

## Role of Prices and Markets in the Development of Horticulture

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### **Introduction**

As an economy develops, marketing usually becomes more important in order to bring food products to people in the non-agricultural sector who are employed in the urban-industrial areas. The more differentiated the producing areas are from the consuming areas, the greater the role played by agricultural marketing. In a purely subsistence economy marketing has very little role to play, if any.

Prices are the signals which regulate production and consumption of agricultural products. High prices tend to stimulate production but decrease consumption and vice versa. It is said that demand implies control and, hence, prices are established at the retail level by consumers through their power to accept or reject (in part or total) products for sale offered at different prices.

Prices are sensitive to many factors and change often at the wholesale level. Wholesalers are in the most strategic position to appraise the interaction of supply and demand forces. Good market intelligence, therefore, provides producers and marketing agents with information to judge the true market values and enables both to direct their output to the best markets.

An effective and efficient marketing system reflects the demand of consumers in terms of prices and, hence, directs the flow of commodities. This task is performed best by market information that is properly assembled and distributed to buyers and sellers.

Markets are centres of trade where assembly and distribution of farm

products take place. In a country there may be a whole hierarchy of market centres, from the biggest to the smallest. Thus there may be national, regional, district, and village markets, which may or may not be a fully articulated system or functionally interconnected systems.

### **Price and Market Information**

Many countries have found that the market mechanism offers the least costly scheme to provide incentives to increase agricultural production and productivity, as well as to move surplus efficiently from producing to consuming areas. Timely and relevant price and market information are important in the production and marketing decisions of farmers, traders, dealers, and processors. Its importance is widely recognized as critical in the overall agricultural development strategy.

Most agricultural market information systems which have been set up and operated in developing countries primarily consist of the collection and dissemination of market prices, especially wholesale prices. One reason for this is that prices are easy to monitor and they are supposed to reflect the supply and demand situation of a commodity in a particular market.

It is recognized that supply statistics are equally important market information. Traders, processors, distributors, and even government market regulators benefit from such information in making their procurement, sales, and storage management decisions. It facilitates movement of supplies from surplus or producing areas to deficit or consuming areas. Such movement of supplies increases demand in surplus areas, thus increasing prices. On the other hand, the increase in supplies to the consuming areas decreases the price. Thus, knowledge of supply levels and availability benefits both producers and consumers by enabling the marketing system to function effectively and efficiently.

### **Design of Improved Market Information Systems**

Under a technical assistance project, FAO/UNDP with His Majesty's Government of Nepal is aiming at expanding the public or audience of the market information system being implemented by DFAMS. The system includes farmers, traders and consumers and aims to attain greater market transparency and improved marketing efficiency of agricultural products.

The improved market information system design is presented in Figure 15.1. The main features of the improved design are:

- Better data collection through training and use of a standard data collection manual.

