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ISBN 91476

MARKETING OF AGRICULTURAL PRODUCTS

*Workshop Manual Series
No. 1*

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Published by the Economic Wing and Chemonics International Consulting Division for the Economic Analysis Network Project in Collaboration with the Ministry of Food, Agriculture, and Cooperatives, Government of Pakistan, and the United States Agency for International Development under the provisions of USAID Contract 394-0491-C-00-5034

Islamabad
June 1990

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PREFACE

This manual is written for the beginner in agricultural marketing. It will be especially useful to agriculturalists in underdeveloped countries. Especially those who have minimal training in agricultural marketing but find themselves managing agricultural marketing organizations. The manual describes the role of agricultural marketing in development, and practical study and communication approaches to the marketing problem. It further describes the standard subject areas of agricultural marketing from prices, market organization, government services through export marketing. For the practitioner, feasibility analysis of new marketing ventures is included.

The manual is designed to be used as a guide in workshops on the Marketing of Agricultural Products. The manual contains core agricultural marketing concepts, as well as objectives and suggested individual and group exercises. It is expected that most workshops will be made broader in scope than the manual through instructor presentations, group discussions, and country specific cases.

Due to the demand from agricultural institutions and businesses in Pakistan this edition of the manual was updated and supplemented with materials from Pakistan by the original author. The first edition of the manual was written in 1970 under the sponsorship of the International Training Division, Office of International Cooperation and Development, U. S. Department of Agriculture. Since that time it has been used to introduce agricultural marketing to several thousand participants in agricultural marketing work shops held in numerous developing countries and at Colorado State University, Fort Collins, Colorado, U.S.A.

This edition of the manual was organized and edited by Kamil Lodhi, and Agha Abbas, Staff Economists for the Economic Analysis Network Project. Earlier editions were organized and edited by Margaret L. Lively, International Training Division, U.S. Department of Agriculture.

COURSE OVERVIEW

Rationale

Marketing is a business activity which moves goods from the area of production to the area of their consumption. It is well known that existing deficiencies in food consumption and nutrition could be significantly diminished in the developing nations if the marketing systems were more efficient and effective in moving commodities from the producer to the consumer. Similarly, improvements in the marketing systems would in many cases permit the agricultural products of these countries to enter and compete more successfully in world markets. Achieving these types of improvements require increased understanding and expertise in identifying marketing channels and analyzing the structure and performance of marketing institutions and functions.

Objectives

Overall Course Objectives

The overall course objective is to enable participants to identify the problems and potentials in domestic and export markets and use appropriate analytical tools to develop strategies for improving the marketing system. At the completion of this course, participants will be able to :

- * Understand the importance of agricultural marketing to economic development.
- * Identify the organization of agricultural marketing systems
- * describe the various business operations that provide useful functions in agricultural marketing systems.
- * Identify the marketing system for specific agricultural products and develop improvements in the system.
- * Identify and evaluate potential export markets for non- traditional agricultural products.
- * Explain the business steps necessary for exporting non- traditional agricultural products.
- * Evaluate specific agricultural marketing business ventures.

Specific Objectives of Each Unit

The specific skills and information necessary to achieve the overall course objectives are presented in the eight units of this course. The specific objectives for each unit are shown at the beginning of that unit.

CHAPTER 1

THE ROLE OF AGRICULTURAL MARKETING IN DEVELOPMENT

Rationale

Agricultural marketing is the performance of all business activities involved in the flow of goods and services which make the product acceptable to the consumer. Agricultural marketing performance is important because a major part of family income is spent on food, and savings through lower-cost food or increases in the quality of food contribute to the well-being of the consumer. It is also important because many people in developing countries earn their livelihood from farming. Agricultural market performance is measured by the efficiency of the business activities that agricultural products value by providing the products in the form and place and at the time and price that the consumer wants. The business activities in agricultural marketing can be roughly classified as exchange, physical and facilitating functions.

Objectives

Upon completion of this unit, participants will be able to:

- * Explain the role of agricultural marketing in the development process.
- * Identify the characteristics of a "perfect market."
- * Show how marketing increases the value of agricultural products by adding time, place, form and possession utility.
- * Identify and explain the three basic functions of the marketing system.
- * Use analytical techniques in evaluating agricultural market performance.

THE ROLE OF AGRICULTURAL MARKETING IN DEVELOPMENT

CORE MATERIAL

Key Points

- * Agricultural marketing involves all the business activities dealing with the flow of agricultural products from the producer to the consumer.
- * The degree of sophistication of the agricultural marketing system is closely associated with the overall stage of development of a country.
- * Agricultural marketing increases the value of agricultural products by adding form, place, time and possession utility to the products.
- * The agricultural marketing system can be divided into three basic and identifiable functions--the exchange, physical and facilitating functions.
- * Market performance can be evaluated by such measures as input-output ratios of specific market functions, pricing efficiency, technical efficiency, product loss in marketing, and comparison to a "perfect market."

1.1 Introduction to Agricultural Marketing

The marketing of agricultural products begins the commodities leave the farm and ends when the products reach the consumer. It is more than buying and selling. Rather, it is a series of important business activities that transform a farm producer's cows, rice or onions into hundreds of products which are used by thousands of consumers. It gives agricultural products value by providing the products in a form desired by consumers and at the location and time convenient for consumer purchasing. Thus, agricultural marketing can be considered to be the performance of all business activities involved in the flow of goods and services which make the product acceptable to the consumer in form, time, location and price.

1.2 Three Stages of Development for Marketing Systems

The intrinsic characteristics of the agricultural marketing system and how it operates are closely associated and run parallel with the overall stage of development of a country. Three stages of market development can be defined which are useful in understanding the degree of sophistication of a marketing system.

1.2.1 Traditional Subsistence Economies

In traditional economies, agriculture is the main occupation for most of the population. However, most of the production is consumed on the farm and only a small proportion enters the marketing system. Productivity and incomes are low. Traditional subsistence economies produce a limited variety of agricultural crops which may sometimes include commercial export crops. Consequently only a limited variety of crops are brought to the market. Market transactions are made directly and the differences over price and product qualities are usually discussed face to face by both parties in a transaction.

Generally in such economies there is an absence of governmental support for new technology to develop agricultural production. As a result, changes take place slowly in the rural areas. Major urban centers within countries at this stage of development, however, may have elements of a more advanced marketing system.

EXAMPLES: INDONESIA, PARAGUAY, ETHIOPIA

1.2.2 Transitional Agricultural Economies

As the development of a country takes place, it becomes increasingly urbanized and more market oriented. The growth of agricultural production is a priority in development plans. Commercial agriculture is on the increase and public and private

capital are going into farming and agribusiness. Temporary surpluses may appear for some crops. Marketing and distributions constraints emerge. Increases in income due to rural populace migrating to urban areas result in more products moving greater distances for marketing.

With a larger proportion of the country's food-crop consumption going to urban markets and more production available for commercial markets, certain problems emerge. A general expansion of the marketing system is needed, requiring additional services from facilitating agencies such as grading, financing, risk-bearing, crop reports and market news.

EXAMPLES: PAKISTAN, KENYA, GUATEMALA

1.2.3 Market-Oriented Agriculture

Urban population becomes the main demographic characteristic in market-oriented agriculture, paving the way for commercial agriculture to become a dominant producer of agricultural commodities. Resource allocation problems emerge within the agricultural sector and high priority is given by the government to handle problems in developing new markets. Problems of food supply begin to shift from issues of production to issues of distribution and from commodities to nutrition. As improvements in income and technology continue to become more general throughout the economy, more food is processed and packaged. A food industry emerges keyed to the consumer preference for new products and as a result a national marketing system emerges.

EXAMPLES: TAIWAN, COSTA RICA, ARGENTINA, VENEZUELA

1.3 The Concept of the Perfect Market

Just as physical scientists have benchmarks to use in analyzing a problem, similarly the market analyst has a benchmark -- the perfect market. The physical scientist uses a definition of a perfect vacuum or absolute zero in temperature. The market analyst uses the perfect market. The concept of the perfect market assumes that all buyers and sellers have perfect and complete knowledge of demand, supply and prices, and that buyers act rationally based upon this knowledge. In the simplest case, all buyers and sellers are located at a single point in space and are doing business at the same time. In such a market a uniform price prevails. It must be emphasized that the perfect market does not exist in reality, but is used as a reference from which to analyze less than perfect markets.

The perfect market has three components:

a SPACE

Buyers and sellers who make up the market for a particular commodity are not usually located at one point but are scattered over a wide area. This fact does not limit the application of the concept of the perfect market but rather broadens it over the entire area. The uniform price would still prevail but with adjustments for transportation and handling charges between buyers and sellers at different points throughout the area. In recent years advances in communications have brought the perfect market closer to reality. Even when buyers and sellers are widely scattered, they can still have access to the necessary market information and act the same as if they were all in the same location.

b TIME

The buyer and seller in a market usually do business, not at one point in time, but over a period of time. Just as with a wide geographical area, the uniform price concept can be broadened over a period of time. When demand and supply remain unchanged, the uniform price is adjusted for storage charges involved in carrying over some of the commodity from one point in time to another. As the time increases, however, the possibility of price variations due to changing supply and demand conditions also increases.

c FORM

No commodity is the same in a particular market. Each commodity offers variations and its price is adjusted according to the different classes and grades of the commodity.

1.4 Marketing System Productivity

Marketing system productivity is usually measured by the amount of usefulness the system adds to the agricultural products. This usefulness is often referred to as "utility" by economists. The various types of utility added by the marketing system are shown below:

a FORM UTILITY

By processing or other methods, changing the product into a form desired by consumers.

b PLACE UTILITY

Transporting the product to a location where it can be transferred to the consumer.

c TIME UTILITY

Storing the product so it is available to the consumer at the proper time.

d POSSESSION UTILITY

The process of transferring ownership of the product to the people who can use it and placing the product in their hands at the right time.

EXAMPLES OF UTILITY

The trucker who transports the wheat from the farm to the miller adds place utility to the product. The miller who buys the wheat adds form and possession utility to the product as well as holding it so the product can be marketed at the right time, which adds time utility. The wheat is now in the form of flour and is delivered to the baker who puts the product in the form of bread which is available to the consumer at the right place, in the right form, and at the right time, so they can take possession and use the product in the form best suited to their needs.

1.5 Approaches to Understanding Agricultural Marketing Problems

In order to identify complex marketing problems, it is necessary to divide the marketing system into small definable components. Marketing economists use two basic methods for dividing the marketing system. The first method, segments the system into various functions. This is called the functional approach. The other method breaks down the marketing system into its various institutions and defines institutional performance. This is known as the institutional approach. This manual discusses both the functional and institutional approach but emphasizes the functional approach throughout the economic analysis. The functional approach is more universal as institutions may vary from one country to another.

1.5.1 The Functional Approach

The functions performed by the marketing system can be divided into fairly widely accepted classifications:

EXCHANGE FUNCTIONS

- a Buying (assembling)
- b Selling

The exchange functions are those activities involved in the transfer of title of goods and represents the point at which the study of price determination enters into the study of marketing. The buying function is largely one of seeking out the sources of supply, assembling of products and the activities associated with purchase. The selling function includes various activities which are called merchandising, for example display of goods, advertising, promotional ideas to create demand of products are part of the selling functions.

PHYSICAL FUNCTIONS

- c Storage
- d Transportation
- e Processing

The physical functions are those activities which are involved in solving the problems of when, what, and where in marketing. The storage function is primarily concerned with making goods available at the desired time. This includes the activities of storing raw materials until needed for further processing as well as holding finished goods as inventories by processors, wholesalers and retailers.

The transportation function is primarily concerned with making goods available at the appropriate locations. Adequate performance of this function requires planning alternate routes and types of transportation as these effect transportation costs.

The function of processing is often not included in a list of marketing functions because it is essentially a form changing activity. However, from a broader perspective it is an integral part of the marketing process. The processing function includes activities such as converting wheat into flour, livestock into meat, and oranges into juice.

FACILITATIVE FUNCTIONS

- f Standardization
- g Financing
- h Risk Bearing
- i Market Intelligence

The facilitating functions are significant as they make possible the smooth

performance of the exchange and physical functions. Although this function is not directly involved in either the exchange of title or the physical handling of products yet it can be aptly called the grease that makes the wheels of the marketing machine go round.

The standardization function is the establishment and maintenance of uniform measurements. These may be measurements of both quality and quantity. This function simplifies buying and selling, because it makes the sale by sample and description possible. It therefore is one of the activities which makes possible mass selling an important aspect of a complex economy. Effective standardization is basic to an efficient pricing system.

The financing function is the advancing of money to carry on the various aspects of marketing and may be easily recognizable in the concrete form of advances from various lending institutions or the subtle form of tying up the owner's capital resources. In either instance, it is necessary in modern marketing.

The risk-bearing function is the accepting of the possibility of loss in the marketing of a product. Most of these risks can be classified into two broad classifications - physical risks and market risks. The first may be the result of destruction or deterioration of the product itself by fire, accident, wind, earthquakes, cold, and heat. The second type are those which occur because of the changes in value of a product as it is marketed.

The market intelligence function is the job of collecting, interpreting and disseminating the large variety of data necessary to the smooth operation of the marketing processes.

Efficient marketing cannot operate in an information vacuum. Everyone in the marketing structure who buys and sells products evaluates available market data and therefore performs this function to some degree.

1.5.2 Use of the Functional Approach

The functional approach focuses on those aspects of marketing which must be performed in order to move products from producers to consumers. Some marketing agencies specialize in performing specific functions. For example, cold storage warehouses are operated to perform the storage functions. A potato broker may specialize in the selling and market intelligence functions. On the other hand, some marketing agencies may perform all the functions to some degree. The retailer is a good example of this latter group.

Analyzing the functions of various middlemen is particularly helpful in evaluating marketing costs. Retailing is usually much more costly than wholesaling. The functional approach, however, brings out the greater complexity of retailing by focusing attention on the increased extent to which the retailer must perform his

various functions. The use of the functional concepts also help in comparing the cost of two similar middlemen. Cost comparisons are meaningful only when they are related to the job done. Retailer A may operate at lower costs than retailer B, but does retailer A perform the same functions as B ? Perhaps A is a cash-and-carry merchant whereas B extends credit and delivers. As such, A probably performs considerably less of the functions of financing, risk bearing, and transportation than B.

The functional approach is also useful in understanding the difference in marketing costs of various commodities. For example, a perishable product is often more expensive to market than one that is less perishable.

The breaking down of a complex marketing task into its component functions greatly aids in efforts to improve the performance of the marketing machinery. Again in reference to the above example, perhaps retailer B is losing money even though other retailers having similar operations are not. A function-by-function study of B's business might show that the cost of its credit function is unduly high because of unpaid accounts. Or a careful analysis of his selling function may show he has not kept up with new methods in merchandising his products and thus is losing out to his competitors.

Marketing functions are activities that must be performed in the marketing process. Changes may be made that will permit the performance of a function with less cost. Its performance may be simplified and excessive duplication be corrected and the "where" or "who" performs the function may be changed. But the performance of the function itself, however, can never be totally eliminated. Keeping this in mind will help in evaluating various proposed schemes for improving marketing. A particular "middleman" may be eliminated, yet the functions he was performing must still continue to be accomplished in the marketing process. In some commodities, farmers may sell their products with or without hiring the services of a commission man. However, when the commission man is eliminated, the farmer himself must undertake the responsibility for functional jobs the commission man performed. Supermarkets have reduced the costs of retailing by reducing the use of sales-clerks, delivery and credit extension. However, this has been possible because the consumers themselves are now performing these functional tasks.

The reader can evaluate his grasp of the preceding ideas if he will pause now and try to put them into practice. Choose a familiar commodity and enumerate the various functions performed by the different agencies in moving the commodity into consumption. Do not forget to mention the marketing functions the farmer or the consumer himself might perform.

1.5.3 The Institutional Approach

Another approach to the study of marketing systems focuses upon the various agencies and business structures which perform different marketing functions. Where the

functional approach attempts to answer the "what" in the question of "who does what", the institutional approach to marketing problems focuses attention on the "who." Marketing institutions are the wide variety of business organizations which have developed to operate the marketing machinery. The institutional approach considers the nature and character of the various middlemen and related agencies and also the arrangement and organization of the marketing machinery. In this approach the human element receives primary emphasis.

1.5.4 Middlemen of Marketing

Middlemen are those individuals or business concerns that specialize in performing the various marketing functions involved in the purchase and sale of goods as they are moved from producers to consumers. Our concern here is with the place in the marketing processes which the middlemen occupy and not the way in which they have organized marketing functions for doing business. They may operate as individual proprietors, partnerships, or cooperative or noncooperative corporations. The middlemen of particular interest in agricultural marketing can be classified as follows:

- a Merchant Middlemen
Retailers
Wholesalers
- b Agent Middlemen
Brokers
Commission Men
- c Speculative Middlemen
- d Processors and Manufacturers
- e Facilitative Organizations

Merchant middlemen take title to, and therefore own the products they handle. They buy and sell for their own gain. The retailer buys products for resale directly to the ultimate consumer of the goods. He is the producers' personal representative to the consumer. As such, his job is very complex. From the functional viewpoint, the retailer may perform all of the marketing functions. This group of middlemen is the most numerous of the various marketing functionaries.

The wholesaler sells to retailers, other wholesalers and industrial users, but does not sell in significant amounts to ultimate consumers. Wholesalers make up a highly heterogeneous group of varying sizes and characteristics. One of the numerous groups

of wholesalers are the local buyers or country assemblers who buy goods in the producing area directly from farmers and ship the products forward to the larger cities where they are sold to other wholesalers and processors. In this group are such agencies as grain elevators, poultry and egg buyers, and local livestock buyers. Another type of wholesalers is located in the large urban centers. These may be "full-line" wholesalers who handle many different products or those which specialize in handling a limited number of products. They may be cash-and-carry wholesalers or service wholesalers who will extend credit and offer delivery and other services. Such terms as "jobbers" and "car-lot receivers" are often used synonymously with "wholesalers."

Agent middlemen, as the name implies, act only as representatives of their clients. They do not take title to and therefore do not own the products they handle. While merchant wholesalers and retailers secure their incomes from a margin between the buying and selling prices, agent middlemen receive their incomes in the form of fees and commissions. Agent middlemen in reality sell services to their principals, not physical goods to customers. In many instances, the principal stock-in-trade of the agent middlemen is the market knowledge and know-how they use in bringing buyers and sellers together. Their services are often retained by a buyer and seller of goods who feels that he does not have the knowledge or opportunity to bargain effectively for himself.

Though the names may differ somewhat, agent middlemen can be broken down into two major groups, commission men and brokers. The difference between these two types of agent middlemen is largely one of degree. The commission man is usually granted broad powers by those who consign goods to him. He normally takes over the physical handling of the product, arranges for the terms of sale, collects and deducts his fee, and remits the balance of his principal. The broker on the other hand, usually does not have physical control of the product. He ordinarily follows the directions of his principal closely and has less discretionary powers in price negotiations than the commission men. In agriculture, livestock commission firms and grain brokers on the grain exchanges are good examples of these two classifications of agent middlemen.

