too much difficulty, as long as they have a pocket calculator. The technique is to establish a base date, for example, January 1st 1999 and deflate all prices from this date onwards. Figure 5 shows how it is done.

Figure 5
Controlling for inflation
using the Consumer Price Index (CPI)

	(a) Monthly average product price	(b) Consumer Price Index (1980 = 100)	(c) CPI divided by Jan 1999 CPI	Adjusted monthly average price (a ÷ c)
Jan	120	500	1.0	120.0
Feb	130	507	1.014	128.2
Mar	130	515	1.03	126.2
Apr	110	520	1.04	105.8
May	85	528	1.056	80.5
Jun	50	535	1.07	46.7
Jul	45	540	1.08	41.7
Aug	55	550	1.1	50.0
Sep	65	557	1.144	58.3
Oct	85	565	1.13	75.2
Nov	110	575	1.15	95.7
Dec	120	582	1.164	103.1
Jan	130	590	1.18	110.2
Feb	135	600	1.2	112.5
Mar	140	615	1.23	113.8
Apr	115	626	1.252	91.9
May	90	640	1.28	70.3
Jun	55	653	1.306	42.1
Jul	50	665	1.33	37.6
Aug	60	672	1.344	44.6
Sep	70	675	1.35	51.9
Oct	95	685	1.37	69.3
Nov	115	695	1.39	82.7
Dec	125	700	1.4	89.3

Note: See Figure 6 for this information presented in graph form.

Figure 6
The impact of inflation on prices (from Figure 5)



Box 5

Inflation and storage

Consider the position of an African maize farmer who harvests maize in May. The farmer has the option of selling the maize immediately, or of keeping it until November when prices are expected to have gone up to much higher levels:

The maize price in May is:	\$100
The maize price in November is:	150
<hr/>	
The price increase is:	50
Farmer's storage cost for six months is:	20
<hr/>	
Farmer's profit from storage is:	\$30

In this example it looks like storage is a good idea. However, if we now calculate the “*real*” price then the picture changes dramatically.

Let's, for this example, assume inflation is around 60 percent a year and that in the period May-November prices went up by 30 percent. Then:

The maize price in May is:	\$100
The maize price in November is:	150
The “real” maize price in November is:	115
The “real” price increase is:	15
Farmer's storage cost for six months is:	20
<hr/>	
Farmer's loss from storage is:	\$5

Thus it is essential that inflation be taken into account when advising farmers on whether or not to store.

Note: The “real” price is calculated by dividing the actual price by the amount prices have gone up plus 100. The result is then multiplied by 100. Hence, with 30 percent inflation, the real price is $(\$150 \div 130) \times 100$ or \$115.

ADVISING FARMERS ON PRODUCTION

Providing farmers with accurate long-term market price information is important to enable them to make decisions about what to produce, when to harvest and whether to store. However, all this information will be wasted if the farmers don't also have available information about:

- how to grow new crops which may offer good market prices;
- the profitability of growing these crops;
- where to buy seeds for new crops and new varieties;
- techniques required for, and the additional costs of, off-season production;
- costs of constructing and operating stores;
- post-harvest handling and packaging for new crops;
- in the case of crops with limited demand, an idea of how much can be sold.

Information on the above depends mainly on local circumstances and cannot be covered in this Guide. However, extension workers need to make sure they have this information before encouraging farmers to go into new, possibly risky, business ventures.

PRODUCTION AND MARKETING PLANNING

Where several years of data exist for prices of various crops it should be possible for farmers to use this information to help:

- decide whether to grow new crops and when;
- decide whether to grow existing crops at different times of the year;
- decide whether to sell the crop immediately after harvest or to store it in the hope that prices rise.

Planning to grow new crops

Farmers may find the income they are getting from their existing crops to be unsatisfactory. This may be because of changes in government policy which mean that production is no longer subsidized. It may be because too many other farmers have been growing the crop and prices are falling. It may be because of environmental factors such as declining soil fertility or changing climate, which mean a crop can no longer be grown economically. More probably, farmers may simply want to improve the position of their families by earning more and therefore want to find crops that can give them better returns.

With assistance from extension workers and others, farmers can identify crops which are suitable for their

area. They then need to work out their production costs. By referring to information on market prices in previous years they can estimate what they are likely to be able to sell the new crops for. They can then compare these prices with the production costs and see whether it would be more profitable to grow new crops or continue to grow their existing crops. This can be done by carrying out a Gross Margin Analysis, as described in *Annex 1*.