DISTRICT (MARKETING ZONES) CENTRAL OFFICE

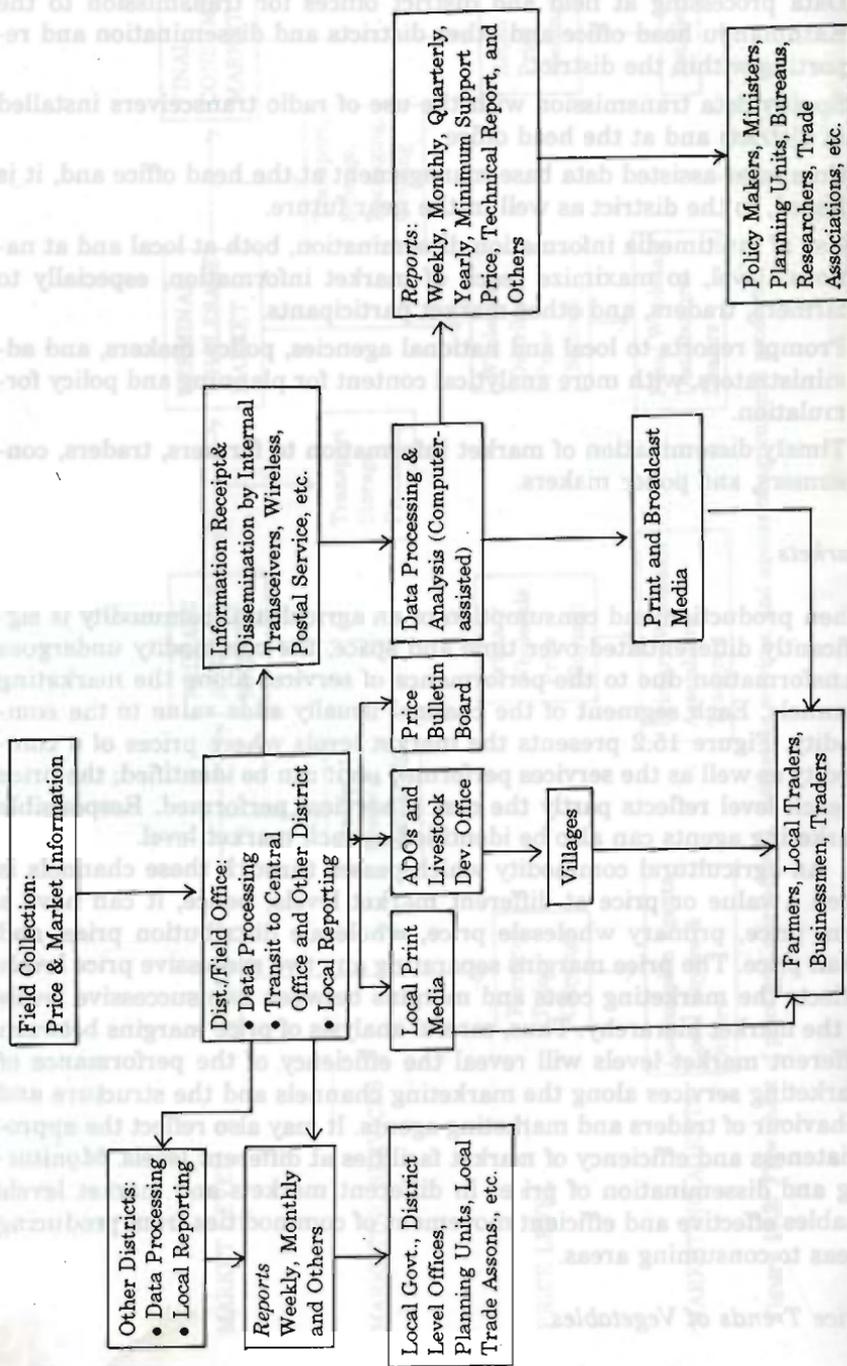


Figure 15.1: The design of an improved agricultural market information system

- Data processing at field and district offices for transmission to the Kathmandu head office and other districts and dissemination and reporting within the district.
- Speedy data transmission with the use of radio transceivers installed in districts and at the head office.
- Computer-assisted data base management at the head office and, it is hoped, in the district as well in the near future.
- Use of multimedia information dissemination, both at local and at national level, to maximize reach of market information, especially to farmers, traders, and other market participants.
- Prompt reports to local and national agencies, policy makers, and administrators, with more analytical content for planning and policy formulation.
- Timely dissemination of market information to farmers, traders, consumers, and policy makers.

### *Markets*

When production and consumption of an agricultural commodity is significantly differentiated over time and space, the commodity undergoes transformation due to the performance of services along the marketing channels. Each segment of the channel usually adds value to the commodity. Figure 15.2 presents the market levels where prices of a commodity as well as the services performed on it can be identified; the price at each level reflects partly the cost of services performed. Responsible marketing agents can also be identified at each market level.

An agricultural commodity which passes through these channels is given a value or price at different market levels; hence, it can have a farm price, primary wholesale price, wholesale distribution price, and retail price. The price margins separating any two successive price levels reflects the marketing costs and margins between two successive levels in the market hierarchy. Thus, careful analysis of price margins between different market levels will reveal the efficiency of the performance of marketing services along the marketing channels and the structure and behaviour of traders and marketing agents. It may also reflect the appropriateness and efficiency of market facilities at different levels. Monitoring and dissemination of prices in different markets and market levels enables effective and efficient movement of commodities from producing areas to consuming areas.