Speculative middlemen are those who take title to products with the major purpose of profiting from price movements. All merchant middlemen, of course, speculate in the sense that they must face uncertain conditions. Though usually wholesalers and retailers attempt to secure their incomes through handling and merchandising their products and to hold the uncertain aspects to a minimum. Speculative middlemen seek out and specialize in taking these risks and usually do a minimum of merchandising. Several names are given to these middlemen such as "traders," "scalpers" and "spreaders". They often attempt to earn their profits from short run fluctuations in prices usually during the same day, for example the grain scalper may buy and sell grain futures several times within the trading day.

Processors and manufacturers primarily exist to undertake some action on products to change their form. Apart from their main processing activities, food processors take an active part in other institutional aspects of marketing. Some processors, such as

meat packers, flour millers and fruit and vegetable canners, often act as their own buying agents in the producing areas. Increasingly this group undertakes the wholesaling of their finished products to retailers. Many processors attempt to reach the ultimate consumer through advertising. So processing in itself is only part of the activities of food manufacturers.

Facilitative organizations aid the various middlemen in performing their tasks. Such organizations do not, as a general rule, directly participate in the marketing processes either as merchants, agents, processors or speculators. One group of these organizations furnishes the physical facilities for the handling of products or for the bringing of buyers and sellers together. However, they establish the rules of the game which must be followed by the trading middlemen, such as hours of trading and terms of sale. They may also aid in grading, arranging and transmitting payment, and the like. They receive their incomes in the form of fees and assessments from those who use their facilities. Examples of this group are the stockyard companies, grain exchanges and fruit auctioneers.

Another group of organizations falling in this general category are the trade associations. The primary purpose of a large majority of these organizations is to gather, evaluate and disseminate information of value to a particular group or trade. They may carry on research of mutual interest. In many cases they may also act as unofficial policemen in preventing practices the trade considers unfair or unethical. Though not active in the buying and selling of goods these organizations often have far reaching influence on the nature of marketing.

1.5.5 Use of the Institutional Approach

The recognition of the various kinds of marketing organizations and the way in which they organize themselves provides another useful tool in analyzing marketing problems. Very often the "why" of certain marketing practices must be answered in terms of the characteristics of who performed it. Such analysis has the advantage of preventing the personal aspects of marketing from being ignored.

Attitudes towards change or improvement must often be examined in the light of the characteristics of the various marketing institutions. One of the greatest obstacles to market improvement comes from institutions with large vested interests in the status quo. Marketing institutions give voice to the marketing machinery. From them develop "pressure" and "educational" groups attempting to mold public opinion. One of the cardinal rules to be followed in the analysis of any marketing controversy is first to ascertain which groups are vocal in the controversy and what they might stand to gain or lose.

1.6 **Measurements of Market Performance**

Marketing organizations, agencies and institutions that perform functions that add

utility to agricultural products usually have an impact on the cost and price of these products. Normally, the functions they perform require resources and thus have a cost. The cost may differ among institutions, agencies, middlemen or firms, but is related to the current market development in the country.

Two common measures used to assess marketing performance are:

- a The farmer's share of consumer food expenditures.
- b The gross marketing margin, sometimes called the farm-retail price spread.

These statistics can be easily misunderstood if they are not presented in a meaningful manner. For example, a gross marketing margin may be low because the marketing activities are carried out efficiently at low cost. However, the margin may also be low because the marketing system provides few services.

1.6.1 Input-Output Measures of Specific Marketing Functions

Efficient marketing is the optimization of an input-output ratio. A change that reduces the input cost of performing a particular activity without reducing consumer satisfaction with the output of goods or services is clearly an improvement in efficiency. However, a change that reduces cost and consumer satisfaction represents a reduction in marketing efficiency. The concept of marketing efficiency is usually divided into two categories:

- Pricing (or economic) efficiency.
- Technical (or operating) efficiency.

Pricing efficiency is concerned with improving buying, selling and pricing activities of the market process so that it remains responsive to consumer directions. The pricing efficiency concept is reliable when:

- a Consumers are provided with viable alternatives in the marketplace.
- b Prices of the alternatives adequately reflect the cost of providing them.
- c Business firms are relatively free to enter and leave the market in response to profits or losses based on prices bid by consumers in the marketplace.

How can pricing efficiency be measured? The best approach is to determine if the costs of the marketing function are out of balance with performance. For example, the price of commodity in different geographic areas should differ only by the cost of

transportation from the point of production to the place of use.

Technical efficiency, in contrast to pricing efficiency, assumes that the output of goods and services is given and focuses on reducing the cost of providing them. For example, substitution of a less expensive but more durable and lighter package increases the number of packages that can be shipped in a truck. Technical efficiency usually depends on using new or known technology from diverse disciplines such as engineering, food technology, business management or economics. As the technology of marketing is improved, costs are lowered and the output of products and services remain unchanged or are increased. Marketing firms and agencies operating in a competitive environment constantly seek to improve technical efficiency to compete. Although a business goal may be to improve profits, the benefits from improved technical activities are shared by consumers in the form of economics of scale and lower unit cost.

1.6.2 Product Loss and Waste in Marketing

Another method of evaluating efficiency in marketing is the measurement of physical product losses as the commodity moves through the distribution channels from the producer to consumers. Marketing efficiency is often measured by yields and physical productivity, much like production efficiency. An example of product loss or waste efficiency in the marketing system might be a slaughter plant which adds rendering facilities for higher utilization of animals being processed through the plant. The efficiency is calculated in the amount of useful product produced.

1.7 **Agricultural Marketing in Pakistan**

1.7.1 Marketable Surplus in Agriculture

Pakistan can be characterized as a transitional agricultural economy. Agricultural production is fairly diversified and market oriented. Of the total cropped area of about 20 million hectares, foodgrains account for about 56%, cash crops 16%, fodder crops 15%, pulses 7%, fruits and vegetables 3% and oilseeds 2%. In addition livestock and dairying are major activities undertaken by the rural population. The proportion of area under different crops varies according to the size of farm. Small farms devote a larger share of their cropped area to foodgrains than large farms.

Agriculture produces a sizable marketed surplus. Although data on the size of the marketed surplus in different crops is limited, these surpluses support a large and growing urban population and much of Pakistan's industry. They also contribute substantially to the country's exports. The proportion of production marketed varies by size of farm. Generally, large farmers market a greater percentage of their production than small farmers.

Most farms in Pakistan are small in size and produce equally small marketable surpluses. Of an estimated total 4.4 million farms, nearly 70% are less than 12.5 acres and about 90% less than 25 acres. The large number of small farms makes efficient marketing of agricultural products difficult since they prevent economies of scale and limit the introduction of new technology.

1.7.2 Demand for Agricultural Commodities

Pakistan's population has doubled in the past three decades. While the majority still live in rural areas the number of people living in towns and cities has increased in both absolute and relative terms. Two-third's of the rural population is directly involved in agriculture. Thus a third of the rural population and the entire urban population have to meet their requirements of agricultural produce through purchasing.

This is not to say that farmers are completely self-sufficient with respect to the demand for agricultural commodities. Because of the need for cash, farmers often sell their crop at harvest time and then purchase small amounts during the year to meet household needs. In this case the marketed surplus exceeds the marketable surplus. In some cases this may even involve products moving first from rural to urban areas and then back again to rural areas. Multiple marketing operations are also necessary where processing is essential to convert the raw material in a form suitable for use by consumers.

Since agriculture is spread all over the country while industries are concentrated in a few areas, the bulk movement of industrial raw materials to these consumption centers is necessary. Nearly all of Pakistan's exports are routed through the port of Karachi. Some exports are also made from the Makran coast and via the land routes of the cities of Peshawar and Quetta.

1.7.3 Marketing Arrangements

According to the Constitution of Pakistan, agricultural marketing is a provincial subject. However, because of the importance of agriculture in the national economy, agricultural policies including marketing receive the attention of the Federal Government. The broad framework of agricultural policies including those relating to marketing is laid down by the Federal Government in consultation with the provinces.

At the Federal level agricultural marketing is the responsibility of the Department of Agricultural and Livestock Products Marketing and Grading (DALPMG) under the Ministry of Food, Agriculture and Cooperatives. This department advises the Federal Government on all matters relating to agricultural marketing in the country. It also provides guidance to the provinces on marketing and coordinates provincial activities at the national level. The DALPMG is specifically entrusted with the following responsibilities: (a) grading of agricultural commodities for export; (b) undertaking

commodity research to establish standards for agricultural products; and (c) providing market intelligence services through collection and dissemination of agricultural commodity prices.

Although the bulk of agricultural marketing is in private hands, the government intervenes extensively in the agricultural marketing system. It sets the minimum support prices for nearly all major crops (wheat, cotton, rice, sugarcane and oilseeds), regulates their marketing (sugarcane and tobacco), is involved in the procurement of produce from farmers (wheat, rice, cotton and occasionally potatoes and onions) and has an export monopoly in certain agricultural commodities (basmati rice and raw cotton).

Private trade in agricultural commodities is regulated through the provincial agricultural produce marketing acts which exist for the provinces of Punjab, Sind and NWFP. These Acts regulate the sale and purchase of farm produce through the establishment of market committees composed of producer and trader representatives. Market Committees in each area fix the commission rates and market fees which can be charged in transactions involving agricultural produce, license traders and inspect the weights and measures used by the latter. These committees are also responsible for the provision and maintenance of basic infrastructure such as drinking water, sanitation, lighting, platforms etc.

1.7.4 Physical Marketing Facilities

It is estimated that Pakistan has about 650 markets serving approximately 45,000 villages. In terms of area each market covers about over 450 square miles though this is misleading since large areas of the country are uninhabited. Nevertheless the ratio of markets to both area and population is low compared with other countries. This situation is aggravated by the absence of an adequate rural road network connecting producing areas to existing market centers.

Agricultural markets in Pakistan are poorly designed. Many are too small and congested and are located in the center of towns. Traffic congestion and access are a major problem. Buildings are small and normally in a state of disrepair. Storage facilities are limited and the produce is usually stacked outdoors on the ground. Little or no mechanical equipment is used and unhygienic conditions often prevail.

In spite of the conditions described above, the markets function and handle a substantial volume of produce. But as production and incomes increase and consumers demand higher quality products, these markets are likely to come under increasing strain and will need to be improved.

1.7.5 Marketing Costs and Margins

One measure of the efficiency of a marketing system is the farmers share of consumer

food expenditures. There is a widespread belief in Pakistan that the farmers share of the final retail price of most agricultural commodities is low because of "excessive" margins absorbed by a long chain of market intermediaries.

Although the marketing chain is somewhat long in Pakistan, no particular category of middlemen appears to be performing functions that are in any way redundant. The long marketing chain basically stems from the small-farm characteristic of Pakistan's agriculture which requires large numbers of middlemen to collect the small surpluses produced by many small farmers scattered all over the country.

There is little evidence of excessively high trading margins for agricultural commodities. It is estimated that the farmers share of consumer expenditures averages about 65% in the case of less perishable commodities and 30-50% in the case of perishable commodities. These margins are not high compared with those in other countries although the level of services provided is also low.

1.7.6 Post-Harvest Handling of Agricultural Commodities

The agricultural marketing system in Pakistan is less efficient and inequitable than it is often portrayed. At the same time it is characterized by a number of inefficiencies which are reflected in the high product losses which occur during the harvesting, handling, grading, packing, storage, transportation and processing of agricultural commodities. Estimates of such losses run as high as 20-30% for perishable commodities such as fruits and vegetables. Damage resulting in post-harvest losses is usually in the form of bruising, breakage, crushing, infestation by fungi and insects, destruction by rodents and moisture damage. Such damage not only reduces the volume of the produce but also leads to a reduction in the quality and hence the price which the product can command in the marketplace.

The main factors responsible for the high physical product losses reported in Pakistan are traditional harvesting methods, inadequate on-farm and transit storage facilities, deficient packaging, a poor farm to market road network, excessive handling, inadequate transportation and modern processing facilities and poor management.

Because of a lack of storage facilities, for example, large quantities of wheat are stored in the open under plastic covers or tarpaulins. This results in considerable losses during storage. In many cases producing areas lack road connections which link them with consumption areas. For example, low grade dates are fed to cattle in Baluchistan since farmers are unable to transport them to the market before they perish.

The absence of refrigerated transportation and storage facilities limits the amount of milk which can be transported from the surplus rural areas to deficit urban centers. Consequently, dairy producers are forced to convert a large part of their milk production to low value added products such as khoya (evaporated milk) and desi ghee. At the same time, imports of dry milk powder are required to meet the demand

for milk products in urban areas. The lack of refrigerated transport and storage facilities also affects the quality of the milk which eventually reaches urban areas since middlemen frequently add ice and chemicals to preserve the milk during the hot summer months.

While post-harvest losses can be reduced as more and improved storage, transport and processing infrastructure is built, there is a question as to how this would affect costs and margins in the marketing system.

Review Exercise One

Review Questions

1. What is agricultural marketing?
2. Name and describe the three stages of development for marketing systems.
3. What are the three components of a perfect market?
4. Name and define the four types of utility.
5. What are the three basic functions in a marketing system? What activities are included in each?
6. What measures can be used to evaluate market performance?
7. What three conditions are necessary for the pricing efficiency concept to be reliable?

Review Exercise Two

Agricultural Marketing in Your Country

1. Explain in some detail the stage of development of the marketing system in your country.
2. Using examples from your own country, show how the value of agricultural products is increased by time, place, form, and possession utility.
3. What are the local names for the different types of marketing middlemen in your country? What specific functions do they perform?
4. Identify and give examples of the different functions which are performed as an agricultural commodity moves through the marketing system in your country. What institutions or agencies perform each of these functions?

Review Exercise Three

COUNTRY APPLICATION GUIDE

Phase I: Problem Diagnosis

Step 1: Problem Identification - Identify an agricultural marketing performance problem of priority importance in your country. This should be a problem that you are knowledgeable about and can be related to any activity within the marketing system.

Step 2: Problem Description - Now describe the problem you identified above in some detail.

Step 3: Description of Previous Efforts to Resolve Problem - In your own words describe a marketing strategy recently carried out that attempted to resolve the problem you have described above. Do not evaluate the results of this strategy yet; simply describe in detail how it operated.

Step 4: Evaluation of Previous Strategies - Now evaluate the effectiveness of the previous strategy in resolving the problem. In what ways was the strategy effective or partially effective? In what ways was it ineffective?

Phase II: An Action Plan for Improved Agricultural Marketing

Step 5: Action Plan Goals - You have described and evaluated a recent strategy to resolve an identified marketing problem. But, the problem still exists. A new effort must be formulated. The first step is to specify the primary objectives for this new effort. This is a critical step, so consider your goals carefully and write them down.

Most situations can be understood in terms of forces that will help or assist in goal attainment (positive forces) and forces which will hinder or oppose goal attainment (negative forces).

Step 6: Hindering Forces - List things which will hinder achievement of your goals.

Step 7: Assisting Forces - Now list things which will support and assist in achieving your goals.

Step 8: Now review your lists of Hindering and Assisting Forces and underline the one on each list which seems to be most important right now, and which you think you might be able to affect constructively.

Step 9: For the hindering force you have underlined list some possible marketing strategies you might be able to plan and carry out to reduce the negative effect of the force or to eliminate it completely.

Step 10: Now do the same for the assisting force you have underlined. List marketing strategies which would increase the positive effect of this force.

Step 11: Select one marketing strategy which could be carried out and would most likely have a major impact on resolving the problem.

Step 12: As a final step decide upon a way of measuring the effectiveness of your strategy for achieving your goals. Ask yourself, "How will I know if I have succeeded?"

CHAPTER 2

THE SYSTEMS APPROACH FOR PLANNING AND MANAGEMENT WITH APPLICATION TO AGRICULTURAL MARKETING

Rationale

An agricultural business or a farm can be viewed as a complex system within which a number of technical, institutional, and human factors interact to determine the degree to which each of a range of goals can be met. Individual businesses, in turn, are part of a much more extensive system - the agricultural sector of a nation's economy - the overall performance of which is determined by a still larger number of factors. In recent years the "systems approach" has gained widespread acceptance as a useful tool for planning and management. A system can be formally defined as a collection of objects, persons, and/or processes that interact to perform a given function or set of functions. The systems approach is a pragmatic problem solving methodology that is concerned with the design and management of systems. As such it is a useful conceptual tool for the study of marketing management in developing countries.

Objectives

Upon completing this section of this course, participants will be able to:

- * Describe the basic concepts and terminology from system theory
- * Understand the usefulness of the systems approach for describing, identifying problems within, and guiding the management of marketing systems
- * Describe markets in their home country as systems and/or as components in larger socioeconomic systems
- * Identify the steps and methodology for improving a market system
- * Understand the different expectations of market actors within a market system

THE SYSTEMS APPROACH FOR PLANNING AND MANAGEMENT WITH APPLICATION TO AGRICULTURAL MARKETING

CORE MATERIAL

Key Points

- * A system is a collection of objects, persons, and/or processes that interact to perform one or more functions
- * A system can be described by identifying its outputs inputs, and structural characteristics
- * Many large-scale systems are comprised of subsystems that are interdependent yet, to a degree, autonomous
- * The definition of a system is determined by the nature of the problem being analyzed
- * The market improvement process consists of the following four steps: problem identification, the search for solutions, an assessment of solutions, and program implementation
- * The Sondeo Approach is a diagnostic methodology used in farming systems research but also applicable to market improvement studies
- * The in-depth panel interview is a method for identifying marketing problems and searching for solutions
- * Various market actors within a market system have different expectations from the system

2.1 An Introduction to the Systems Approach

In recent years the "systems approach" has gained widespread acceptance as a useful tool for planning and management. The systems approach is, in essence, a way of thinking. It is a pragmatic problem solving methodology that emphasizes accurate description, unrestrained questioning of assumptions, and logical analysis in the design and operation of real-world systems. One notable, early application of the systems approach was the effort by the United States to put a man on the moon. This way of thinking has also been used in a wide range of other problem solving contexts. In recent years, with the increasing interest in and acceptance of the farming system approach to farm managements research, the systems approach has been adopted as a useful methodological basis for the study of farm level problems in developing countries.

The following discussion is presented in terms of farm systems and farm management. However, the systems approach is just as applicable to evaluating markets, marketing and management of agribusiness. The reader should substitute these latter terms when reference is made to farms, farming or farm management. Of course the farm is part of the market system.

2.1.1 What is a System?

A system can be defined as a collection of objects, persons, and processes that interact to perform a given function or set of functions.

EXAMPLE

A maize plant can be viewed as a system. It can be thought of as a collection of physiologic components - e.g. roots, stem, leaves, etc. - and processes - e.g., photosynthesis, transpiration, tasseling, etc. - that interact to perform the primary function of producing corn grain and forage.

The field within which a maize plant grows can also be viewed as a system. It's physical components include the plants growing in it, the insects and micro-organisms living within its boundaries, the soil, the water within the soil, etc. Within each of these components, a number of processes, such as those described for the maize plant, interact to determine the overall performance of the field. That performance would be measured primarily by the amount of grain and fodder produced. The components of the system are, like the maize plant, systems themselves and are formally called subsystems.