One problem with this approach is that if farmers are thinking of growing crops which have not previously been grown in their area they will have little information with which to estimate marketing costs. A bigger problem is that if crops have not previously been grown there may not be any traders willing to purchase them. Here extension workers can play an important role by getting in touch with traders; either those who buy the crops in other areas or buyers of existing crops who may be interested in buying new ones. Otherwise, farmers could find that they have no one to sell the new crops to.

Off-season production

Producing crops out of season is only really viable when they cannot be stored. There is little point in trying to produce staple crops such as maize and rice at a different time to other farmers because those products are available throughout the year. Thus out-of-season production is normally for perishable horticultural produce.

Farmers planning out-of-season production need to look at seasonal price trends over the last few years. Extension services could assist by making available this information, as shown in Figure 4 and, possibly, by averaging monthly deflated prices over a 3-5 year period. This should give farmers an indication of the average seasonal movement of prices. However, care needs to be taken that price patterns are not changing significantly because, for example, large numbers of other farmers are also starting to go into out-of-season production.

Farmers then need to decide what harvest time they will aim for. This decision could be based on when prices appear most attractive but they also need to consider other factors. These could include:

- does the climate (and accompanying pests and diseases) make it just too difficult to grow crops for harvest at that time?
- will the planned harvest time coincide with the harvest of other crops?
- will the planned harvest time coincide with a time of significant social and family obligations?

Once farmers have decided the harvest time they want to aim for they must then obtain information on likely production costs. They know how much it costs to grow the crop in the main season but don't know how much it costs out-of-season. Costs will be higher because:

- yields may be lower;
- capital investment in, for example, plastic tunnels or irrigation may be required;
- labour requirements for land preparation or weeding, for example, may be higher;
- additional inputs such as pesticides and herbicides may be required.

Extension workers therefore need to be able to provide, or at least know where to obtain, information on the above and assist in calculation of the new production costs. Once production costs are calculated the extension worker and farmer can then return to the price chart and carry out a *Gross Margin Analysis* to see whether out-of-season production would indeed be more profitable.

Storing crops for higher prices

While out-of-season production is mainly for perishable horticultural crops, on-farm storage is used mainly for less perishable staple crops such as paddy, maize and potatoes as well as for onion and garlic. Market information can be used to help farmers decide whether or not to store in any particular year. It can also be used to help them decide whether or not to invest in building a store when they do not presently have one. Storing crops without the correct storage facilities is usually a bad idea, as quantity and quality losses will mean the farmer will not be able to benefit fully from higher seasonal prices.

On the basis of information about seasonal price movements in previous years an estimate can be made of how much the price of the crop is likely to rise in an average year. However, a final decision to store must be based on knowledge about the harvest. In some years the crop may be so large that storage in hope of a higher price later in the season will not be justified. Moreover, a farmer who sells his crop immediately after it is ready could put the money in the bank and earn interest. In order to store it is necessary that more money can be earned by storing than by putting the money in the bank. This has to be taken into account in calculating storage profitability, as does the impact of inflation.

Figure 7 shows a calculation of storage profitability and the same calculation is shown graphically in Figure 8. It is assumed here that the farmer already has a store and that the costs of storing are limited to maintenance of that store, to the purchase of packaging material and pesticides, if required, and to any labour costs involved with putting the crop in the store and taking it out again.

Figures 7 and 8 are based on the assumption that the harvest of the crop begins in May and continues until the end of July. It can be seen that storage becomes profitable if the stored product is sold from January onwards, with profitability being the greatest in March. However, as the new season approaches, prices begin to fall and farmers would make a loss if they kept their produce in store until May.