### *Price Trends of Vegetables*

Price information on horticultural commodities is still limited. What are

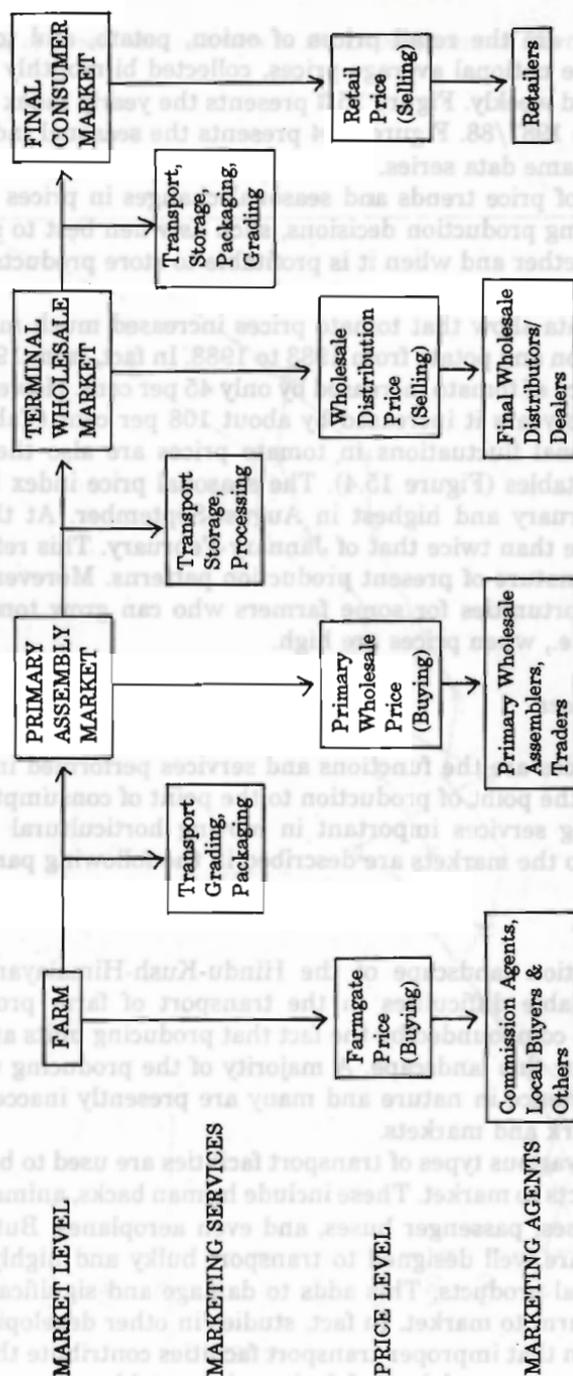


Figure 16.2: Flow chart of price and market level, marketing services, and agents of agricultural products

being presented are the retail prices of onion, potato, and tomato in Nepal. These are national average prices, collected bi-monthly initially, but now collected weekly. Figure 15.3 presents the yearly index of prices from 1974/75 to 1987/88. Figure 15.4 presents the seasonal indexes derived from the same data series.

Knowledge of price trends and seasonal changes in prices provides a basis for making production decisions, such as when best to sell or in determining whether and when it is profitable to store products for sale at a later date.

The price data show that tomato prices increased much more than the prices of onion and potato from 1983 to 1988. In fact, from 1977/78 to 1982/83, the price of tomato increased by only 45 per cent. However, during the next five years it increased by about 108 per cent (Table 15.1). Moreover, seasonal fluctuations in tomato prices are also the highest among the vegetables (Figure 15.4). The seasonal price index is lowest in January-February and highest in August-September. At this time, the price is more than twice that of January-February. This reflects the highly seasonal nature of present production patterns. Moreover, it indicates profit opportunities for some farmers who can grow tomatoes in the off-season, i.e., when prices are high.

### *Marketing Services*

Marketing services are the functions and services performed in moving a product from the point of production to the point of consumption. The major marketing services important in moving horticultural products from the farm to the markets are described in the following paragraphs.

#### TRANSPORT

The production landscape of the Hindu-Kush-Himalayan Region presents formidable difficulties in the transport of farm products to markets. This is compounded by the fact that producing units are widely dispersed all over this landscape. A majority of the producing units are primarily subsistence in nature and many are presently inaccessible to transport network and markets.