Another example of a system is a farm-household unit. Here physical components such as plants, animals, soil and water interact with the persons operating and/or working on the farm in a wide range of technical, institutional and interpersonal

processes to determine the performance of the overall system. The functions of the farm-household unit are diverse. They include the generation of income, the provision of food, clothing and shelter, education, recreation, etc. Again, this system is made up of a large number of subsystems.

Similarly, a village, a market, the agricultural sector of a country, the economy can also be described as systems. The important thing to note here is the flexibility of the concept of a system. Each of these systems is quite different, yet each shares some common characteristics.

2.1.2 What are the Components of a System?

In order to describe systems or identify improved ways to manage them, it is useful to identify a general set of categories that can be used to classify a system's attributes. Three major categories of variables are often used to describe systems: output variables, input variables and structure variables. The process by which these variables are specified for a particular system is called system identification.

A system's outputs are measures of its performance i.e., they are indicators of the degree to which the system succeeds in performing its intended tasks or functions. For example, net income can be considered as a system output variable of a farm. It is often best to begin an exercise in system identification with the specification of the system's outputs. This is because the definition of a system is, to a large extent, determined by our perception of the function it performs.

There may be several relevant output variables for any particular system some of which may even conflict with each other. For example, two important system output variables for a typical farm in a developing country may be income and prestige. It is probably impossible to specify the tradeoffs between these two important outputs, yet both are considered by the farm family when they decide whether or not to change the way their farm operates.

The relevant performance measures for a system are likely to differ from one individual to another. For example, both the government experts and the participating families involved in a village development project are concerned with the performance of the socioeconomic system of the village. Their measures of success and/or failure, however, may be different and this may lead to conflicts about the design and implementation of the project.

The input variables for a system can be divided into two general categories: those that are exogenous and those that are endogenous.

Exogenous inputs are those variables whose levels cannot be determined by the decision makers who operate the system. Instead, they are determined by the environment of the system. For example, for a farmer climatological variables such as rainfall and temperature represent exogenous variables. These are factors beyond

his control that will nevertheless have a major impact on the success of his cropping activities. There are also institutional, social and economic factors that can be classified as exogenous inputs. For example, factor and product prices, off-farm employment opportunities, government imposed cropping restrictions, and social obligations may have an impact on the performance of a farm-household unit in a developing country as important as weather. Exogenous inputs are not only uncontrollable but they may also be unpredictable. These factors can be a major source of uncertainty for the manager of a system.

Unlike exogenous inputs, endogenous inputs can, to some extent, be controlled by the decision makers who manage a system. They are means by which the performance of a system can be steered in a desired direction. For example, the head of a rural household in a developing country can determine, within limits, the mix of crop and livestock enterprises in which the household engages, the amount of resources devoted to each enterprise, the amount of labor hired, the amount of products sold, and the extent of off-farm employment by family members. Clearly his decisions regarding these input variables will have a major impact on the degree to which the needs and desires of the household members can be met.

Structural parameters are the third major category of variables that are useful for describing particular systems. These define the relationships between inputs and outputs, as for example, the parameters of a production function. They may also specify the physical location of the system, the size of the system, and some of its important attributes. For a typical farm, the set of structural parameters might include its size, the amount of labor available, the amount of irrigation water available, and the resource requirements for producing a unit of each crop grown. A description of the system structure may also include an explanation of the cultural practices used and a set of personal limitations on certain activities.

2.2 Steps for Improving a Market System

The basic concepts which follow can be applied to improving market systems as well as other types of systems. There are in general four basic steps which must be followed.

2.2.1 Priority Market Problem Identification

The first step in improving market systems is to identify and define the problems to be solved. Generally, little is known about the structure of traditional market systems and there is a lack of accurate empirical market level data for planning and research. If problems are not defined properly, there is a risk of irrelevance. There is also a danger of devising solutions that treat the symptoms and not the underlying causes of the problem. Once a list of problems is developed it is necessary to prioritize them in order to focus attention and resources on whatever are perceived to be the most important problems.

The sequence of activities during the problem identification stage is usually as follows:

- a General System Overview
- b Market Level Reconnaissance
- c Selected In-Market Investigations
- d Pretesting for Formal Study
- e Formal Investigation
- f Analysis, Interpretation and Explanation of Findings
- g Criteria for Selecting Significant Problems

2.2.2 Search for Solutions

After the problem has been defined, the research team utilizes its knowledge and experience to search and select one or more known solutions. The personnel involved in problem identification studies must be involved in the search for solutions phase. This is in contrast to traditional research where there is a division of labor on the different stages.

2.2.3 Assessment of Solutions

Before a program is selected or specific recommendations can be made, an assessment of alternative solutions is necessary. The major purpose of this exercise is to determine the feasibility of the proposed solutions for different actors, evaluate their socioeconomic and environmental impacts, and examine the institutional requirements involved. This process often provides insight into how particular solutions can best be transferred or applied to a given situation. A typical sequence of activities during this stage is as follows:

- a Collaboration to Select Solutions
- b Researchers Open to Farmer Feedback
- c Key Informants for Review of Innovation
- d Adoption-Diffusion Studies are Made
- e Assessment of Institutional and Resource Needs
- f Results Compared to Benchmark Studies in Problem identification Studies to Evaluate Impact
- g Selection of Program

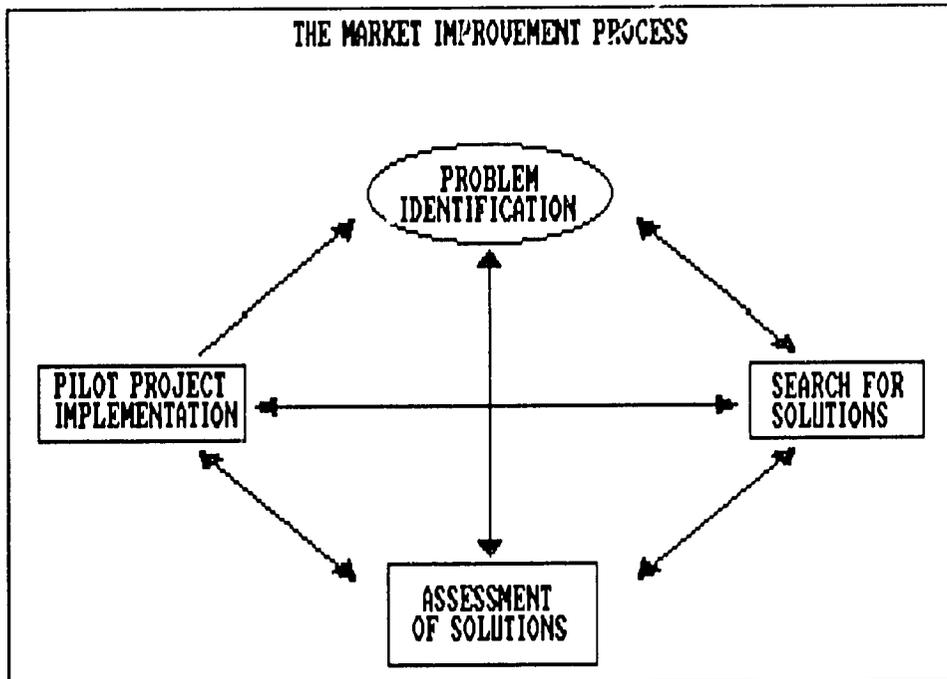
2.2.4 Program Implementation

While problems can be defined, solutions developed and their value assessed, little progress can be realized without procedures to implement the solutions. This stage serves to link the problem definer and solution developer to the solution implementer. The solution of problems is the most important criteria for evaluating the success of any project. The sequence of activities during the program implementation stage is as

follows:

- a Program Planned
- b Organization Selected
- c Training Provided
- d Program Executed

The following figure shows the typical stages involved in the market improvement process.



<u>KEY CONCEPTS</u>	<u>ESSENTIAL COMPONENTS</u>
1. SYSTEMS APPROACH	1. CLIENT INVOLVEMENT
2. INTERDISCIPLINARY RESEARCH	2. COMMUNICATION
3. IN MARKET CLIENT FOCUS	3. TEAM COLLABORATION
4. MANAGEMENT ORIENTED	4. INSTITUTIONAL BUILDING
5. ACTION RESEARCH	5. MONITORING & EVALUATION

2.3 The Sondeo Approach

2.3.1 Introduction

There are basically two types of surveys: formal surveys and informal surveys. Formal surveys are highly structured. They use questionnaires and have the advantage of standardizing data categories and collection methods for computer coding. They often employ scientific random sampling techniques to ensure the representativeness of the information obtained and to avoid any bias because of the arbitrary selection of respondents by the study team. On the other hand, such surveys are usually costly to undertake and their implementation and subsequent analysis is often cumbersome and time-consuming. Their results may, on occasion, be too late to be relevant. Another disadvantage of such surveys is that they force response categories therefore jeopardizing the relevance of the data. Formal surveys also produce an unrelaxed atmosphere since the respondent has little control over setting and response categories.

Informal surveys typically use no formal questionnaires and are open. They have the disadvantage of not standardizing data but the advantage of giving the respondent maximum latitude in response. This type of survey provides a relaxed atmosphere since the respondent has more control over setting and response categories. The biggest advantage of such surveys is that they can be done quickly and at relatively little cost. They are thus particularly suited for situations when there is an urgent need to act and get research underway and there are limited human and material resources for a large survey. A weakness of informal surveys is that the data obtained may not be representative thus compromising the results and leading to invalid conclusions being drawn.

The Sondeo Approach is a kind of informal survey for collecting primary data. The word "Sondeo" is a Spanish term and refers to a diagnostic methodology used in farming systems research. This approach may also be applicable to marketing improvement studies.

2.3.2 The Sondeo Method

The Sondeo method uses multidisciplinary teams composed of biological and social scientists. The teams operate in the field as teams, observing farm operations, visiting farmers fields, and talking with farmers.

The Sondeo is of brief duration, usually about a week. After an initial reconnaissance of the area by the entire team on the first day, the team divides into smaller groups of two to three people for the purpose of visiting individual farms. Work at the farm is done by these small groups. Each group visits several farms in the course of the day taking notes and discussing among themselves the findings after each farm visit. At

the close of the day, all groups come together to discuss their findings and decide what categories of information seem to have greater bearing on the system(s) and thus need to be pursued in greater depth the following day.

Toward the last day, each team member is given the responsibility for a section of the final report the contents of which must be agreed to by all team members. The actual writing requires that the persons charged with the sections consult and gather information from other members of the team so that there is intense interaction among the disciplines during the writing stage. This intense collaboration of disciplines is a unique characteristic of the farming systems approach to research.

2.4 In-Depth Panel Interviews

Another method for identifying problems and facilitating the search for solutions is the in-depth panel interview. This is an approach designed to allow participants to exchange ideas and discuss problems from their point of view.

The basic idea is to select 5-7 people representing different viewpoints and group them in a panel. The topics to be discussed are then introduced by a moderator who does not participate in the discussion himself. If possible, it is desirable to use a tape recorder to free the moderator from note-taking. Also, when possible, the participants should not be identified.

Guidelines for the procedures to be followed for an in-depth panel interview are listed below:

- a Decide what you want to know.
- b Prepare "topic outline" to guide discussion.
- c Contact and screen candidates so that you get the representativeness desired on the panel.
- d Inform the participants that they will be completely anonymous.
- e May want 2 or 3 panels to cover the geographic areas and variety in ages and income, etc.
- f Provide refreshments before and during discussion to put participants at ease.
- g Moderator should be outgoing and friendly.
- h Moderator should make comments to keep momentum in discussion:
"How do others feel about it?"
"Why do they feel that way"
"Could you tell us more on that subject?"
- i When you start the panel:
-Caution that only one talks at a time.
-Offer view as you with friend.
-Use the informal discussion approach.
-Keep the participants anonymous.
- j Start with general question. Afterwards become more specific.

The advantages of this type of interview are many. Issues are raised which would not normally be brought out in a two-person interview. People lower communication barriers and discuss in a frank open manner. In addition, the communications base is broadened since interaction between individuals causes more ideas to be shared and evaluated than in a two-party interview. Also, individuals respond more in line with normal behavior in a group context than they would otherwise.

2.5 Expectations of the Market Actors

The various actors and special interests in the market system have different expectations from the system. This gives rise to many conflicts and slows the process of improving market systems. A partial list of the expectations of different market actors is given below. While in some cases these expectations are the same, in other instances there is clearly conflict between what different market actors expect from the system.

Farmers Expectations

- a Equitable treatment
- b Price covers costs
- c Quality-price differential
- d Rewarded as well as marketing firms
- e Access to convenient market
- f Choice among competing buyers
- g Timely and accurate marketing information
- h Bargaining power equal to buyers

Agribusiness Expectations

- a Make a profit
- b Grow in size
- c Security - avoid risks of wide fluctuations in sales and profits
- d Vertical integration
- e Timely and accurate marketing information
- f Market power

Consumer Expectations

- a Adequate food supply
- b Reasonably priced food relative to income
- c Variety of food
- d Safe food

Government Expectations

- a Self-sufficiency in production
- b Increase exports
- c Keep food prices low for consumers
- d Increase government revenues

Review Exercise

Identify the major outputs and inputs of a marketing system for a single commodity from the point of view of three key participants in that system:

- a A farmer
- b A processor
- c A minister responsible for agriculture

Divide the input variables into exogenous and endogenous not converted is variables in each case.

CHAPTER 3

TEAM REPORT WRITING

Rationale

The preparation of a final team report is a difficult process. This is particularly so when many members specializing in different disciplines are required to contribute to the final product. These difficulties are usually compounded by the existence of a time constraint for the preparation of the report. It is important, therefore, that reports involving interdisciplinary inputs by many people be planned and the responsibilities of individual team members clearly indicated from the outset of the study.

Objectives

Upon completion of this unit, participants will be able to:

- * Describe the basic types of formats commonly used for interdisciplinary reports
- * Identify the major steps involved in team report writing

TEAM REPORT WRITING

CORE MATERIAL

Key Points

- * There are two basic types of formats for interdisciplinary team reports - the executive summary and the standard narrative
- * The executive summary is usually formatted as a series of concise statements of findings called "bullets" and is meant for readers interested mainly in the report's conclusions
- * The standard narrative is the more traditional format for reports and includes more details. However, it usually takes more time to prepare
- * In either case, the report writing process should follow a series of well planned steps beginning with the identification of a detailed list of research topics and the disciplines that will contribute to each topic

3.1 Introduction

A final report is an important part of the diagnostic analysis (DA) process. Since the report must include findings from all disciplines, must be prepared in an extremely short time and under less than optimum conditions, it can be a challenging task. The simplest way to prepare a DA report is for each discipline to record their findings in a separate section, write an introduction and summary and the report is finished. But, this method has some shortcomings. To find all the information on a given topic may require reading the entire report. There may also be much duplication of information among the sections. The procedures described below eliminate these problems and can produce an interdisciplinary report in a short time, with minimum confusion and with all team members contributing.

3.1.1 Format

Two general report formats can be used. One is an executive summary, designed for readers interested in major findings of the DA but who do not want to read detail. This kind of report is formatted as a series of concise statements of findings called "bullets". It requires little journalistic skill to write a "bullet" which helps if trainees in a DA are expected to contribute to report writing. The other format is the standard narrative. This type of report is usually longer and takes more time to prepare than one using "bullets". It also requires more writing skill to develop the paragraphs and present the findings in a logical sequence.

3.1.2 Selecting the Report Format

Selecting the report format should be an agenda item in pre-DA planning. Factors such as anticipated audience, time constraints, skills of participants and typing facilities should be considered in the decision. This will allow team members to begin preparing data in the correct format as the DA progresses. It should be noted that selecting the executive summary form does not preclude a more detailed narrative report when the DA is completed and team members have more time and better facilities at project headquarters.

3.2 Steps in Report Writing

The report writing process should begin during the training phase of the DA and continue through the reconnaissance and field work. Steps in the process are as follows:

- a Prepare a detailed list of research topics to be investigated in the DA.
- b Identify disciplines that will contribute to each topic.
- c Disciplines write capsule statements of findings related to each of their topics.

- d Edit capsule statements into "bullets" or merge all capsule statements on a given topic into paragraphs, depending on the format.
- e Group "bullets" or paragraphs under major section headings in the report.
- f Prepare an introduction in narrative form, a short summary of findings and a list of recommendations if required. Add appropriate appendices.

3.2.1 Research Topics

A list of research topics can be started in a team meeting after the initial DA training (report writing procedures should be part of the DA training). This will get team members thinking about topics as they proceed through reconnaissance. Additions to the list can be made after the reconnaissance and during the field work as understanding of the system.

Example A presents a topic outline used in one DA. It is divided into sections to help identify major areas of research activities. Specific topics are listed under each section head. When the field work is completed there may be several separate "bullets" or paragraphs reporting findings on each topic. It should be noted that this list of topics is in reality, a detailed outline for the final report.

3.2.2 Discipline Contribution to Research Topics

After topics have been listed, it is important to see which discipline will contribute to each topic. For some topics, there will be only one discipline while for others, all disciplines will furnish input (see right hand column in Example A). This procedure assures that at least one discipline will address each topic. The outline should be reviewed during the field work so deficiencies can be noted and topics dropped if necessary or alternatives developed for supplying the needed information.

3.2.3 Writing Capsule Statements

After field work and data analysis, findings should be recorded in brief statements (see Example B). There may be several of these for each topic listed in the outline and prepared by more than one discipline. If the report is to be an executive summary, special effort must be made to record only essential findings - no more than a few sentences. More license can be taken to include detail if the report will be in narrative form. But even then short statements are desired since it will simplify preparing the final "bullets" or paragraphs and make final editing easier. Generally these capsules should not discuss methodology. This should be included either in the introduction or in an appendix if it is felt important. Copies of all capsules should be circulated among the team members for review. If there are inconsistencies in data among the disciplines or questions about findings, they can be resolved.

3.2.4 Writing Final Bullets or Paragraphs

After the capsule statements are reviewed by the team, a member should be assigned either to edit all capsules in a given section of the outline into a series of "bullets" or combine them into paragraphs depending on the format. A good practice is to assign report sections to disciplines based on expertise in the subject matter and number of capsules the discipline prepared under that section heading. This spreads the responsibility for report writing over several team members. The completed "bullets" or paragraphs can then be arranged in a logical sequence under the appropriate section heading by the assigned person. A single person should then take all section material, edit it and circulate copies.

3.2.5 Final Draft Report

Within the body of the report in the hands of all team members, a brief summary can be prepared either by a single person or by disciplines. A list of recommendations can be incorporated into the manuscript at this time if they are required. Appendices showing essential data tables and other pertinent information can also be added. A final typing should result in a finished product.

EXAMPLE A

An outline of section, titles and research topics prepared initially before the reconnaissance and expanded after the reconnaissance during the field work. Discipline involvement is also shown to the right of the outline. When completed this is an outline for the final report.