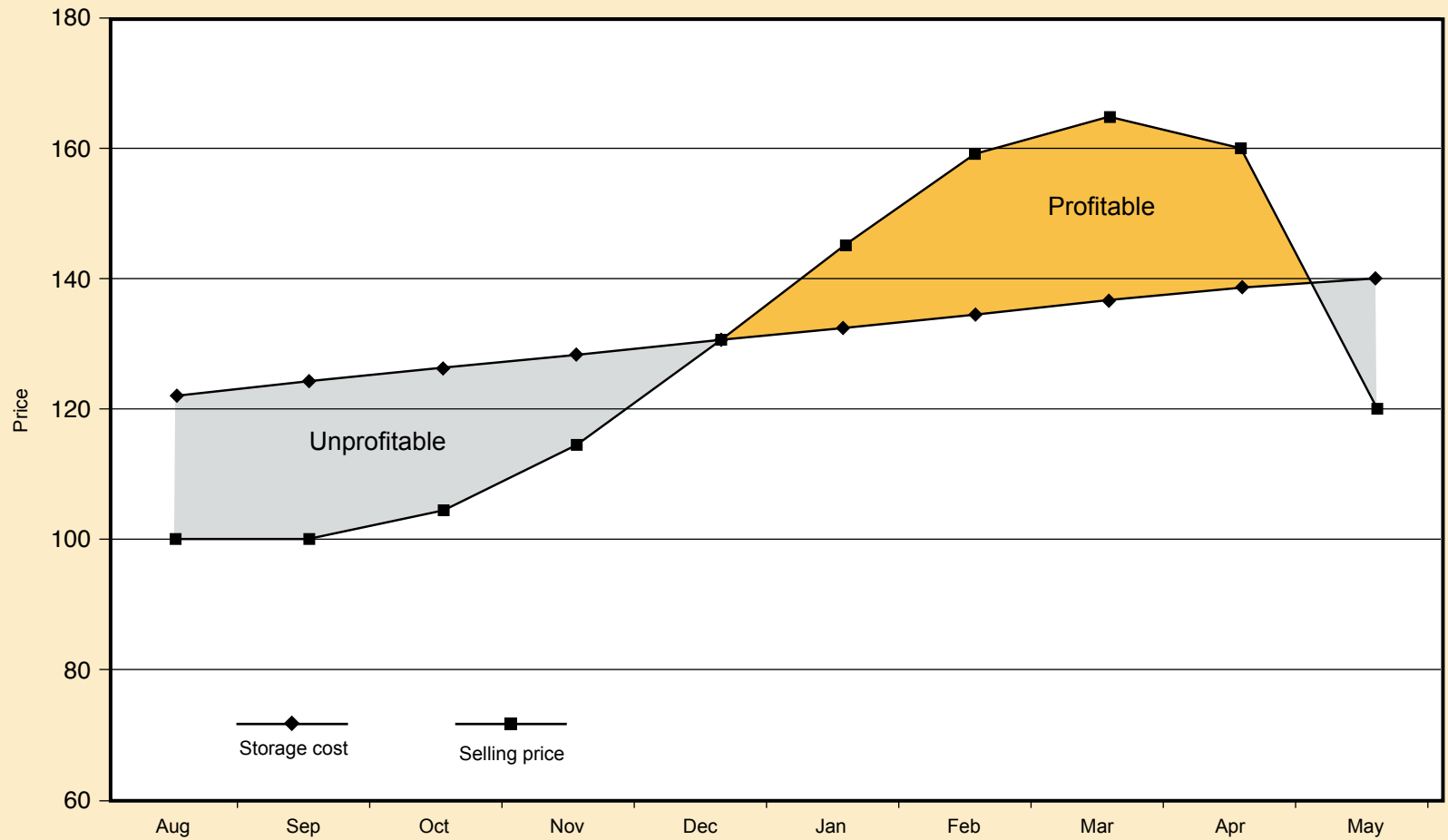
Figure 7

Calculating storage profitability per ton


	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Cost										
Annual maintenance and insecticide	20	20	20	20	20	20	20	20	20	20
Bank interest lost	2	4	6	8	10	12	14	16	18	20
Crop value in July	100	100	100	100	100	100	100	100	100	100
<hr/>										
Total storage cost	122	124	126	128	130	132	134	136	138	140
Selling price	100	100	105	115	130	145	160	165	160	120
<hr/>										
Storage profitability	-22	-24	-21	-13	0	13	26	29	22	-20

Note: Bank interest on deposits assumed to be 2% per month

Figure 8
An example of storage profitability



**Activities for extension workers
– A checklist**



Previous chapters of this Guide have identified some activities which extension officers can carry out to support farmers in their understanding of market information. These, *and other related activities which extension workers can undertake*, are summarized below:

- familiarize themselves with the way the marketing systems work for different crops, so as to be able to advise farmers on the best ways of marketing their products and on the different types of price;
- subscribe to any written reports put out by the market information service. In particular, obtain any material prepared by the MIS to explain the information it disseminates and the meaning of this for farmers;
- be aware of the timing of MIS radio or TV broadcasts, and listen to them as often as possible;
- identify and, if possible, make contact with other possible sources of market information, such as agro-processors;
- identify local buyers for crops, find out what prices they are paying and their terms and conditions. A simple sheet of paper listing local buyers, their prices, whether they pay immediately or later, whether they buy in bulk or bag, etc. can be very useful for farmers;