At present, various types of transport facilities are used to bring horticultural products to market. These include human backs, animals, carts, traders, minibuses, passenger buses, and even aeroplanes. But none of these facilities are well designed to transport bulky and highly perishable horticultural products. This adds to damage and significant losses en route from farm to market. In fact, studies in other developing countries have shown that improper transport facilities contribute the largest proportion to damage and loss of fruit and vegetables along the marketing chain. Changes in design of transport equipment and facilities

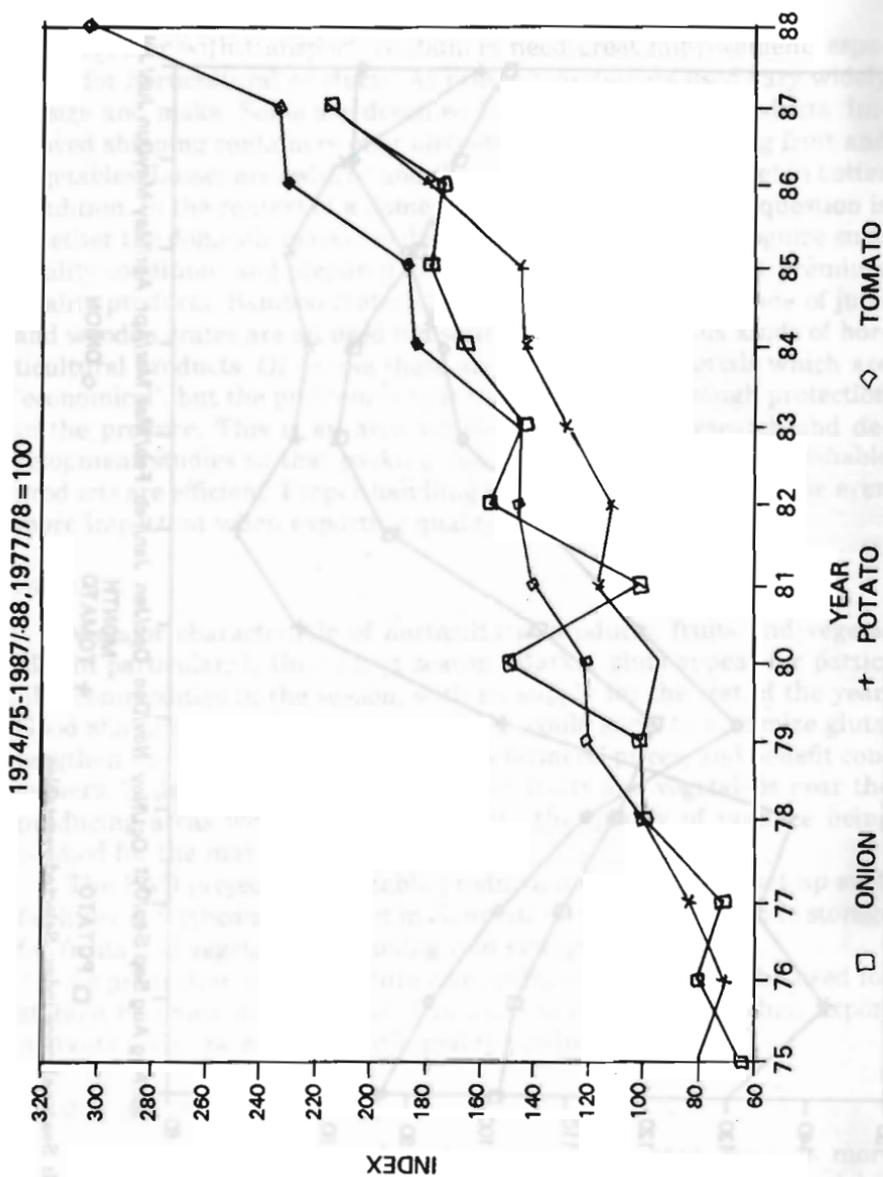
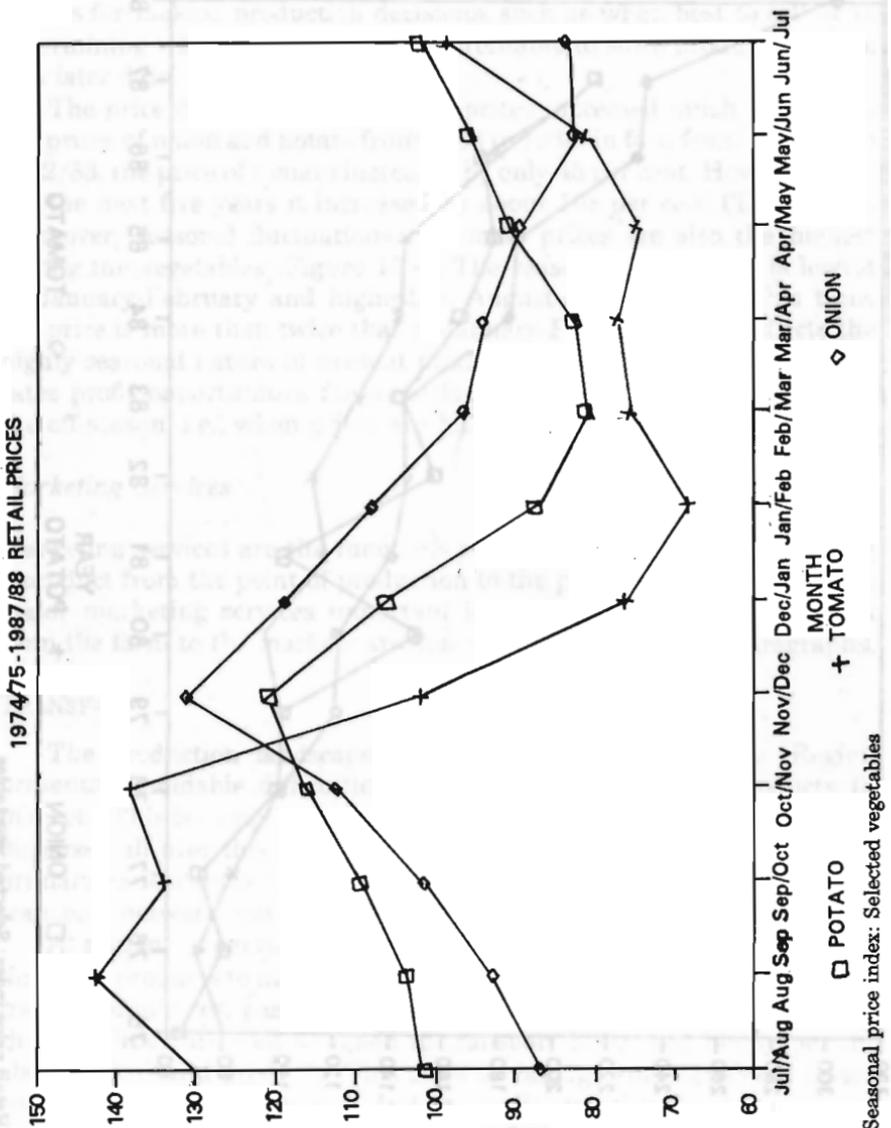