	Contributing Disciplines
I. System Objectives (to be furnished from secondary sources)	Team Leader
II. System Characteristics a Geographical location b Climate c Soils d Irrigation water sources e Dominant crops f Farm size and ownership g Social characteristics of farmers h Proximity to markets	Agronomists/Engineers/ Economists/Sociologists (the economist had writing responsibility but drew data from all disciplines and secondary sources)

III. System Performance

a Water supply	Engineers/Agronomists Sociologists/Economists
b Water reliability	Engineers/Agronomists Sociologists/Economists
c Equity in water distribution	Engineers/Sociologists
d Drainage	Engineers/Agronomists Sociologists/Economists
e Irrigation structures	Engineers/Agronomists
f Farm channels	Engineers/Agronomists Sociologists/Economists
g Maintenance of system	Engineers/Sociologists
h Irrigation methods	Engineers/Sociologists/ Agronomists
i Rehabilitation & remodeling	Engineers/Sociologists

IV. System Management

a Current management practices	Engineers/Sociologists
b Personnel	Sociologists
c Measuring devices	Engineers
d Water distribution decisions	Engineers/Sociologists

V. Extension Services

a Personnel	Sociologists
b Training	Sociologists/Economists
c Information sources	Sociologists

CHAPTER 4

COMMODITY MARKETING

Rationale

Different agricultural commodities have unique characteristics which require special marketing techniques. Grains are storable, bulky and easy to handle in volume. Vegetables and fruits, on the other hand, are perishable and require special packing for transportation and storage. Livestock starts as live animals and requires specialized equipment for transportation and slaughter. After slaughter, the product is very perishable and subject to spoilage. Because of the individuality of each group of commodities, special marketing systems need to be developed for each.

Objectives

Upon completion of this unit, participants will be able to:

- * Identify the special characteristics of grain, fruit and vegetable, and livestock marketing.
- * Identify techniques for handling perishable products.
- * Explain specialized packing techniques for fruits and vegetables.
- * Identify alternative end products of grain and livestock

COMMODITY MARKETING

CORE MATERIAL

Key Points

- * Grain products are semi-perishable and usually require storage in order to have supplies available for market between cropping seasons.
- * Grain grading is based on test weight, moisture content, amount of cracked or broken kernels, amount of insect damage, and amount of foreign material.
- * Fruits and vegetables require specialized packing for transportation and storage.
- * Fruit and vegetable grading depends on size, color and shape of products; and, in some cases, taste, ripeness, disease and insect damage, and cleanliness of product.
- * Livestock products are perishable and require an immediate market or refrigeration for short-term storage.
- * Ground meat products make it possible to use a larger portion of the carcass and to provide a uniform product.
- * Livestock grading depends on age, tenderness, amount of fat and appearance of end product.

4.1 Grain Marketing

Grain Marketing is characterized by products that are semi-perishable, bulky, but easy to handle in quantities. The products can be shipped in bags or in bulk and usually have relatively low values compared to the size of the shipment.

Food grains are of vital importance in countries where average caloric intake is near or below that considered necessary for normal human energy. The functions performed in the grain marketing system depend on the stage of development of the agricultural economy. As the economy develops and urban demand increases, a market mechanism needs to be developed to handle the increased quantities being transferred from the producers to urban consumers.

The marketing channels for food grains usually begin with a cash merchant or trucker who purchases the grain from the producer. The product is then marketed through a series of middlemen and eventually goes to processors and millers who convert the grain into flour and other products.

To supply a large number of retailers serving domestic consumers, wholesalers need to hold supplies in storage and draw upon them to satisfy retailers' needs for small quantities at regular intervals. By equalizing supplies over the year, storage also helps to stabilize prices. Storage facilities need to be available at buying points, assembly markets, mills and main consumption centers.

When grains are stored, certain cost factors need to be considered. These include:

- a The fixed costs, which are the costs of buildings and equipment where the grain is stored.
- b The variable costs, which are the costs associated with keeping the grain in storage such as insecticides, fumigants and fungicides.
- c The costs of transportation and putting the grain in storage at harvest time and, later, removing it from storage.
- d The shrinkage and loss that are encountered while the grain is in storage.

Producers, as well as middlemen, may place their grain in commercial storage but the cost of such commercial storage should be compared to the cost of using on-farm storage. Local weather conditions, humidity and precipitation must be considered in making this decision.

Grain grading is an important aspect of marketing grain. The normal standards included in grades for grain are:

- a A minimum test weight which indicates the density of a kernel (a weight per volume measurement).

- b A maximum moisture content (anything above 15 or 16 percent is normally considered too wet to store and the grain is first dried below that point).
- c A maximum amount of foreign material that can be included in the grain.
- d A maximum amount of cracked or broken kernels.
- e A maximum amount of kernels damaged by insects or mechanical means.

EXAMPLE: Grade Requirements for Corn

Grade	Minimum Test Weight per Bushel (lbs)	Moisture (%)	Maximum Limits of Damaged Kernels		
			Cracked Corn and Foreign Material (%)	Total (%)	Heat Damage (%)
1	54	14.0	2	3	0.1
2	53	15.5	3	5	0.2
3	51	17.5	4	7	0.5
4	48	20.0	5	10	1.0
5	44	23.0	7	15	3.0

Sample grade: Any grain which does not meet the requirements of the above five grades

Source: Handbook of Official Grain Standards of the United States; USDA; 1947

Failure to meet any one requirement will reduce the grade. For example, if corn met all requirements for Number 1 grade except it had 0.2 percent heat damage, it would be classified as Number 2 corn. Because each standard for the grade can vary within limits, grain handlers can mix or blend grains in order to raise the grade.

For example, if a handler has some corn that meets #2 specifications with the exception that its moisture content is above 15.5%, a small amount of #1 grade could be mixed with the corn. By lowering the moisture content of that lot of corn to below 15.5%, the handler has raised the entire lot to #2, when it otherwise would have been classified as #3 corn.

Pakistan Example: Specification of Paddy (Basmati)

		Tolerance limits	Scale of deductions	Limit of rejection
1	Moisture November	16%	At full value propor- tionate to percentage above 17%	Above 19%
	December	14%	,, 15%	Above 17%
2	Admixture Superior varieties	3%	At 1/2 value above 3%	Above 5%
	Inferior varieties	2%	At full value above 2%	Above 4%
3	Choba (red rice)	1%	At full value above 1%	Above 3%
4	Srivelled grain	1%	At full value above 1%	Above 3%
5	Dirt (sand and mudballs)	1%	At full value above 1%	Above 3%
6	Inert matter	1%	At full value above 1%	Above 3%
7	Heat damage	1%	At full value above .5%	Above 1%

Source: Master Plan Study on Paddy/Rice Handling and Processing Improvement Project, Pakistan Japan International Cooperation Agency. 1986

In Pakistan, quality standards are specified for paddy purchased by government procurement agencies. For paddy which meet these specifications within stated tolerance levels, the full official price is paid. No premium is paid if these specifications are exceeded. For paddy of a low quality, deductions are made, and if the quality falls below a certain level the lot is rejected.

4.2 Vegetable and Fruit Marketing

Vegetables and fruits are important foods at all levels of development. Many semi-subsistence communities depend on starchy roots with leafy vegetables as a supplement. As urban populations grow and incomes rise, the demand for fresh and processed fruits and vegetables increases. Consumers have sufficient income to appreciate quality and pay higher prices for better grades as well as more convenient packaging. They are also able to be discriminating and purchase certain varieties based on their suitability for specific purposes.

Fruit and vegetable marketing is characterized by products that have many varieties, are perishable and have wide variations in quality. Careful handling and specialized packing are required for storage and transport. Careful attention to the degree of maturity at harvest can have a considerable effect on the storage life and quality of many fruits and vegetables.

In many countries, fresh fruits and vegetables are seasonal and the volume supplied to markets fluctuates throughout the season. At the start of the maturing season, most fruits and vegetables are available in small quantities only and at higher prices. As the season proceeds, supplies increase until the peak of the harvest season and prices decrease as the volume increases. Then supplies diminish until the crop is entirely harvested. By using a combination of early and late varieties and staggered plantings, the marketing season can often be extended and fresh fruits and vegetables made available in markets for a longer period of time.

Careful handling and packing can increase the time intervals between harvest and consumption. Most fruits and vegetables are packed in relatively small containers. Packing containers should be fairly durable, lightweight and with ventilation to minimize heating. More luxurious packing such as plastic trays molded to hold each fruit individually may be used for easily damaged or high-priced early fruit. More durable produce may be transported in bulk.

Uniform fruits and vegetables are very rare. The wide range and variation in attributes make the development of grade standards difficult. Grades are usually based on size, color and shape of product. In some cases, taste, ripeness, disease and insect damage, and cleanliness may also be included. In most markets, two to five groups are the maximum distinctions made in quality. Fruits such as apples and pears are divided into four groups. In some cases, a "super" grade may be included for the largest fruits of superior quality. Coarse produce such as head cabbage and red beets are usually divided into only two grades.

Since fresh produce is usually seasonal, a market may exist for processed fruits and vegetables which are available year round. Processing can also be used to extend the life of the produce, reduce its volume for transport, or utilize the "surplus" supplies that exist at the peak of the harvest season. Processing may include drying, canning or freezing. Vegetables may be dehydrated for use in prepared soups or other processed foods. Canned and frozen produce may be prepared for hotels, hospitals and other institutional buyers. Opportunities may exist for processing the more exotic fruits for the gourmet market.

The marketing of fruits and vegetables is carried out mainly by fairly specialized independent individuals and firms. Since the produce must be sold while it is in good condition and the price adjusted to meet the competition, great flexibility in sales methods and decisions making is necessary. A thorough knowledge of current outlets, consumer preferences and supply conditions is required. Local assembly markets, auctions and central wholesale markets are often the main outlets on the fruit and vegetable marketing system.

4.3 Livestock Marketing

Livestock increases in importance as a source of protein in the diet as the economy of a country develops. In most societies, meat is a preferred food. Consumer purchases of meat make up an increasing share of total expenditures for food as incomes rise. In other words, the income elasticity of demand for meat is usually positive.

There is less processing involved in the marketing of livestock than with grains. Consequently, a larger share of the amount the consumer spends on meat is expended for the live animal. For the most part, processing involves slaughter, butchering and refrigeration. Because of the high cost of refrigeration, meat usually is stored for only short periods of time. In addition, consumer tastes often dictate that meat products be fresh. Freezing is a relatively new development and frozen meat usually does not dominate the market.

4.3.1 Product Characteristics

Meat is a highly perishable product and must be marketed within a short time after slaughter. Even when refrigeration facilities are available, their high cost requires a fast turnover of inventory within five to eight weeks. The end product is meat cuts that vary by region and local custom.

Additional markets have been developed for ground and processed meat. Ground meat can include parts of the carcass not used in the cut meat market or meats that are tough or of inferior quality. Processed meats can be made to satisfy the tastes of local clientele by using selected additives.

Animal by-products, such as hides, lard, tallow and various animal organs, can be processed into products of value. Hides can be preserved and transported to tanneries. Lard and tallow can be used in ground meat products and cooking or sold to industrial markets. Selected animal organs not consumed locally can be refrigerated and exported to other cultures that do consume them.

4.3.2 The Meat Marketing System

Meat marketing begins with the live animal. In some countries, livestock are fed grains for purposes of finishing and growth. In others, livestock consume roughage, garbage or other feeds that are not directly usable for food.

The finished animal is transported to slaughtering facilities for processing to at least the carcass level. When transportation facilities are limited, slaughtering operations may be centralized near large urban centers or small operations set up which sell fresh meat to local clientele only. When transportation facilities are more developed, slaughtering facilities are usually localized near production centers and the carcass or

meat cuts transported in refrigerated trucks or by rail in containerized shipping units or in refrigerated rail cars.

The processing of livestock into meat is subject to sanitary considerations and quality standards. In many countries, slaughter and packing house operations must comply with government sanitation regulations and be subject to government inspection. Regulations concerning cleanliness of facilities and disease control are essential in providing the consumer with a desired product.

At both the liveweight and carcass levels, livestock are graded according to the tastes and preferences of the consumer market. Grading standards are based on such characteristics as fat levels, tenderness, age, conformation and weight - characteristics that can be recognized by the processing industry and by the consumer.

In the more developed markets, carcasses are processed into either wholesale or retail cuts. The more valuable cuts are distributed to higher income areas and the less expensive cuts are distributed for retail in lower income areas. Where there is a restaurant trade, meat cuts are sized or portioned. The restaurant trade can then purchase standard portions, such as 4-ounce, 6-ounce or 8-ounce, to be served with individual meals.

When a large institutional trade exists, precooked meals may be produced and sold to such institutions as hospitals, schools or military installations. However, precooking is not a common practice.

If refrigeration is not available, meats are often canned or salted for preservation. The meat products can then be transported or stored for longer periods of time. In some cases, meat products are frozen as a means of preservation. This has been practical for meat products that are exported and, to a limited extent, for domestic markets.

When carcasses are not processed into retail cuts at the slaughter and packing house, the carcass or wholesale cuts are chilled and shipped to centralized butchering and distribution centers. The carcass is then further processed into wholesale cuts and distributed to retail outlets. At the retail outlet, the retail cuts are prepared to match local customs and tastes.

4.3.3 Livestock Market Organization

As the livestock market system develops, the use of specialized skills and technologies increases. In some cases, market integration can be useful in reducing the risks that occur from fluctuations in the prices for livestock and retail meat cuts. In addition, the larger firms that result from integration can more easily provide the capital necessary for investments in plant and equipment as well as more specialized management. In some cases, producer cooperatives can provide a broader base for raising capital.

At the producer level, facilities are needed for assembling the livestock. At the

assembly facilities, auctions are often used as a means of setting price and facilitating exchange. However, this is not necessary if grade standards have been established and market news services are available. Producers can then sell and deliver directly to the slaughterhouse. The slaughterhouse buyer has a sufficient description of the livestock from grade specification and weight to make an offering price. The producer can decide if the bid is competitive from live prices reported by the market news service.

Review Exercise One

Commodity Marketing Systems

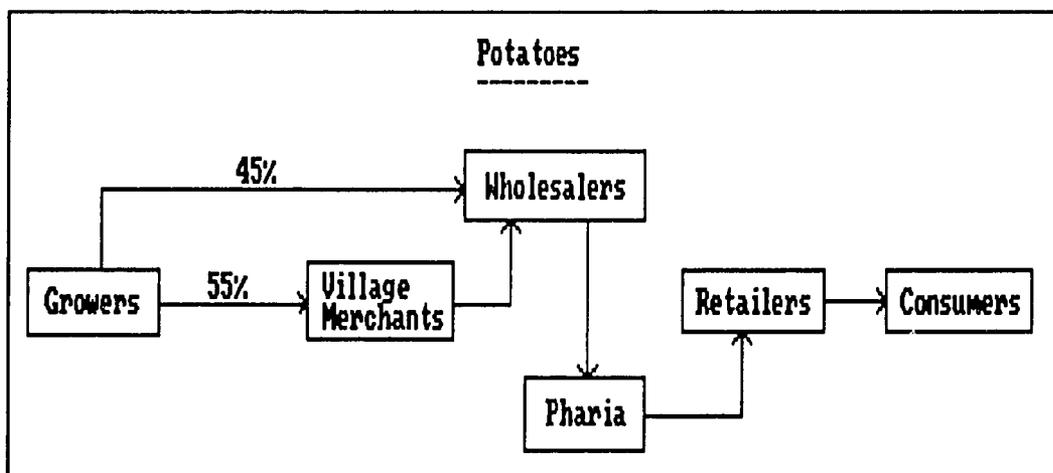
Describe the marketing systems in your country for each major group of commodities (grain; fruits and vegetables; livestock) and the differences in marketing techniques used for each group, including:

- 1 Number and type of marketing functions included in the marketing systems.
- 2 Special handling and packing techniques.
- 3 Location and type of storage facilities.
- 4 Alternative end products and processing methods used.
- 5 Types of transportation available and their influence on the location of storage and processing facilities.
- 6 Main causes of product loss and procedures used to reduce such losses.
- 7 The impact of cropping seasons on the volume marketed and prices at different times throughout the year.
- 8 Location of producers in relation to major consumption centers.
- 9 The extent to which grades are used.
- 10 Government involvement in sanitation regulation and disease control.

Review Exercise Two

MARKET CHANNELS PROJECT

- 1 Using the example shown below, show the market channels for rice, seed maize, mung, mangoes, apples, citrus, milk and mutton.



- 2 What is the price of each commodity at the farm level and at the retail level?
- 3 How many times does each commodity change hands and what does each individual do to further marketing of the commodity?
- 4 As a team, prepare a report on the marketing channels for one on the major products listed above and present the report to the workshop?

CHAPTER 5

AGRICULTURAL PRICE ANALYSIS

Rationale

Commodity prices usually move in a regular pattern. The identification of these patterns adds to the understanding of how different commodity markets operate and is important in order to anticipate the future movement of prices. Price margins are the payment for services provided by middlemen and indicate the extent to which they add value to the raw agricultural product. When related to the cost of providing services, these measure the returns to particular marketing activities. The margin for all services is the difference between retail and farmgate prices and is made up of the costs and returns to processing, storage, distribution, wholesaling and retailing.

Objectives

Upon completion of this unit, participants will be able to:

- * Identify and calculate seasonals, cycles and trends in commodity prices.
- * Explain the derivation and composition of the price margin.
- * Describe the types of margins which exist in different industries.

AGRICULTURAL PRICE ANALYSIS

CORE MATERIAL

Key Points

- * Commodity prices show regular movements over time.
- * Price seasonality is the regular movement in commodity prices from season to season within a year.
- * Price cycles are regular movements in commodity prices usually over several years which occur because production cannot adjust immediately to higher or lower prices.
- * A price trend is a continuous movement of price in the same direction over an extended period.
- * Price margins are the payment for middlemen services and are the difference between the cost of the raw agricultural product and the value of the finished and by-products.
- * The payment for all services provided by the marketing system is the difference between the retail and farmgate prices and made up of the costs and returns to processing, storage, distribution, wholesaling and retailing.
- * The nature of the price margin depends on the marketing power, regulations, and the nature of costs in the individual businesses handling the commodity.

5.1 Commodity Prices

Commodity prices traced over time show regular movements and on occasion even appear to be rhythmic. The rhythmicity of less than a year is usually associated with seasonal changes in demand or supply. For example, ice cream sales are usually higher during the hotter summer months and lower during the winter months. On the other hand, in Pakistan, the prices and consumption of eggs decline during the summer months and increase during the winter. During the summer, the demand for ice cream increases because ice cream is cold and considered as a "cooling off" food. Eggs on the other hand, are considered in the Pakistan culture as a "heat" food and demand for eggs increases during the winter and declines during the summer.

Supplies and prices of grain follow a regular pattern. For example, wheat harvest usually occurs in the spring at which time wheat prices are lower. Unlike wheat, most of the maize harvest is in the fall and prices of maize tend to be lower during that period.

The regular movement of prices from season to season is called price seasonality and is depicted using seasonal indexes. The seasonal movement is less than a year and contrasts with commodity price cycles that are a rhythm over several years, and a trend that is a continuous movement of price in the same direction over a five, ten or twenty year period.