- provide information about markets further away. Extension workers can contact their head office to obtain similar information about potential buyers in major urban markets;
- keep records of prices reported by the MIS, plot them on graphs, controlling for inflation. Chapter 7 provided detailed suggestions for doing this. Ideally, this type of analysis should be provided by the market information services. Where is not done extension workers could consider asking the MIS to do it, as an alternative to doing it themselves;
- help farmers understand the meaning of price broadcasts. This means that extension workers must themselves have a detailed understanding of how the marketing system works and of factors affecting prices that farmers will get;
- organize visits for farmers to urban markets. This would enable them to see how their produce is sold and the condition in which it arrives at the market. It would give farmers the opportunity to better understand the marketing system and to hold discussions with traders;
- monitor local prices not covered by the MIS. National market information services can only cover a few markets. Local extension services could consider monitoring prices in local assembly markets on the days when the market operates and posting these on notice boards at their offices and at the entrance to the markets, or alternatively, of persuading the managers of the markets to do this;

- assist farmers in understanding marketing costs and trader margins. Farmers are in most cases unlikely to be sufficiently literate or numerate to make estimates of traders' marketing costs. Using the information in this Guide and in FAO's Guide on the subject of marketing costs and margins³, extension workers can make reasonable estimates of marketing costs and advise farmers of these, to help in their negotiations with traders;
- understand the reasons why prices change, in both the short-term and the long-term;
- advise farmers on production technologies and varieties. Once farmers have used market information to decide that growing new crops or out-of-season crops may be a good idea, they then need to know what is required to grow the crops, how much the inputs will cost and where to get the inputs;
- advise farmers on production costs. Farmers do not just need to know how to grow new crops, they also need to know what it is going to cost to do so. Extension workers should be able to help farmers estimate likely production costs for new crops or for different technologies, such as out-of-season production;
- identify traders for new crops. Where farmers may be diversifying into new crops there may be no traders who are buying these crops. Extension workers should identify possible traders before advising farmers to grow new crops;
- assist local communities to establish their own local market information services. Where there is considerable social cohesion in a village and farmers see themselves as collaborators rather than competitors, it may be possible for communities, assisted by extension workers, to organize their own local market information supply;
- work with local media. Particularly in larger countries there may be local radio stations or newspapers which do not publish nation market information but may be interested in broadcasting or printing local prices;
- organize visits from traders and wholesalers. Farmers should visit markets, as mentioned above. However, this can be difficult and costly to organize. An alternative is to encourage wholesalers and traders to visit villages to hold group meetings with farmers;
- organize packaging trials. Sometimes the reason farmers find that the prices they get in the market are less than those reported by the MIS is that they use poor packaging and their produce arrives in the market in a bad condition. If this is confirmed by market visits, extension workers could consider encouraging farmers to work with traders to carry out trials using different types of packaging;
- organize grading demonstrations. Farmers can often earn more if they separate their produce into different grades. This point may be highlighted when MIS provide price information for several grades of the same product.

Endnotes

1. This is covered in more detail in, for example, *Horticultural Marketing*, Marketing Extension Guide No 5, FAO, Rome and *A guide to maize marketing for extension officers*, Marketing Extension Guide No. 1, FAO, Rome.
2. The subject of marketing costs is covered in much more detail in an earlier FAO publication, *A guide to marketing costs and how to calculate them* by Andrew W. Shepherd, FAO, Rome, 1993. This Chapter is based on material appearing in this Guide.
3. See endnote 2 above.

Gross Margin Analysis

Gross margin analysis can be used to compare profitability of using different technologies; for example, seasonal or off-seasonal horticultural production. It can also be used to calculate the profitability of growing an entirely new crop, when farmers are contemplating diversifying into new products. The gross margin can be calculated on a per hectare basis, or as a return to labour, based on the number of days worked by the farmer and his or her family (which is important when the new technology will increase the number of working days required or if labour is more of a limiting factor than land).

NOTE: Pages 84 and 85 contain an outline of a gross margin analysis which can be used by extension workers to help farmers calculate returns from growing new crops.