Figure 15.3: Retail price index: Selected vegetables



**Figure 15.4:** Seasonal price index: Selected vegetables

to minimize damage and loss would go a long way towards improving horticultural marketing.

#### CONTAINERS

Together with transport, containers need great improvement, especially for horticultural products. At present, containers used vary widely in size and make. Some are designed for specific types of products. Improved shipping containers offer obvious benefits in marketing fruit and vegetables. Losses are reduced and the products arrive at market in better condition. In the context of a domestic market like Nepal, the question is whether the domestic market is discriminating enough to recognize such quality conditions and prepared to pay the price differential for premium quality products. Bamboo crates and baskets, gunny sacks made of jute, and wooden crates are all used indiscriminately for various kinds of horticultural products. Of course these are indigenous materials which are 'economical'; but the problem is that they do not give enough protection to the produce. This is an area which requires both research and development studies so that packing, loading, and transport of perishable products are efficient. Proper handling and containerization become even more important when exporting quality products.

#### STORAGE

A major characteristic of horticultural products, fruits and vegetables in particular, is their short season. Market gluts appear for particular commodities in the season, with no supply for the rest of the year. Good storage for perishable commodities would serve to minimize gluts, lengthen the marketing period, improve farmers' prices, and benefit consumers. Collection and packing sheds for fruits and vegetables near the producing areas would help to maintain the quality of produce being readied for the market.

The FAO project on vegetable production is expected to set up such facilities. A forthcoming project in Kalimati is expected to provide storage for fruits and vegetables, including cold storage facilities.

As production of horticulture commodities is increased, the need for storage becomes more critical. The need is even greater when export markets are to be supplied with quality products.

#### GRADES AND STANDARDS

As output rises and markets become sophisticated, there is more quality consciousness among buyers. The sale of commodities 'as is' is no longer possible when catering to more discriminating markets. Moreover, in the absence of grading, producers of high quality products are penalized while those producing inferior goods benefit.

In Nepal there is only a small domestic market for quality grade horticultural products, but there is large potential in export markets. Penetrating such markets requires, among other things, competitive, quality products.