Cycles often occur in commodity prices because the production response to higher or lower prices occurs in the next production period. For example, producers of wheat in Pakistan cannot respond to higher prices of wheat until the following winter when wheat is produced. If oxen or buffalo prices increase, the producers of oxen and buffalo cannot respond until four or five years later. The gestation period for cattle is nine months and for buffalo even longer. After birth it takes at least three years to raise and train the animals for work. So even though the prices of work oxen and buffalo continue rising, nothing can be done to add new animals to the supplies of work animals until beef and buffalo cows have been bred and give birth to calves. After that, the animals must mature, be tamed and trained for work.

Once new work animals begin coming to market, the upward price rise will at some point be abated. The downturn in price will signal a need for reduced production of work animals but the pipeline of new supplies cannot be turned off until the young animals have matured. As a result, prices continue declining until reduced supplies of work animals once again cause prices to rise, which starts the price and production cycle over again. Cycles in livestock production and prices often take as long as 14 to 20 years to complete.

While seasonals and cycles are active, it is also possible that prices are trending upward or downward. For example, prices may rise each year due to general inflation. In Pakistan, most commodity prices have risen each year as inflation has ensued and as economic development has continued. Also, the total consumption and production of most commodities have, on the average, risen because population

continues to expand and new lands and water are being brought into agricultural production.

5.2 Measures of Regular Movements of Prices

For the purpose of anticipating and explaining market prices, it is necessary to depict the regular or systematic price movements by constructing seasonal indexes, cycles and trends. Seasonal indexes are developed by calculating each monthly price as a percentage of the mean price for the year. After that the mean of the monthly percentage for each month is taken for the period of years that the seasonal index covers. The trend is calculated using statistical procedures to estimate a straight line or a curve that compounds annually that runs through the annual prices for say ten or twenty years. The cycle is usually graphed as the annual deviations of prices from the trend or as a moving average of prices over, say, a three year period.

5.2.i Seasonals

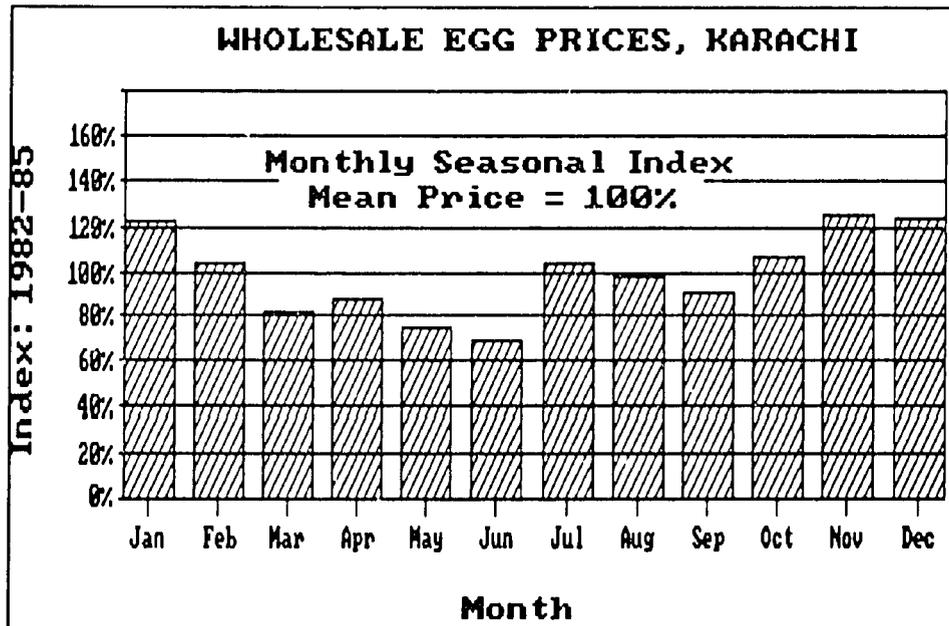
There are a number of methods of portraying seasonality in prices including the construction of indexes, the use of "dummy" variables, harmonic analysis and Box-Jenkins techniques. In this case, a practical and basic seasonal index will be constructed using averages and percentages. The following table shows the monthly wholesale prices of farm eggs in Karachi from 1982 to 1985, as well as a seasonal index.

ESTIMATING PRICE SEASONALS

MONTHLY WHOLESALE PRICES, FARM (COMMERCIAL) EGGS, KARACHI, 1982-1985

Month	1982 (Rs/doz)	Percent of mean	1983 (Rs/doz)	Percent of mean	1984 (Rs/doz)	Percent of mean	1985 (Rs/doz)	Percent of mean	Seasonal index
Jan.	6.88	114%	8.57	113%	10.17	142%	7.66	123%	123%
Feb.	7.55	125%	8.57	113%	6.10	85%	6.00	96%	105%
Mar.	6.67	110%	4.67	61%	6.15	86%	4.70	75%	83%
April	4.13	68%	8.68	114%	5.03	70%	6.48	104%	89%
May	5.00	83%	6.13	81%	5.70	80%	3.80	61%	76%
June	3.70	61%	4.92	65%	5.67	79%	4.60	74%	70%
July	4.57	76%	6.50	86%	8.88	124%	8.25	132%	104%
Aug.	6.70	111%	7.58	100%	6.73	94%	5.67	91%	99%
Sept.	4.63	77%	7.97	105%	6.75	94%	5.75	92%	92%
Oct.	5.63	93%	8.00	105%	8.80	123%	6.87	110%	108%
Nov.	8.33	138%	9.63	127%	8.20	115%	7.70	124%	126%
Dec.	8.70	144%	10.00	132%	7.67	107%	7.30	117%	125%
MEAN	6.04	100%	7.60	100%	7.15	100%	6.23	100%	100%

The seasonal shown above is calculated directly. The individual years are calculated by taking the monthly price as a percentage of the mean price for the year. The seasonal index for the period from 1982 through 1985 is calculated as the average of the percentages for the individual months for the four years. For example, the January index is calculated by taking the sum of the January percentages for 1982 of 114%, 1983 of 113%, 1984 of 142%, and 1985 of 123%, and dividing by 4 for a seasonal index of 123% for January. The following graph shows the seasonal as a bar chart for each month.



The seasonal is used by price analysts to estimate monthly prices from estimates of the annual average price. The seasonal index as a percent, for any given month, is multiplied times the estimated annual average price. For the producer or buyer, the seasonal indicates the usual price movements for the season in question.

5.2.2 Trends

Trends are estimates of the average movement of prices over time. In this case two trends are estimated. The first is a linear trend that has been fitted using least squares. The other is a compounded trend that shows the average annual percentage increase in wholesale egg prices. Both trends are shown in the following table.

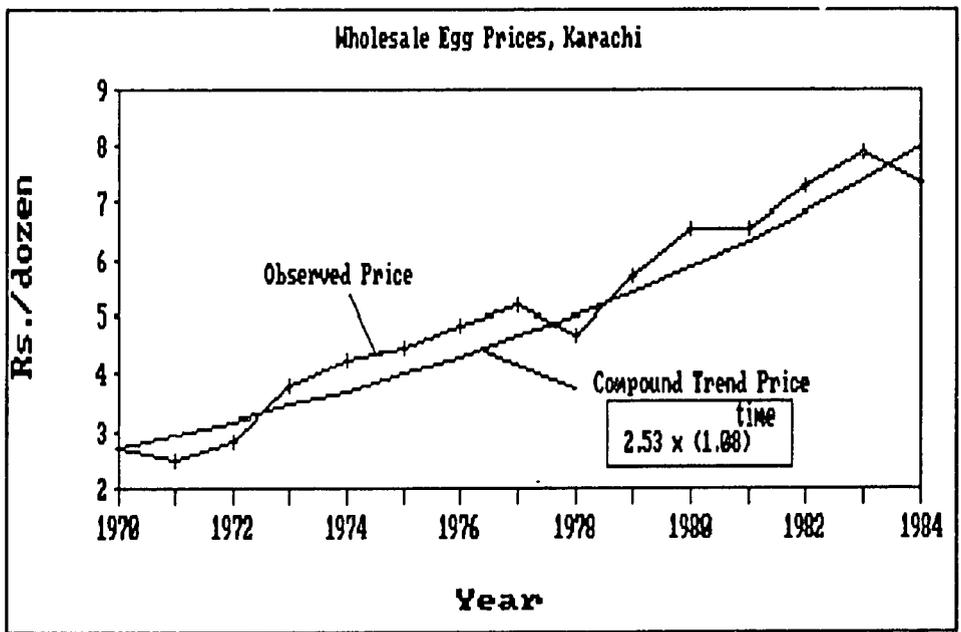
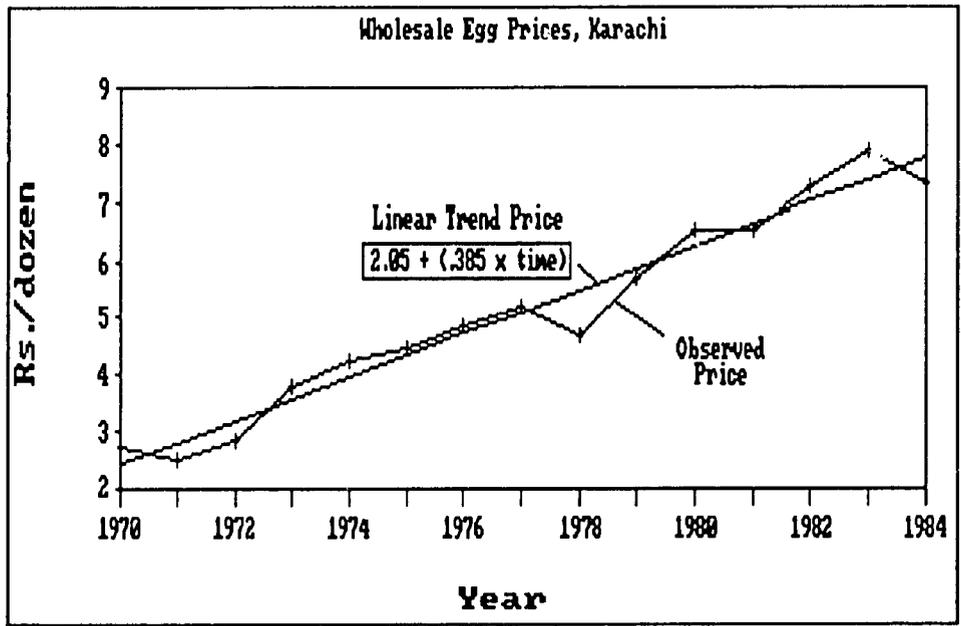
ESTIMATING PRICE TRENDS

Wholesale Commercial Egg Prices in Karachi, 1970-1984

YEAR	TIME	EGG PRICE	LOGARITHM OF EGG PRICE [1]	ESTIMATED LINEAR [2] PRICE TREND	ESTIMATED COMPOUND [3] PRICE TREND
		Rps/Doz		Rps/Doz	
1970	1	2.74	1.007958	2.43	2.73
1971	2	2.49	0.912283	2.82	2.95
1972	3	2.82	1.036737	3.20	3.19
1973	4	3.81	1.337629	3.59	3.44
1974	5	4.27	1.451614	3.97	3.72
1975	6	4.49	1.501853	4.36	4.01
1976	7	4.86	1.581038	4.74	4.36
1977	8	5.21	1.650580	5.13	4.68
1978	9	4.73	1.553925	5.51	5.06
1979	10	5.70	1.740466	5.90	5.46
1980	11	6.60	1.887070	6.28	5.90
1981	12	6.60	1.887070	6.67	6.37
1982	13	7.32	1.990610	7.05	6.88
1983	14	7.93	2.070653	7.44	7.43
1984	15	7.35	1.994700	7.82	8.03

[1] Logarithm to the base e.

The linear trend egg price estimates increase at Rs. 0.385 per year while the compounded trend price increases at 8% per year. The compound trend is slightly curved. Both trends are shown in the following graphs.



Trends are used to show the average directional movement of prices. Most price series have some trend that is usually associated with the general inflation. Price analysts find trend estimates useful in developing forecasts and detecting "abnormal" movements in prices. After prices are deflated by dividing by a general price index, a downward trend is often the case as commodity producers become more productive and efficient.

5.2.3 Price Cycles

Price cycles are on occasion estimated as the price deviation from the trend. In the following case, egg prices were subtracted from the compounded trend price estimates. Egg price deviations are shown in the table below.

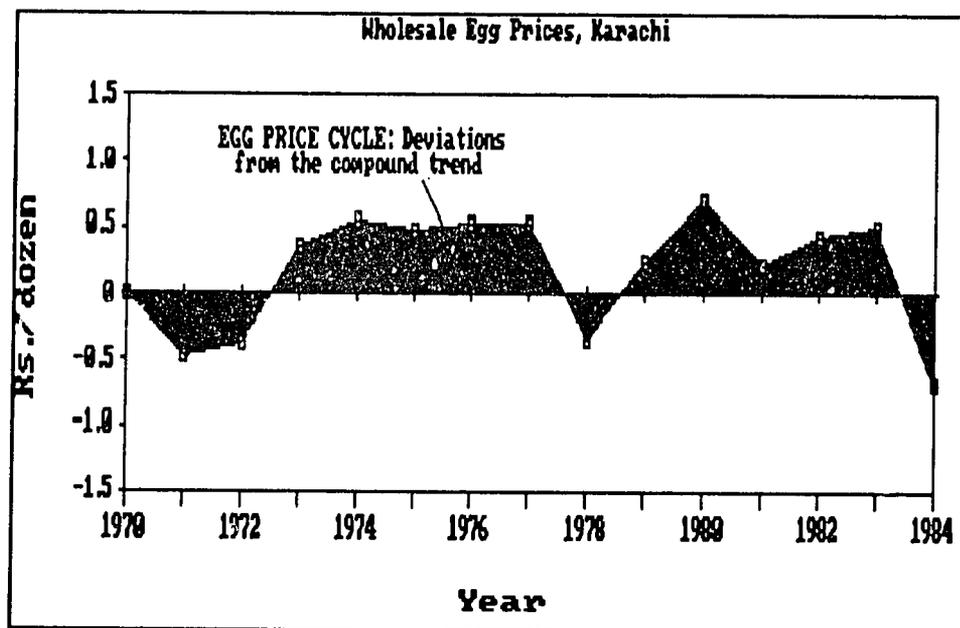
ESTIMATING PRICE CYCLES

Wholesale Egg Prices, Karachi, 1970-1984

TIME	EGG PRICE -----Rps/Doz-----	COMPOUND TREND ESTIMATES	EGG PRICE CYCLE	YEAR
1	2.74	2.71	0.03	1970
2	2.49	2.94	-0.45	1971
3	2.82	3.19	-0.37	1972
4	3.81	3.46	0.35	1973
5	4.27	3.75	0.52	1974
6	4.49	4.06	0.43	1975
7	4.86	4.40	0.46	1976
8	5.21	4.77	0.44	1977
9	4.73	5.17	-0.44	1978
10	5.70	5.61	0.09	1979
11	6.60	6.08	0.52	1980
12	6.60	6.59	0.01	1981
13	7.32	7.14	0.18	1982
14	7.93	7.74	0.19	1983
15	7.35	8.39	-1.04	1984

The egg price cycle depicted above is not very regular. However, as the poultry industry grows, prices slip below the trend every three or four years. The down turn for the few examples show does not last more than two years. The poultry industry has the capability of both reducing and increasing egg production very quickly as the

financial conditions dictate. The following graph more clearly shows the rather irregular cycle in egg prices.



Estimates of cycles are very useful to investors who do not wish to invest as the price cycle is turning downward. The length of the cycle also indicates, to some extent, the financial nature of the business. Businesses that can adjust quickly usually do not have long periods of financial gains or losses, as is the case for the poultry industry.

5.3 Margins: The Price of Middlemen Services

Price margins for the middleman are the difference between the cost of the raw agricultural product and the value of the finished and by-products. For example, when paddy rice is milled a number of products are produced. In Pakistan, 1000 maunds of paddy rice will produce approximately 600 maunds of rice, 120 maunds of husks, 110 maunds of polish grindings and 170 maunds of grain ends. The price margin in this case can be calculated as follows:

CALCULATION OF THE PRICE MARGIN

RAW PRODUCT VALUE				FINISHED PRODUCTS			
Product	Amount (Maunds)	Price -----Rs-----	Value	Product	Amount (Maunds)	Price -----Rs-----	Value
Paddy	1000	93	93,000	Rice	600	166	99,600
				Husks	120	5	600
				Polish	110	30	3,300
				Grain Ends	170	70	11,900
			-----				-----
			TOTAL				115,400
			93,000				

PRICE MARGIN =

Rs. 115,400 - Rs. 93,000 = Rs 22,400 per 1000 Maunds of Paddy

The price margin is the payment to the middleman, the paddy processor in this case, for his services of collecting paddy rice, processing and drying, and delivery of the finished and by- products.

The price margin and the manner in which it is calculated depends on the service performed by the middleman. If the middleman is storing the product, then the price margin is the difference in the product price before and after the period of storage. When the middleman is transporting the product, the payment is for the transport services provided. The margin in this case is the difference between the price of the product at the point of loading and the price at destination.

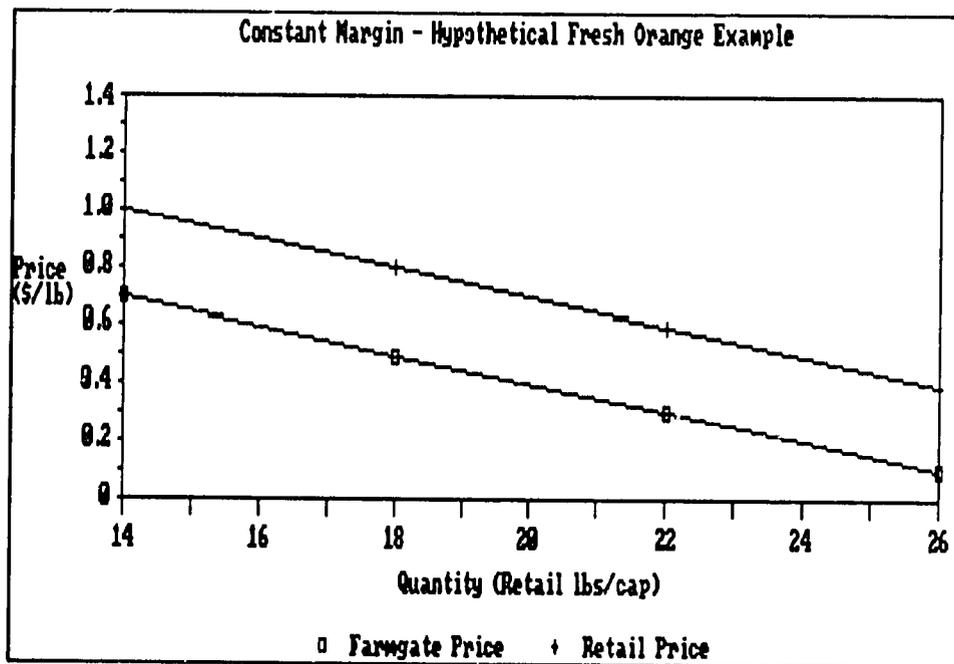
The margin for all services is the difference between retail and farmgate prices and is called the price margin. It is made up of the costs of and returns to all marketing operations in a marketing system. The nature of the margin depends on the marketing power, regulations and the nature of costs in the individual processing, storage, distribution, wholesaling and retailing businesses handling the commodity and the final food product.