Gross margin analysis does not take into account fixed costs, such as land, interest payment on equipment, etc. as these will have to be paid anyhow. The procedure for calculating gross margins per hectare is:

- calculate an average yield per hectare expected for the crop with the technology to be applied. Where the product has not been produced before this will have to be based on information from other farmers or the advice of national agricultural extension or research services. However, as such services tend to farm in ideal conditions not replicated by small farmers it would be useful to reduce expected yield to take this into account;
- calculate the expected gross return per hectare, which is the expected production per hectare multiplied by the price *at the farmgate*. The farmer or extension worker will need to take the information on prices available from the market information service and deduct all marketing costs from the farmgate to the market to which the prices refer;
- calculate planting material, fertilizer and pesticide requirements per hectare or for the crop area and work out the total cost of these *at the farmgate*. The farmer will need to add costs of transport and other costs from the dealer to the farm;
- calculate costs of irrigation water and machinery services required per hectare, if these services are obtained commercially;
- calculate cost of other short-term inputs required specifically for this crop (e.g. plastic tunnels for horticulture production), dividing the cost by the number of crops (or years when there is just one crop a year) for which the input is expected to be used, and including interest charges, or bank interest which would have been earned if the money had not been used to purchase inputs with cash;
- on the basis of research service advice or other information, estimate the number of person/days required per hectare for land preparation, sowing/ planting, weeding and other production activities such as harvesting, cleaning, grading and packing. Multiply the number of days by the cost of labour if paid labour is used;
- where family labour is used multiply the number of days by the *opportunity cost* (i.e. the daily wage that members of the family could earn if they weren't working on the farm);
- subtract total costs from the total revenues to get the gross margin for the crop per hectare or per parcel of land it is intended to use.

The procedure for calculating gross margins in terms of returns to labour or per labour day is similar to the above except that the total family labour is *not* included. Returns to labour are calculated by taking total revenue less variable costs and dividing by the total labour days used.

Analyzing gross margins

	Unit	Quantity	Price/unit	Total value
PRODUCT REVENUES	kg	1)	2)	
COSTS				
Planting materials				
Fertilizers			3)	
Type 1	bags			
Type 2	bags			
etc.	bags			
Total fertilizers				4)
Pesticides	litres		3)	
Type 1	litres			
Type 2	litres			
etc.				
Total pesticides				5)

Notes:

1. Estimated production per ha.
2. MIS price minus marketing costs from farm to market. The calculation can be made using several different price assumptions in order to assess the risk if the expected price is not obtained.
3. Buying prices plus the costs of getting the fertilizer or pesticide from the shop to the farm.
4. Total costs of all fertilizers to be used on the areas under the crop or per hectare.
5. Total costs of all pesticides to be used.

Analyzing gross margins, *continued*

	Unit	Quantity	Price/unit	Total value
OTHER INPUTS				
Irrigation water	litres			
Paid machinery services	hours			
Other				
Total other inputs				
LABOUR	6)			
Hired labour	hours			
Family labour	hours		7)	
Total labour				
TOTAL COSTS (a)				
PRODUCT REVENUES (b)				
GROSS MARGIN (b – a)				8)

Notes:

6. Land preparation, planting, fertilizing, weeding, spraying, harvesting, cleaning, grading and packing.
7. Opportunity cost of family labour.
8. Revenue minus costs.

NOTES

Cover illustration: Consuelo Macias Duimic

The following is a list of booklets published in the
MARKETING EXTENSION GUIDE series:

A guide to MARKETING COSTS
and how to calculate them
1993 (revised 2007), 59 pp. (E F S R)

A guide to MAIZE MARKETING
for extension officers
1999 (revised 2010), 115 pp. (E F)

Understanding and using
MARKET INFORMATION
2000, 85 pp. (E F S R)

MARKET RESEARCH
for agroprocessors
2003, 114 pp. (E S R)

Planning and designing
RURAL MARKETS
2003, 120 pp. (E S)

HORTICULTURAL MARKETING
2005, 131 pp. (E F S)

Available in: E — English
F — French
S — Spanish
R — Russian

Series editor: Andrew W. Shepherd

For further copies of this publication
and for information on FAO's activities
related to agricultural marketing
please contact:

Market Linkages and Value Chains Group
Rural Infrastructure and Agro-Industries Division (AGS)

Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla
00153 Rome, Italy

FAX: (+39-06) 57053057
E-mail: AG-Registry@fao.org
www.fao.org/ag/ags

This Guide has been prepared to assist extension workers, and others in regular contact with farming communities, in advising farmers on how best to use market information. The Guide emphasizes the importance of understanding why farmers need information, how they can use it and benefit from its use, and what the available sources of market information are. Why prices change, both in the short- and long-term, how to interpret prices provided by a market information service, and how to calculate marketing costs between farmer and market are also covered. In addition, the Guide provides a number of practical ways in which extension officers and others throughout the world can work to improve their support for farmers' marketing efforts.