The maintenance of standard quality products starts on the farm. The problem of quality control is compounded by the existence of numerous small farm units in Nepal and in the whole Hindu Kush-Himalaya Region. Under this production structure the maintenance of uniform quality standards for produce requires close supervision of the production system. The question is, can small, independently operating units be regimented so that they produce the quality grades that domestic or export markets demand?

#### PACKAGING

Delicate horticulture products require suitable packaging, especially while being transported to far destinations. Damage due to improper handling, packaging, and transport can result in inferior quality as well as significant losses. This loss has been found to be high in some developing countries. Not only is there loss of volume and value but also there are losses of nutrients. Experience in the Philippines has shown that proper packaging of vegetables reduced weight losses from 29 to only 2.5 per cent. The difficult terrain for transporting goods in the Hindu Kush-Himalayan Region makes packaging and handling critical in preserving the quality of marketed horticultural products. At the moment the domestic market is simple and less discriminating, except for a small segment of the total market. Proper packaging will become extremely important when produce is to be sold to more discriminating domestic consumers and export markets.

#### PROCESSING

Highly perishable products are presently sold in fresh form as they have been for ages past. Marketing seasons are short; supply is heavy for a period, then non-existent for the rest of the year. Prices drop sharply as the marketed volume reaches its peak, then rise sharply. On the one hand, farmers receive low prices when they market the bulk of their produce. On the other hand, consumers use the product heavily during the season and little, if at all, for the rest of the year.

#### WHOLESALE MARKETS

As the economy develops and there is more articulation of markets and spatial differentiation for production and consuming areas of food products, wholesalers become critically important in the assembly and

distribution of food products, especially of perishable horticultural produce.

Wholesalers are usually located in major markets and often in a major transport nexus where they or their agents undertake the primary assembly of horticultural produce. Often it is here that products are graded, packaged, and distributed to local markets, or shipped to distant markets, both domestic and export. In Nepal there are no formally organized wholesale markets for fruit and vegetables, except the Kalimati wholesale market in Kathmandu.

The Kathmandu city area is the largest urban market for fruits and vegetables in the country. The Kalimati wholesale market has been in existence, informally, for some years. It has been the natural area for unloading of fruits and vegetables from the terai and neighbouring districts. The government has found it necessary to organize the market along more modern lines by providing facilities for wholesale, storage, and other services.

The volume of arrival in Kalimati is one important indication of the seasonal nature of horticultural production. In 1988/89, of the total volume of 17.5 million metric tons, 26 per cent was registered in the first quarter, 24 per cent in the second quarter, and 34 and 14 per cent in the third and fourth quarters respectively (Figure 15.5). In fact, the two months of October-November and November-December account for 26 per cent of the total arrivals. Figures 15.6 and 15.7 show the value of sales conducted at the wholesale market.

Marketing of vegetables and fruits showed a significant difference between the six months of 1988/89 and the corresponding period of 1987/88. The tremendous jump in the volume handled reflects not only increased arrivals in Kathmandu from supplying areas, but also more patronage by producers, suppliers, and traders (Figures 15.7 and 15.8). When a facility like this is set up, it provides a convenient and reliable place to buy and sell vegetables. While farmers and assemblers are sure to be able to unload their produce in the market knowing that buyers will come to that place, the distributors, retailers, institutional buyers, and their agents expect to buy and procure the commodities they want from this market.