When the commodity is regulated or when the processing and distribution firms have substantial market power or face constant per unit costs, the price margin is constant or flat over a broad range of quantities supplied. When processing and distribution firms face increasing costs per unit as more is processed or distributed, the price

margin is often proportional to the quantity of the commodity supplied i.e it increases as more of a commodity is supplied. In other cases, a large part of the processing and distribution costs are interest costs associated with inventory and margins are charged as a proportion of price. Also, by tradition or because of market power, the processing and distribution industries can charge margins that are proportional to price.

5.3.1 Constant Margin

Constant price margins are common in the U.S. food industry. However as the industry develops, the capability to account for per unit costs by commodity constant price margins is becoming less conventional. The following example shows a demand curve for fresh oranges at the retail and the farmgate level. A constant price margin is used to derive the farmgate demand. A quick check will show that the farm level demand derived from the retail demand through a constant margin is more inelastic than the retail level demand. For example, between 20 and 25 lbs. per cap supplied, the elasticity at the retail level is -3.21 and -2.25 at the farm level.

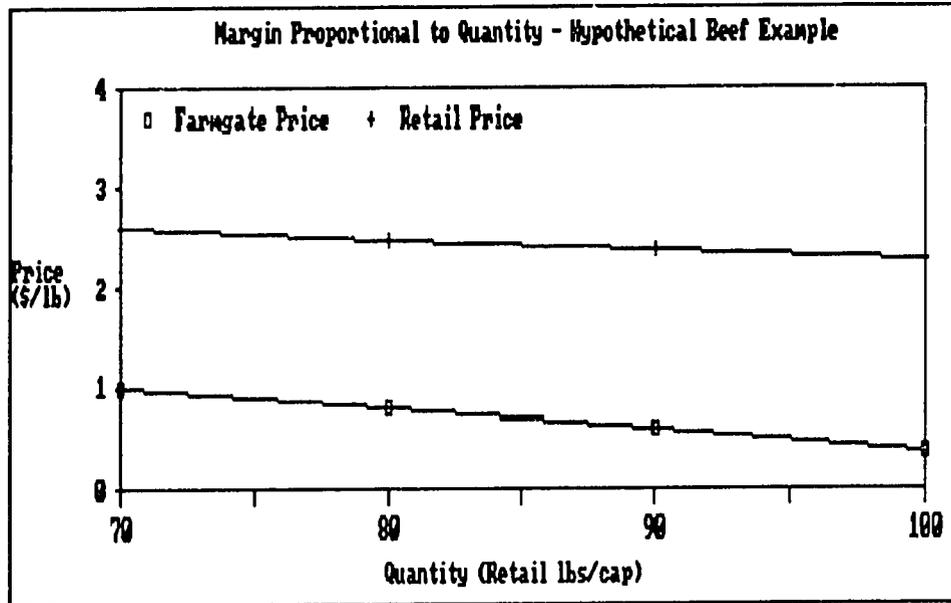


**CONSTANT MARGIN
(HYPOTHETICAL FRESH ORANGE EXAMPLE)**

Quantity Supplied	Farmgate orange Price	Retail Price	Margin: Price Difference
Retail lbs/cap.	-----Dollars/lb-----		
14	0.70	1.00	0.30
18	0.50	0.80	0.30
22	0.30	0.60	0.30
26	0.10	0.40	0.30

5.3.2 Margin Proportional to Quantity

Margins that are somewhat proportional to the quantity of the commodity produced, processed and consumed occur in food processing and distribution industries that face increasing per unit costs as more product is processed and distributed. Currently margins of this nature are evident in the soybean and livestock industries in the U.S. For example, as more soybeans are put out in the market, more processing capacity at higher per unit costs is required. As this occurs, the difference between the value of products from soybeans and the price of soybeans widens. In this case the supply of soybeans to the market becomes the demand for processing services to convert the soybeans into meal and oil. As more capacity is used for that purpose, higher costs on the cost curve are faced. This is often referred to as the cost of the "supply of services." The livestock industry is a similar example. The supply of slaughter animals placed on the market represents the demand for slaughter capacity and as is the usual case when additional capacity is used higher costs for slaughter and processing per head are faced.

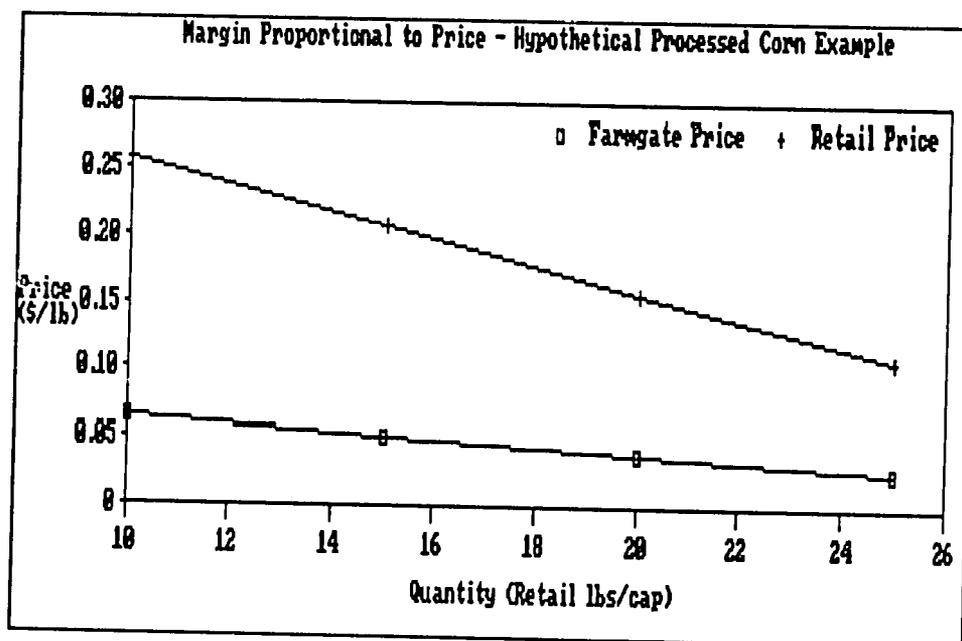


**MARGIN PROPORTIONAL TO QUANTITY
(HYPOTHETICAL BEEF EXAMPLE)**

Quantity Supplied	Live-weight price	Retail price	Margin: Price Difference
Retail lbs/cap.	-----Dollars/lb-----		
70	1.00	2.60	1.60
80	0.80	2.50	1.70
90	0.60	2.40	1.80
100	0.40	2.30	1.90

5.3.3 Margin Proportional to Price

Margins that are proportional to the retail price are more common in specialty products or industries where the margin is regulated as a proportion of the retail price. This margin form may become more common as the food retail industry becomes less competitive. With the additional market power, firms may be able to pass "markups" that are a percentage of final price back to the farm producer. Generally, the demand for food is shifting and giving the appearance of becoming less sensitive to price. The following example shows a case example for processed corn where the retailer can pass back proportional margins.



**MARGIN PROPORTIONAL TO PRICE
(HYPOTHETICAL PROCESSED CORN EXAMPLE)**

Quantity Supplied	Farmgate Corn Price	Retail Price	Margin: Price Difference
Retail lbs/cap.	-----Dollars/lb-----		
10	0.065	0.258	0.193
15	0.052	0.208	0.156
20	0.039	0.158	0.119
25	0.027	0.108	0.081

Review Exercises

1 Complete the following tables.

MONTHLY WHOLESALE PRICES, FARM (COMMERCIAL) CHICKEN, KARACHI 1982-1985

MONTH	1982 (Rs./kg)	1983	1984	1985
Jan.	17.63	20.75	19.00	22.00
Feb.	17.63	20.13	18.25	19.50
Mar.	17.25	20.38	17.75	18.88
Apr.	17.20	20.50	18.50	20.25
May	16.83	21.13	19.50	19.50
June	16.20	20.25	19.88	18.00
July	17.00	21.25	20.00	19.75
Aug.	18.13	22.00	20.00	19.75
Sept.	18.13	21.25	19.50	19.00
Oct.	17.50	21.75	24.13	20.88
Nov.	18.38	21.75	22.00	21.50
Dec.	20.00	21.75	22.25	-
MEAN				
ST.DEV.				
C.V.				

ST. DEV. is the abbreviation for standard deviation.
C.V. is the abbreviation for coefficient of variation.

Source: Federal Bureau of Statistics,
Monthly Statistical Bulletin, (various issues)

**MONTHLY RETAIL PRICES, FARM (COMMERCIAL) CHICKEN, KARACHI
1982-1985**

MONTH	1982	1983 (Rs./kg)	1984	1985
Jan.	18.84	22.40	22.63	22.83
Feb.	18.20	20.21	20.75	20.38
Mar	17.75	20.53	20.52	20.21
Apr.	17.75	22.54	20.56	20.88
May	17.98	22.75	21.50	21.25
June	17.75	22.43	21.42	21.92
July	17.75	22.84	22.25	20.79
Aug.	20.50	21.93	22.00	20.14
Sept.	20.82	22.23	23.71	21.13
Oct.	20.95	22.78	23.82	22.67
Nov.	21.10	22.93	23.02	23.30
Dec.	21.59	22.00	24.34	-
MEAN				
ST.DEV.				
C.V.				

**MONTHLY WHOLESALE-RETAIL PRICE MARGINS,
FARM (COMMERCIAL) CHICKENS, KARACHI, 1982-85**

MONTH	1982	1983 (Rs./kg)	1984	1985
Jan.				
Feb.				
Mar				
Apr.				
May				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
MEAN				
ST.DEV.				
C.V.				

**MONTHLY WHOLESALE PRICES, FARM (COMMERCIAL) CHICKEN,
KARACHI 1982-1985**

Month	1982	Percent of mean	1983	Percent of mean	1984	Percent of mean	1985	Percent of mean	Seasonal Index
Jan.	17.63		20.75		19.00		22.00		
Feb.	17.63		20.13		18.25		19.50		
Mar.	17.25		20.38		17.75		18.88		
Apr.	17.20		20.50		18.50		20.25		
May	16.83		21.13		19.50		19.50		
June	16.20		20.25		19.88		18.00		
July	17.00		21.25		20.00		19.75		
Aug.	18.13		21.00		20.00		19.75		
Sept.	18.13		21.25		19.50		19.00		
Oct.	17.50		21.75		24.13		20.88		
Nov.	18.38		21.75		22.00		21.50		
Dec.	20.00		21.75		22.25		-		
MEAN									

2 Use the completed table above and graph the egg price seasonal.

- 3 Estimate a linear (straight line) and compounded (curve) trend for farm chicken producer prices, 1970-1985. Use the estimates of the intercept and the slope to complete the following table of estimated trend values for egg prices.

FARM CHICKEN PRODUCER PRICES IN PAKISTAN, 1970-1985

YEAR	TIME	CHICKEN PRICE	LOGARITHM OF CHICKEN PRICE [1]	ESTIMATED LINEAR [2] PRICE TREND	ESTIMATED COMPOUND [3] PRICE TREND
		Rs/kg			
			-----Rs./Kg-----		
1970	1	4.18	1.430311		
1971	2	4.13	1.418277		
1972	3	4.62	1.530395		
1973	4	6.03	1.796747		
1974	5	7.93	2.070653		
1975	6	9.24	2.223542		
1976	7	9.80	2.282382		
1977	8	11.46	2.438863		
1978	9	13.10	2.572612		
1979	10	13.54	2.605648		
1980	11	14.40	2.667228		
1981	12	14.54	2.676903		
1982	13	15.37	2.732418		
1983	14	17.79	2.878637		
1984	15	18.13	2.897568		
1985	16	17.98	2.889260		

[1] Logarithm to the base e.

[2] Trend estimates are made from the equation:

$$\text{CHICKEN PRICE} = A + B \cdot \text{TIME}$$

where A and B are estimated using least squares to fit the data above

[3] Compound trend estimates are made from the equation:

$$\text{CHICKEN PRICE} = a + (b)^{\text{TIME}}$$

The symbol ^ is used here to mean "to the power of."

This equation is derived by fitting the data above with the least squares technique in the following specification:

$$\text{LOGARITHM OF CHICKEN PRICE} = \text{LOGARITHM C} + \text{LOGARITHM B} \cdot (\text{TIME})$$

Note:

$$\text{ANTILOGARITHM OF LOGARITHM A} = a$$

$$\text{ANTILOGARITHM OF LOGARITHM B} = b$$

- 4 Use the completed table above and graph the straight line and compounded trends of chicken prices.

CHAPTER 6

AGRICULTURAL PRICES: THE ALLOCATIVE MECHANISM OF THE MARKET

Rationale

Agricultural prices influence production and consumption of agricultural products. Higher prices encourage production and discourage consumption. Lower prices discourage production and encourage consumption. Prices are a result of the forces of demand and supply. Schedules of demand and supply show the effects on revenues as purchases and supplies change. The characteristics of the demand and supply schedules and the level of market power are important in determining marketing strategies.

Objectives

Upon completion of this unit, participants will be able to:

- Explain how agricultural prices influence production and consumption.
- Identify and explain the essential elements of competition.
- Use demand and supply schedules in developing marketing strategy.
- Identify factors which may cause a change in demand or supply.
- Explain the elasticity characteristics of demand and supply.
- Determine the equilibrium price for agricultural products.

AGRICULTURAL PRICES: THE ALLOCATIVE MECHANISM OF THE MARKET

CORE MATERIAL

Key Points

- * Agricultural prices guide and regulate production and consumption levels.
- * Demand is the relationship between prices and the amount of commodities which buyers will purchase during a given period.
- * The ease and degree of substitutability is the basic determinant of the elasticity of a particular product.
- * The effect on total revenues of a decrease in price depends on the demand elasticity of the product.
- * Supply is the relationship between prices and the quantities of a commodity which will be offered for sale during a given period.
- * Time is an important factor in supply elasticity; generally, as the time period lengthens, the supply curve tends to be more elastic.
- * The equilibrium price is the price at which the quantity demanded equals the quantity supplied.

6.1 Introduction

Prices have a dynamic and vital role in determining what people produce and what they consume. The two basic functions of prices are:

- a To guide producers and suppliers in providing goods and services.
- b To guide consumers in buying goods and services.

EXAMPLE: PRICING

If consumers want large, red tomatoes, their vote in terms of bidding in units of exchange for large, red tomatoes will motivate producers to respond by providing large, red tomatoes.

6.2 Competition

Competition is an effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms. competition motivates firms to develop and sell reasonably priced superior products which consumers want.

If a firm sells its product at unusually high prices, its sales soon decline because competitors are selling a similar product at a lower price. If no competitor responds immediately, a new one likely will appear. In a marketing system designed for right to entry (competitors are permitted to start a competing store or business), a firm taking unfair advantage of a price situation succeeds only temporarily.

Competition or the threat of competition tends to keep prices reasonable. Competition comes from:

- a Existing firms.
- b Prospective firms seeking an opportunity for profit.
- c Product substitutions, including some yet to be developed or invented.

Competition with no restrictions is referred to as perfect competition. There probably is no perfect competitive market, but ideally such a market would have:

- a Many buyers and sellers in a situation where no one can singly influence market prices.

- b Complete information about supply and demand known to all buyers and sellers.
- c All sellers offering an identical product.
- d No restrictions on buyers and sellers except for protection of private property and rights of contract.
- e Right of entry into the market.

In a competitive market, prices are controlled by the interaction of supply and demand.

6.3 The Concept of Demand

Demand is the relationship between prices and the amount of commodities which buyers will purchase during a given period. Changes in demand can be caused by the following factors:

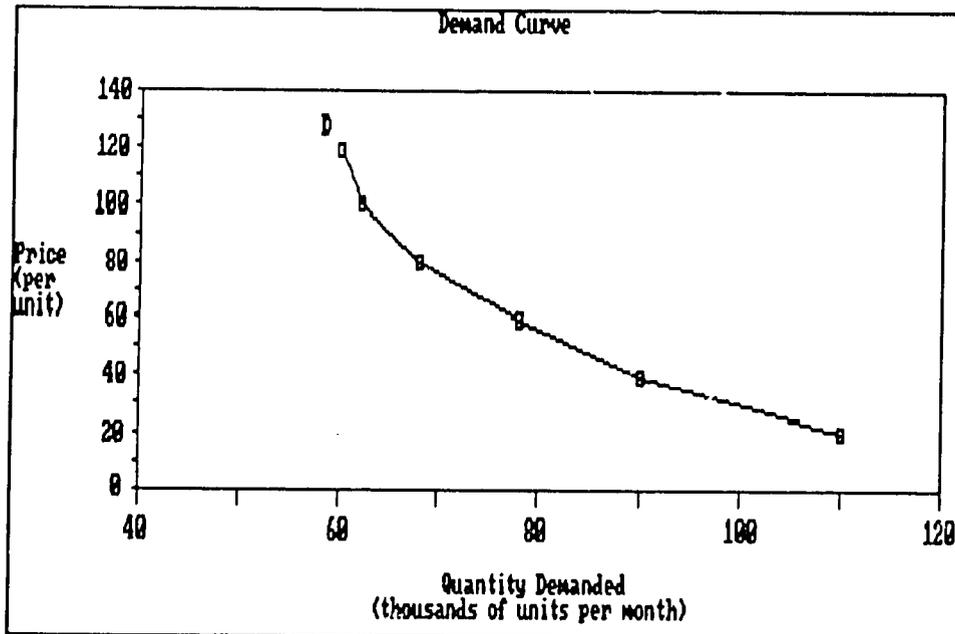
- a A change in the number of buyers.
- b Changes in incomes or purchasing power of people.
- c A change in tastes and preferences for particular products (i.e., religion, habit, or personal desires).
- d A change in the relative costs of products that are good substitutes for the original commodity.
- e A change in the expectation of buyers as to future price levels.

Demand refers to an entire demand schedule or demand curve. A demand schedule lists the different quantities of a commodity that consumers will purchase during a certain time period if the corresponding price exists.