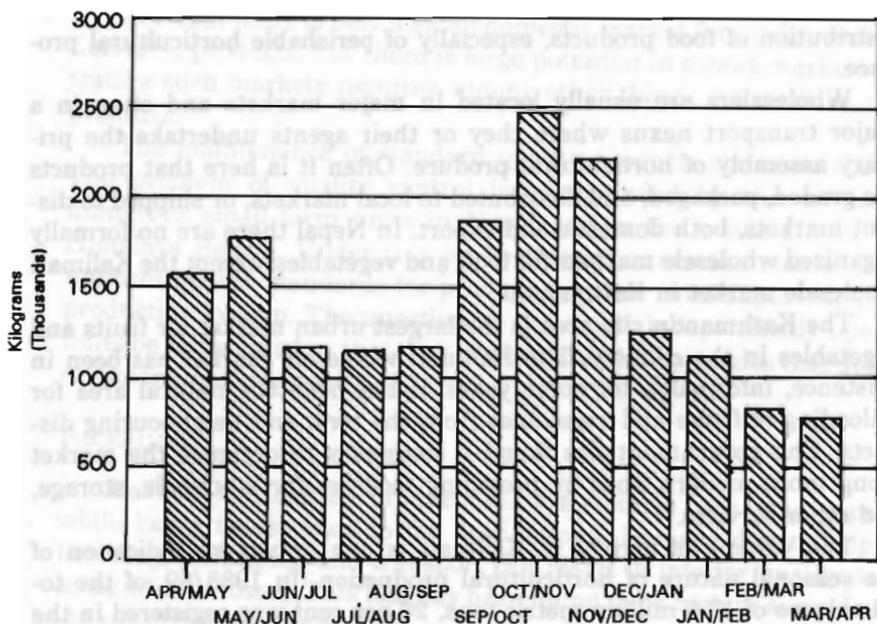


Figure 15.5: Total volume of vegetable and fruit arrival at Kalimati wholesale market, 1988/89

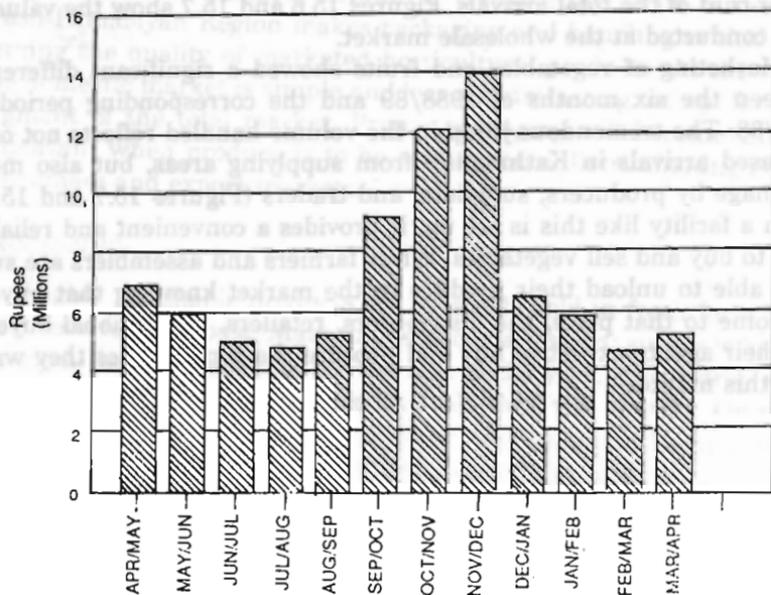


Figure 15.6: Total value of vegetable and fruits sold at Kalimati wholesale market, 1988/89

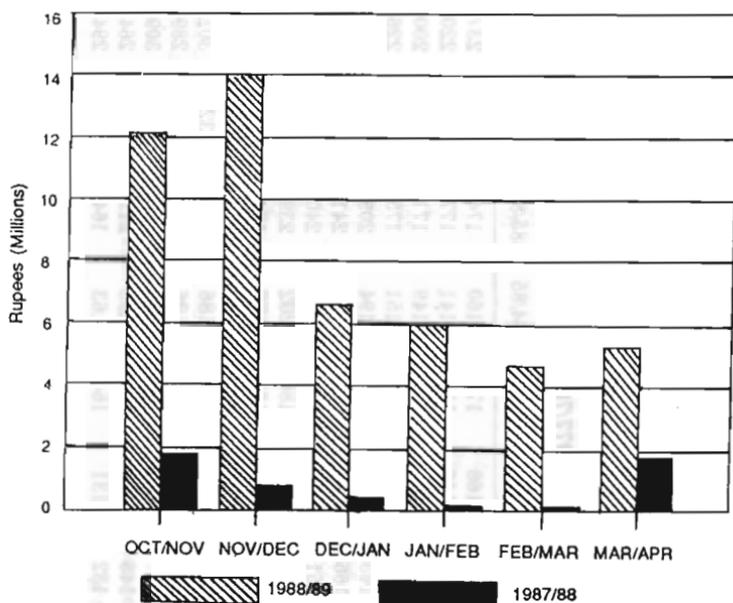


Figure 15.7: Comparison of total value of vegetable and fruit arrivals at Kalimati wholesale market, October-November to March-April, 1987/88 and 1988/89