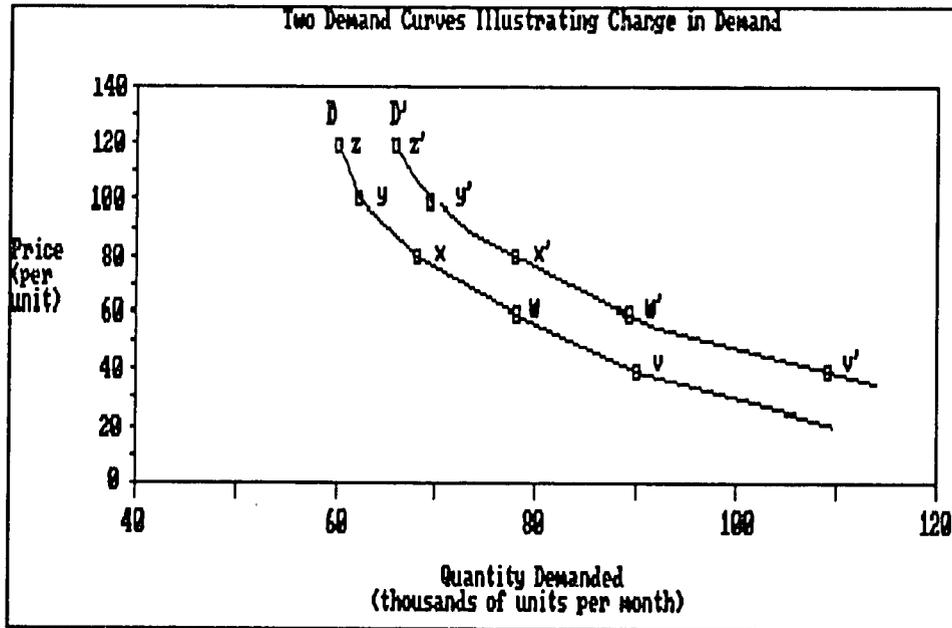
Demand Schedule

Price per Unit	Quantity Bought (thousand of units per month)
20	110
40	90
60	78
80	68
100	62
120	60

A demand curve is a demand schedule plotted on a graph. Price is plotted on the vertical axis and quantity on the horizontal axis. The inverse relationship between price and quantity bought makes the demand curve slope downward to the right.



Movement along a demand curve is a change in quantity demanded resulting from a change in price when all other factors influencing the quantity bought remain unchanged. When the factors held constant change, the demand curve itself will change. The quantity demanded at each price will change and the demand curve will shift to the left or the right. This shift in the whole curve is referred to as a change in demand.



6.3.1 Types of Demand

Effective demand is the desire of the consumer for the commodity backed up by purchasing power. Thus, effective demand is the quantity that will be purchased at the existing price.

Derived demand is the demand for a new product that is caused by the demand for final or processed products made from it.

EXAMPLE: DERIVED DEMAND

The value of paddy rice is partially determined by the value of final production such as polished rice, hulls, fine and cracked grains. Not many consumers can completely process rice for direct consumption. However, paddy rice processed into polished rice for consumers has a derived demand.

6.3.2 Elasticity of Demand

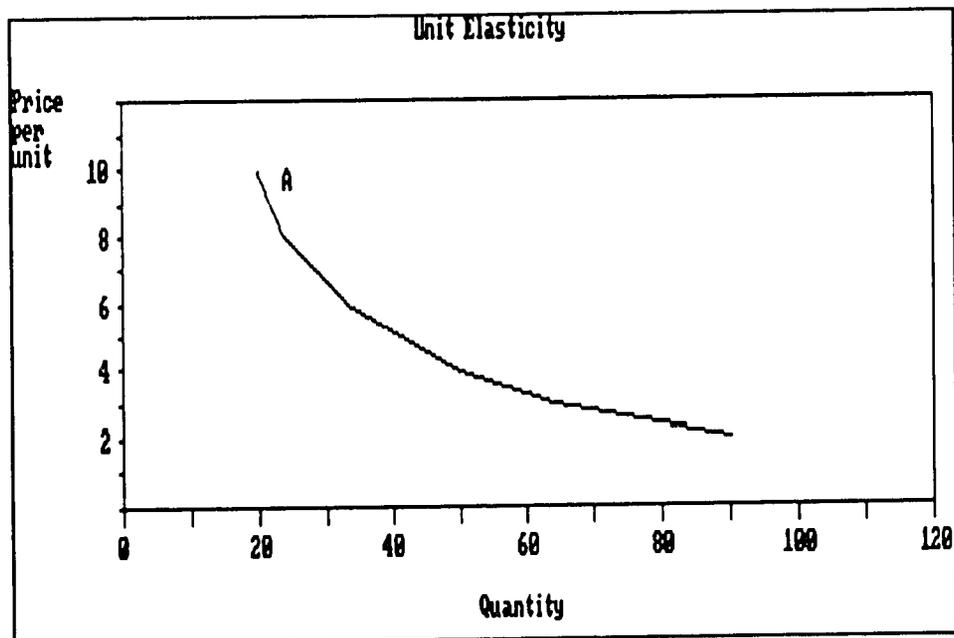
Elasticity of demand refers to the responsiveness of the quantity demanded to changes in price. It is the percentage change in quantity divided by the percentage change in price.

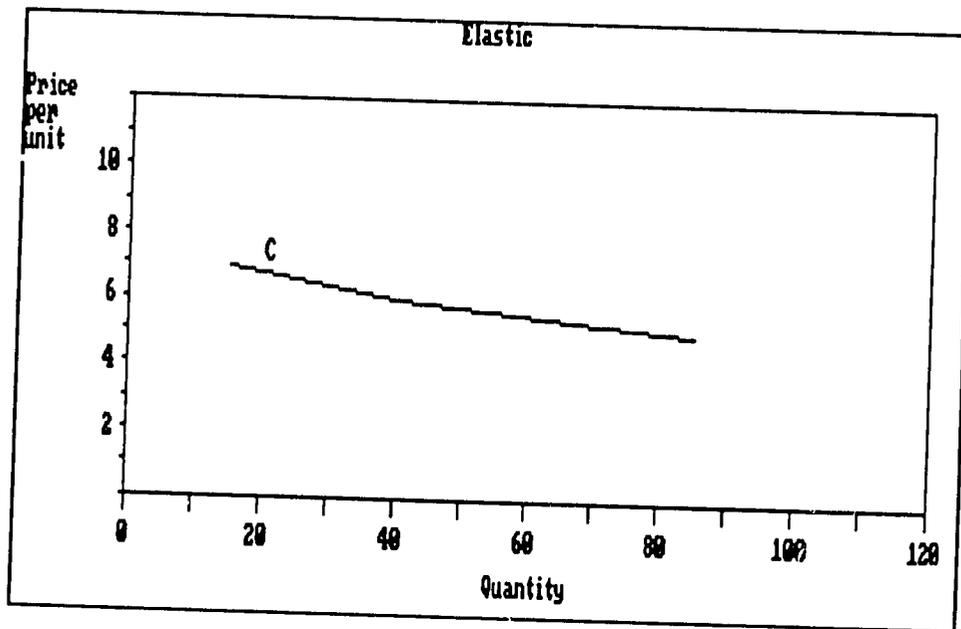
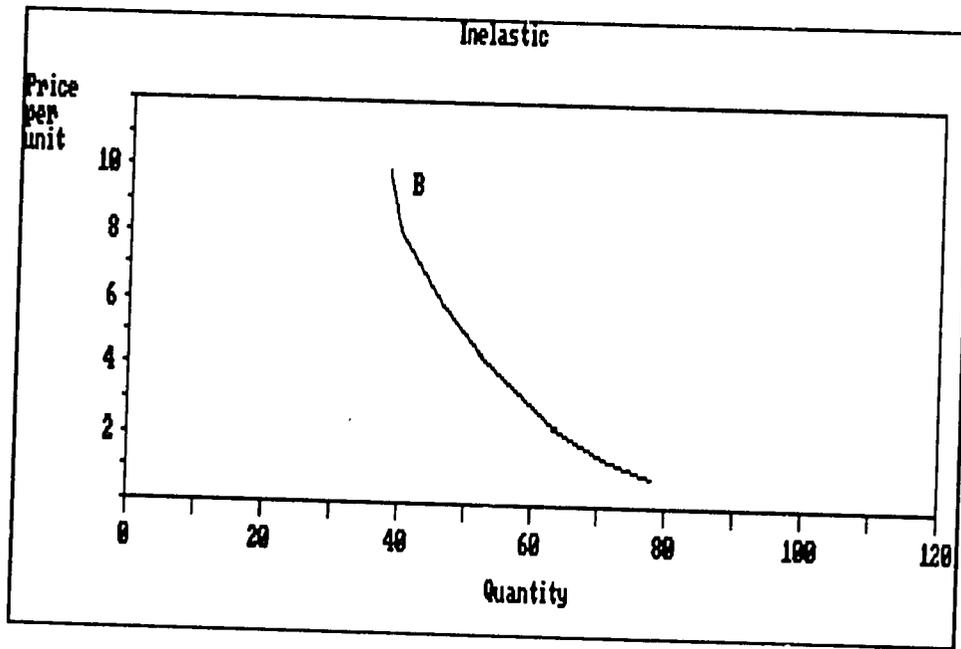
Demand curves are classified according to their elasticity into three general types:

- 1 Inelastic demand - the percentage change in quantity is less than the percentage change in price.
- 2 Elastic demand - the percentage change in quantity is more than the percentage change in price.
- 3 Unit elasticity - the percentage change in quantity is exactly the same as the percentage change in price.

The ease and degree of substitutability of one product for another is the basic determinant of the elasticity of demand of a particular commodity. Commodities with inelastic demands are often those which are necessities and which have few substitutes, such as salt, water and food in general. Consumers want the commodity and are relatively insensitive to price changes. Commodities with elastic demands are often those whose use is not directed by necessity or habit and for which good substitutes are available, such as Ford cars, Rainbow bread and textbooks. Consumers' desires for the commodity is more sensitive to price changes.

On graphs (of the same scale), the more inelastic the demand, the steeper its plotted curve.





The most important aspect of demand elasticity to sellers is its effect on the total amount of money received from selling different quantities at varying prices. A decrease in price will be accompanied by an increase in quantity sold; what happens to total revenue depends on the amount by which the quantity sold increases in response to a given price decrease.

EXAMPLE: COMMODITY WITH ELASTIC DEMAND

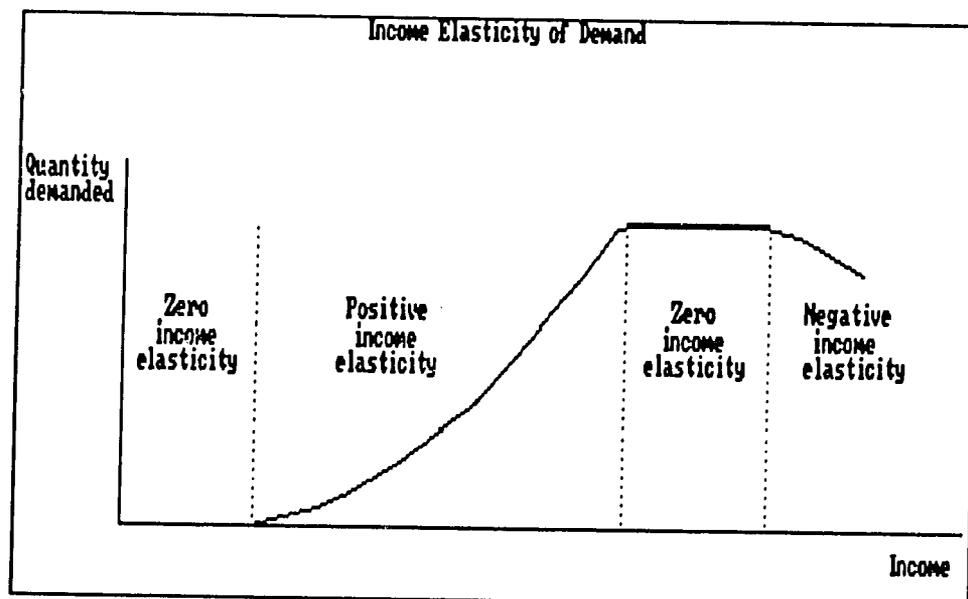
Price is decreased by 10 percent. Quantity sold increases more than 10 percent. Total revenues are greater than before.

- a If demand is elastic, a decrease in price increases total revenue and an increase in price reduces total revenue.
- b If demand is inelastic, a decrease in price reduces total revenue and an increase in price increases total revenue.
- c With unit elasticity, an increase or decrease in price leaves total revenue unchanged.

Elasticity may also change over time. Products once considered luxuries with elastic demands may shift into the necessary category with inelastic demands.

6.3.3 Income Elasticity of Demand

Income elasticity of demand refers to the responsiveness of demand to changes in income. When an increase in income leads to an increase in income results in a decrease in demand, income elasticity is negative. When demand is not affected by the level of income, income elasticity is zero.



6.4 The Concept of Supply

Supply is the relationship between prices and the quantities of a commodity which will be offered for sale during a given period. Changes in supply can be caused by many factors.

- a In the short-run, such factors include changes in the cost of storage, need for income and expectations as to the future situation.
- b In the intermediate and long-run, changes in the cost of production becomes a factor; e.g., changes in the cost of inputs, changes in production technology or changes in production costs of other commodities which compete for the same resources.

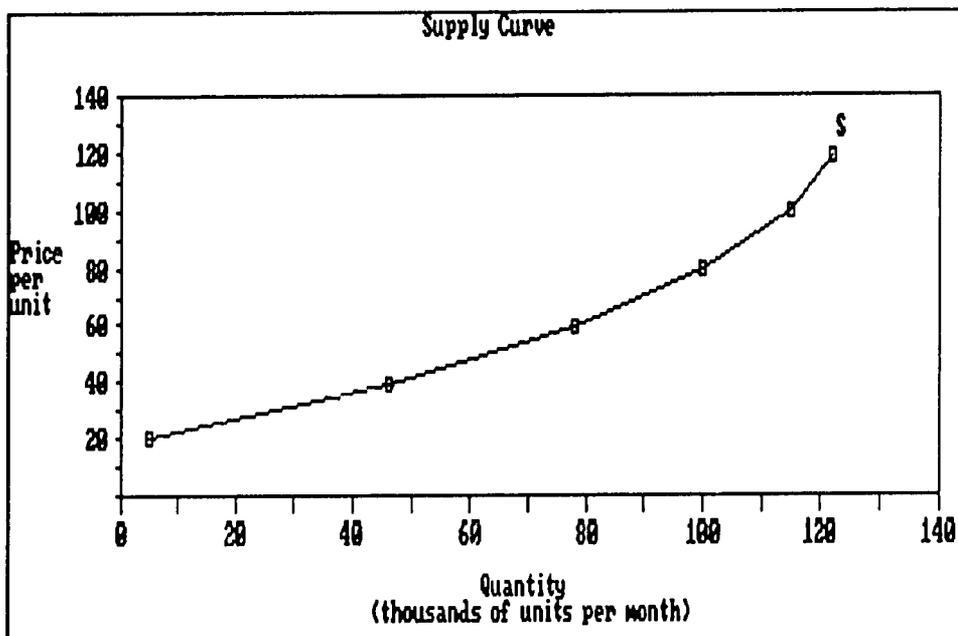
In this case, short-run supply is defined as the goods on hand. Intermediate-run supply is the amount of goods that can be produced with existing production facilities. Long-run supply is the amount of goods which can be produced when all resources, including production facilities, are variable.

A supply schedule lists the different quantities of a commodity that will be offered for sale during a certain time period if the price is as indicated.

Supply Schedule

Price per Unit	Quantity Supplied (thousands of units per month)
20	5
40	46
60	78
80	100
100	115
120	122

Usually, the supply curve will slope upward to the right since a higher price will induce sellers to place more on the market and may induce additional sellers to come into the market.



As with demand, movement along a supply curve is a change in quantity supplied. An increase or decrease in supply refers to a shift in the whole curve.

6.4.1 Elasticity of Supply

Elasticity of supply is an indication of the responsiveness of quantity supplied to price changes. Commodities that respond relatively little to price changes have inelastic supplies. Demand changes bring about relatively large changes in price and relatively small changes in quantity. Commodities that are very responsive to price changes have elastic supplies. The greater the elasticity of supply, the greater the proportionate change in price produced by any given change in demand.

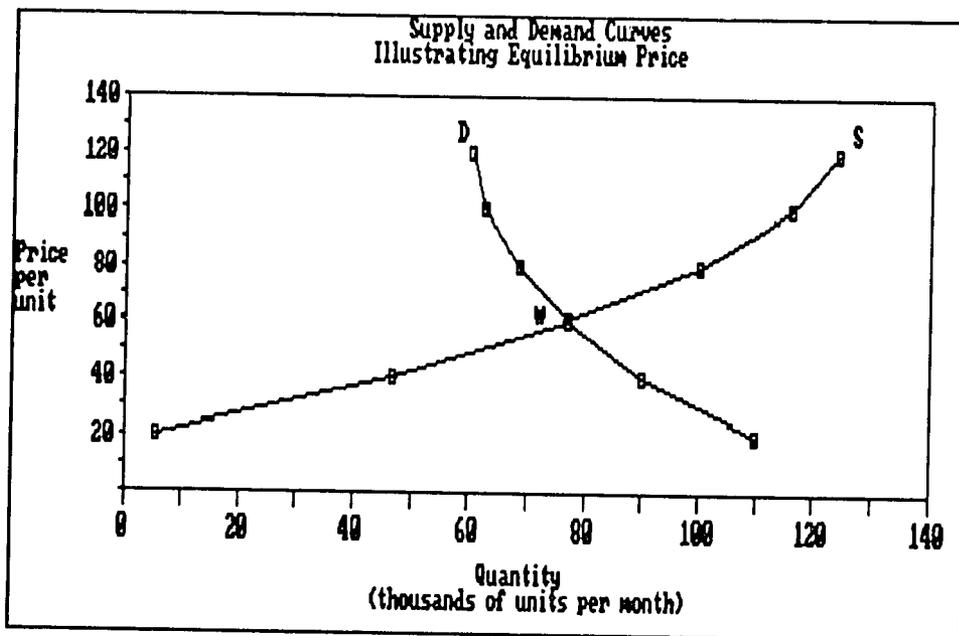
TIME is an important factor in supply elasticity analysis. Generally, as the time period lengthens, the supply curve tends to be more elastic.

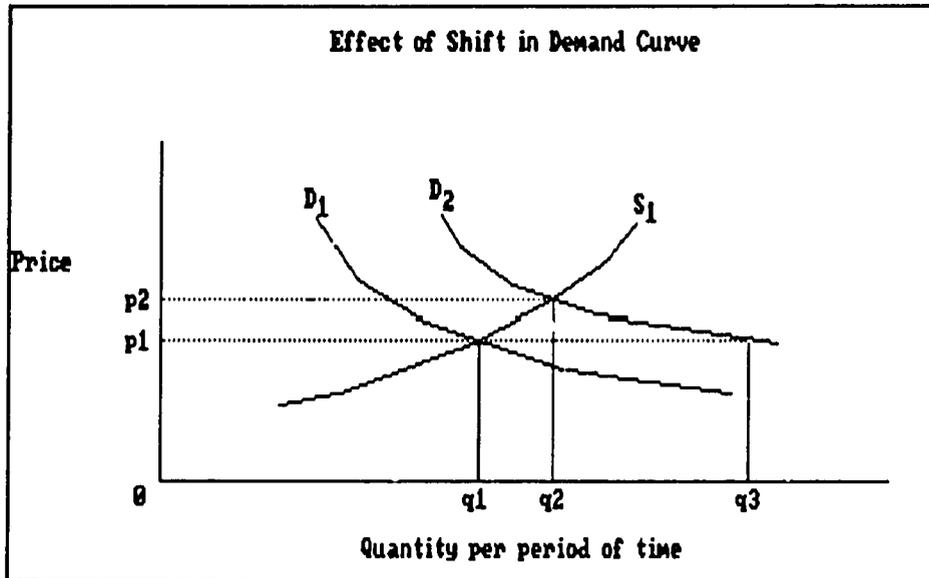
EXAMPLE: EFFECT OF TIME ON SUPPLY ELASTICITY

The supply curve for goats for a 3-month period is inelastic. Regardless of price changes, little can be done to change the number of goats available for slaughter during this period. Over an 18-month period, farmers can change their breeding plans in response to price and the curve will be somewhat more elastic. Over 5 or 6 years, more grazing land could be developed, more equipment can be obtained and the supply curve will be more elastic.