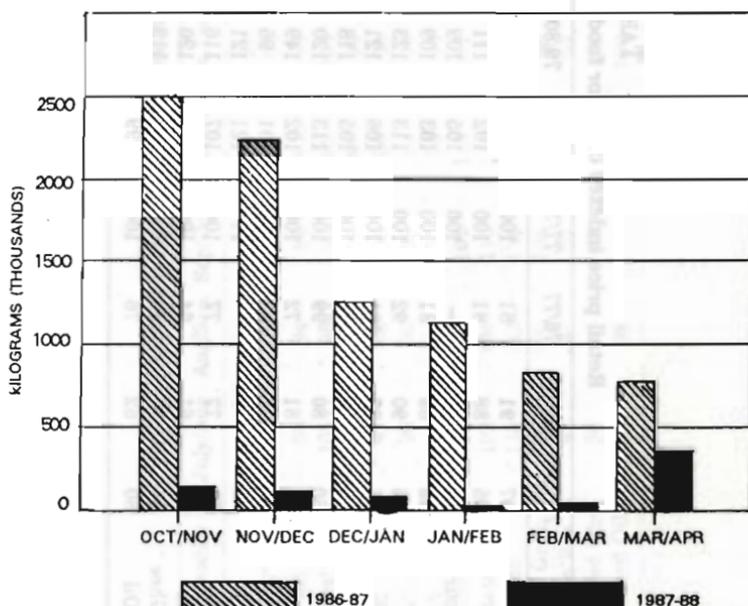


Figure 15.8: Comparison of total volume of vegetables and fruits sold at Kalimati wholesale market, October-November to March-April, 1987/88 and 1988/89

TABLE 15.1  
Retail price indexes of major food items, 1974/75-1987/88, 1977/78 = 100

Commodity	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88
Rice	97	91	81	100	105	109	117	127	166	174	160	174	208	237
Maize	95	88	81	100	102	111	114	122	146	153	141	177	179	220
Wheat Flour	-	-	-	100	105	109	125	122	156	158	149	171	181	200
Cereal	96	89	81	100	103	109	116	124	158	163	151	175	195	226
Chicken	86	90	92	100	113	123	134	143	172	182	194	209	250	280
Buff	85	97	101	100	106	121	132	166	191	222	221	241	285	326
Mutton	83	90	94	100	105	118	137	151	168	187	209	240	295	286
Fish	80	80	99	100	113	120	136	146	169	186	202	239	273	305
Onion	65	81	72	100	102	149	101	156	143	165	177	174	214	308
Potato	80	71	83	100	101	95	117	112	129	143	145	179	215	187
Tomato	-	-	-	100	121	121	141	146	145	183	186	230	232	302
Black Gram	77	77	77	100	107	116	131	132	144	165	196	221	228	289
Pigeon Pea	86	61	64	100	114	120	125	137	149	167	178	188	215	309
Purified Ghee	84	90	93	100	108	119	121	148	156	172	205	219	242	264
Mustard Oil	80	62	76	100	99	11	140	132	131	164	163	164	213	294

TABLE 15.2  
Seasonal retail price indexes: Major food commodities 1974/75-1987/88 average

Commodity	July/Aug	Aug/Sep	Sep/Oct	Oct/Nov	Nov/Dec	Dec/Jan	Jan/Feb	Feb/March	March/April	April/May	May/June	June/July
Rice	105	103	102	100	92	96	97	96	97	100	102	109
Maize	101	95	91	92	93	95	97	105	106	107	108	109
Wheat Flour	98	94	96	101	95	105	108	106	105	95	95	102
Cereal	105	95	97	102	103	93	96	97	103	98	100	111
Chicken	98	97	98	99	99	99	99	101	102	100	102	105
Buff	97	96	98	100	98	99	99	99	100	103	103	108
Mutton	96	95	98	98	98	98	100	100	103	103	105	106
Fish	95	98	97	96	96	97	99	105	106	100	103	107
Onion	87	93	101	113	131	119	108	97	94	90	83	84
Potato	102	104	110	116	121	106	88	81	83	91	96	102
Tomato	130	143	134	138	102	76	69	76	77	75	81	98
Black Gram	100	100	104	100	96	96	97	98	99	101	103	106
Pigeon Pea	97	98	97	96	99	100	103	101	102	100	101	107
Purified Ghee	98	97	98	99	102	97	99	100	100	101	103	106
Mustard Oil	96	98	99	99	100	102	102	99	99	100	101	105