6.5 Equilibrium Price

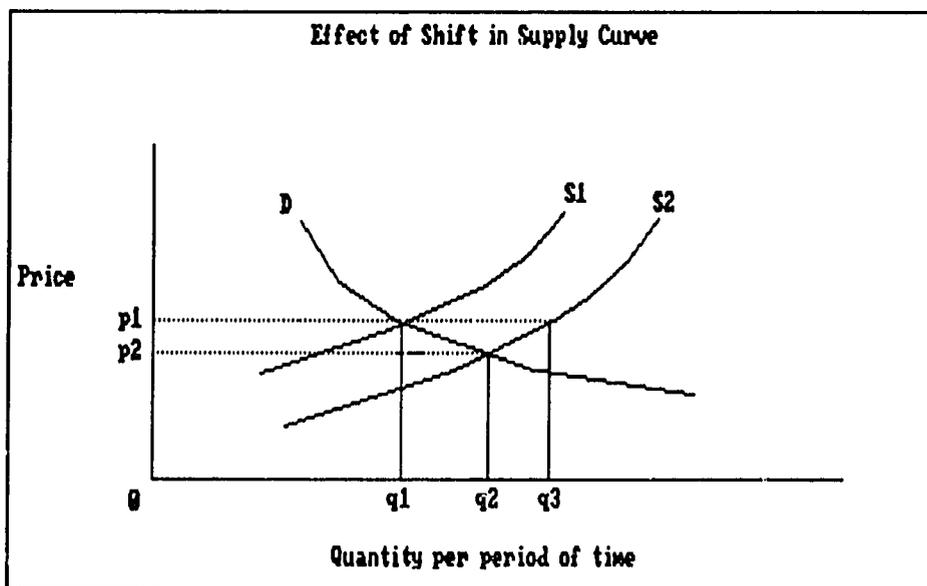
The price at which the quantity demanded equals the quantity supplied is the equilibrium price. It is the price toward which actual market prices tend to move. At prices below the equilibrium, there will be shortages and rising prices; at prices above the equilibrium, there will be surpluses and falling prices.





An increase in demand causes an increase in both the equilibrium price and the quantity bought and sold.

A decrease in demand causes a decrease in both the equilibrium price and the quantity bought and sold.



An increase in supply causes a decrease in the equilibrium price and an increase in the quantity bought and sold.

A decrease in supply causes an increase in the equilibrium price and a decrease in the quantity bought and sold.

Review Exercise One

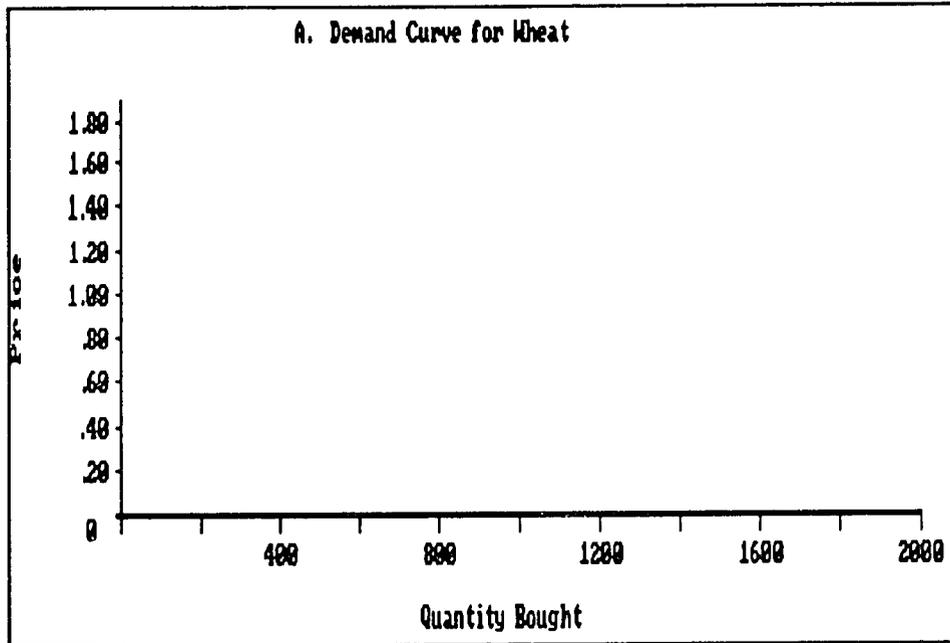
Demand and Supply

For each of the demand schedules given, plot the demand curve on the graph provided on the following page.

A. Demand Schedule For Wheat

Price of Wheat per Unit	Quantity Bought	Total Revenue
1.20	890	
1.15	950	
1.10	1,020	
1.05	1,100	
1.00	1,190	
.95	1,290	
.90	1,405	
.85	1,525	

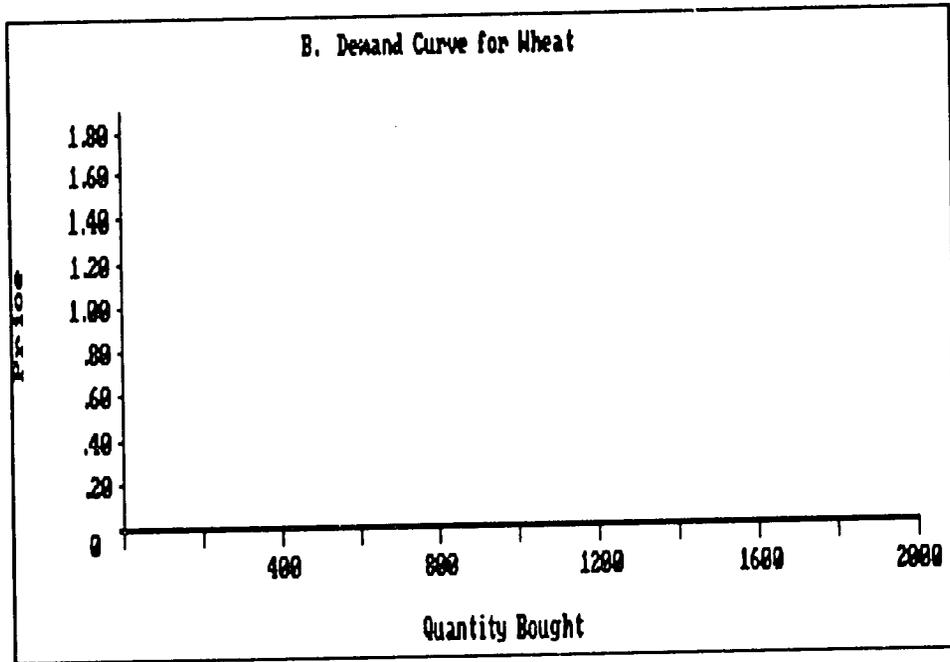
- 1 In this illustration, is demand elastic or inelastic?
- 2 What happens to total revenue when the quantity bought decreases?



B. Demand Schedule for Wheat

Price of Wheat per Unit	Quantity Bought	Total Revenue
1.80	890	
1.60	950	
1.40	1,020	
1.20	1,100	
1.00	1,190	
.80	1,290	
.60	1,405	
.40	1,525	

- 1 In this illustration, is demand elastic or inelastic?
- 2 What happens to total revenue when the quantity bought decreases?

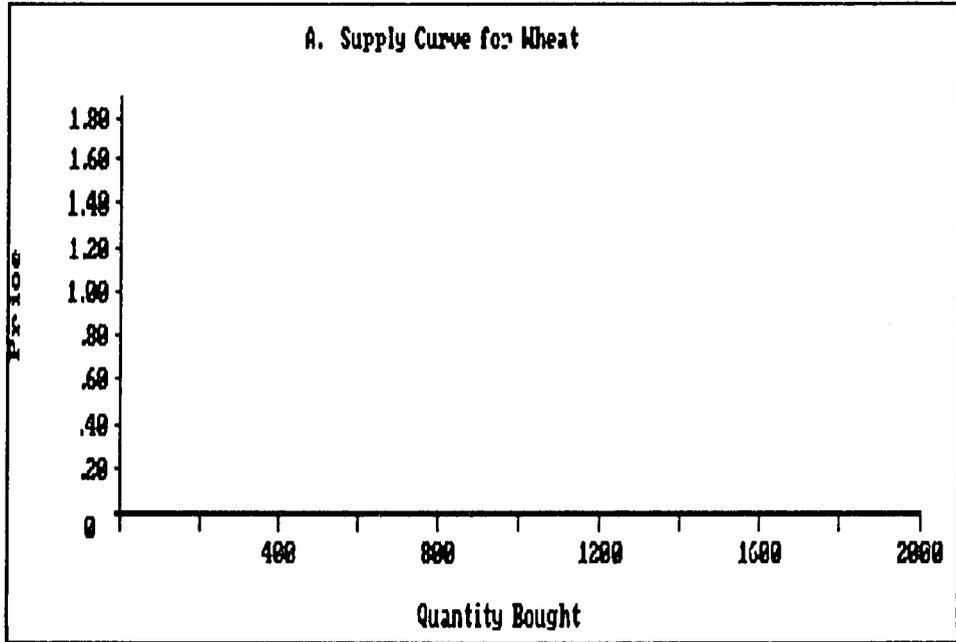


For the supply schedule given below, plot the supply curve on the graph provided on the following page.

A. Supply Schedule for Wheat

Price of Wheat per Unit	Quantity Bought	Total Revenue
1.04	1,160	
1.03	1,100	
1.02	1,020	
1.01	950	
1.00	900	
.99	860	
.98	840	
.96	830	

1 In this illustration, is supply elastic or inelastic?



Using the graph on which you plotted demand curve (B), plot the supply curve for the supply schedule given below.

B. Supply Schedule for Wheat

Price of Wheat per Unit	Quantity Sold	Total Revenue
1.80	1,160	
1.60	1,100	
1.40	1,020	
1.20	980	
1.00	940	
.80	860	
.60	840	
.40	830	

- 1 In this illustration, is supply elastic or inelastic?
- 2 What is the equilibrium price?

Review Exercise Two

Review Questions

- 1 What are the two basic functions of prices?
- 2 What elements are necessary in order to have a perfect competitive market?
- 3 What factors can cause a change in demand?
- 4 Indicate what would happen to your demand curve (shift upward to the right, shift downward to the left, or not change) for chicken if:
 - a The price of fish is drastically reduced and you enjoy eating fish.
 - b The price of fish is drastically reduced but you don't buy fish because you don't like it.
 - c Farmers are selling fewer animals and there is less chicken in the stores.
 - d The government imposes a 10 percent tax on the price of chicken.
 - e You are given a new barbecue grill and the weather is perfect for barbecuing.
 - f A friend of yours gives you a side of beef and you have no freezer.
 - g The store has a special discount sale on chicken.
- 5 Indicate whether demand is elastic, inelastic or unit elasticity.
 - a A price decrease from 20 to 17 causes demand to increase from 40 to 46.
 - b A price decrease from 17 to 15 causes demand to increase from 46 to 56.
 - c A price decrease from 15 to 14 causes demand to increase from 56 to 58.
 - d A price decrease from 30 to 24 causes demand to increase from 34 to 36.
- 6 What happens to total revenues when the price is increased for a commodity with elastic demand? Inelastic demand? Unit elasticity?
- 7 What factors can cause a change in supply?
- 8 What affect does a shift in the demand curve have on the equilibrium price? A shift in the supply curve?

CHAPTER 7

MARKET ORGANIZATION

Rationale

Market organization describes how the business operations are organized to carry out the various functions involved in an agricultural marketing system. Market organization is important because of the impact it has on market efficiency and price determination. Integration of marketing functions can be used to bring several operations under centralized management control to obtain cost savings and offset risks. Organizing marketing through marketing pools can result in higher or more stable pricing and a higher proportion of the net returns being paid to the producer. Different business forms which can be used to organize marketing functions include cooperatives, corporations and private enterprises. Market analysis, based on the interrelated concepts of market structure, conduct and performance, is performed to determine market efficiency.

Objectives

Upon completion of this unit, participants will be able to:

- * Identify the functions in an agricultural marketing system and the types of business organizations used to perform these functions.
- * Explain the conditions under which the integration of marketing functions might be beneficial to the business organization and the farm producer.
- * Describe a market pool and its advantages and disadvantages.
- * Describe how cooperatives, corporations and private enterprises are organized and the capabilities of each for performing specific functions in the agricultural marketing system.
- * Describe the key concepts of market analysis and how to determine market efficiency.

Key Points

- * The process of developing an agricultural marketing system includes the development of market organizations to perform all functions necessary to make agricultural products available to the consumer.
- * Each marketing function must add to consumer satisfaction; otherwise, the consumer will not be willing to pay for the added service.
- * Under, certain conditions, the integration of marketing functions may make it possible to perform these functions at lower cost and reduce the risks from price variations.
- * A market pool can improve price stability, promote orderly marketing and, in some cases, control supplies.
- * A cooperative is owned and controlled by those who use the services of the cooperatives.
- * The cooperative business organization can be used to perform many functions that involve servicing large numbers of products or consumers.
- * A corporation is owned and controlled by stockholders and operates under the profit incentive.
- * One approach to the analysis of the market is based on the key concepts of structure, conduct and performance.
- * Marketing efficiency is usually defined in terms of the optimization of an input-output ratio.

7.1 Introduction

Market organization describes how the business operations are organized to carry out the various functions involved in transforming the raw product into finished form and moving it from the producer to the consumer. At one extreme all business operations can be fully integrated, i.e., under the management and ownership of one firm. At the other extreme the business operations can be disintegrated, i.e., each business operation is under the management of a separate firm. A number of different types of business organizations can be used to manage and own the business operations, such as corporations, cooperatives and private enterprises.

7.2 The Agricultural Marketing System

The process of developing an agricultural marketing system includes the development of market organizations to perform all functions necessary to make agricultural products available at the time, place and in the form appropriate for consumption.

The organization and performance of an agricultural marketing system is usually more complicated than it first appears--it is a remarkable commercial venture which begins with, for example, a farmer producing a ton of wheat and ends with a thousand consumers owning the bread and other products made from the wheat. In the more developed agricultural systems, two-thirds of the money consumers spend for food goes to pay for the costs of exchange, storage, transportation, processing and standardization. It is estimated that raw agricultural products leaving the farmgate change hands at least seven times before they reach the consumer. These exchanges are necessary to put the raw product in the hands of the various individuals who perform the marketing functions.

The market exchange function is beneficial in creating economic activity if some value is added to the product as it is exchanged. However, to simply exchange with no value added is a worthless activity.

Example: Nonessential Exchange

The exchange of a rupee for another rupee of equal value does not add to the economic well-being of either individual involved in the exchange.

It is possible for one individual or firm to perform all the functions necessary to provide agricultural products to consumers. In such a case, no exchange is necessary except with the final consumer. Usually, however, specialization in one or several functions is advantageous to firms, individuals or government institutions. For example, one firm might specialize in storage, another in processing, another in retailing, etc. By specializing, businesses can concentrate on one or two tasks. Focusing its intelligence and management skills on a single task and practicing it repeatedly enables the firm to perform the task better than other firms.

The number of functions performed in an agricultural marketing system depends on the level of development of the system and the nature of consumer groups. Each marketing function must add to consumer satisfaction; otherwise, the consumer will not pay for the added services.

The following outlines a fully developed agricultural marketing system by functions performed and need satisfaction to the consumer.

Example: Developed Agricultural Marketing System

<u>Marketing Function</u>	<u>Consumer Need Satisfaction</u>
Production	Form utility
Storage	Time utility
Processing, packaging, standardization	Form utility
Storage and wholesaling	Time utility
Distribution	Place utility
Retailing	Time, form and place utility

A less developed agricultural marketing system would include fewer need-satisfying functions, such as the following:

Example: Less Developed Agricultural Marketing System

<u>Marketing Function</u>	<u>Consumer Need Satisfaction</u>
Production	Form utility
Central Market Product Assembly	Place utility

Processing

Form utility

Retailing

Time, form and
place utility

7.3 Organizations to Perform Marketing Functions

In every market a number of functions are required. Specific functions can be carried out under several business forms. But in any case, the need for the function must be established.

7.3.1 Grading

The need for grading is often evident because buyers demand products that meet specific standards. On the other hand, producers may want to obtain the price differentials that are possible with different grades. It is usually true that total revenues from graded product with price differentials are greater than revenues from a non-graded product with a fixed price. As shown by the following example, one thousand tons of wheat sell for more as a graded product than as an ungraded product bringing a "clear the market" price.

**Revenues from a Graded Product Compared
to an Ungraded Product**

Grade	Price per ton	<u>Graded Case</u>		<u>Ungraded Case</u>	
		Tons Sold	Revenues	Tons Sold	Revenues
No.1, 14% Protein	\$96.94	200	\$19,388		
No.2, 12% Protein	92.50	300	27,750		
Feed Grade	82.25	<u>500</u>	<u>41,125</u>	<u>1,000</u>	<u>\$82,250</u>
TOTAL		1,000	\$88,263	1,000	\$82,250

In the graded case, total revenues are over \$88,000. In the ungraded case where the "clear the market" price is the same as the feed grade price because there is no grade differentiation, total revenues are just over \$82,000. The difference is over \$6,000 for one thousand tons of product.

Grading can be done by a cooperative that collects a fee for its services based on the cost of facilities, labor and other costs. Even a private entrepreneur or corporation can carry out grading based on present standards. The entrepreneur or corporation can

charge fees for grading based on costs plus markup. Governments have also successfully performed the grading function when standards have been set and followed. In some cases, the government has completely subsidized the grading operation and in other cases, charged a fee for the grading.

7.3.2 Packaging

Packaging is usually carried out in order to:

- a Preserve the product
- b Facilitate handling of the product.
- c Make the product more attractive to the buyer.

It is usually appropriate for the wholesale or retail firm to package the product because the firm is in direct contact with buyers and receives first hand information regarding the attractiveness of the product to the buyer and the most appropriate form for handling the product.

7.3.3 Financing

Financing is important to the marketing process because the value of the volume of product handled usually far exceeds the asset value of the market organization. Financing for cooperatives is often a problem because cooperatives cannot obtain financing through the usual channels. The usual financing channels will often not recognize cooperatives as a business because they do not operate under a direct profit incentive. In some instances, government support of banks for cooperatives has been successful.

7.4 **Organizations to Integrate Marketing Functions**

The major reason for integrating market functions is to extend centralized management control over several related business operations such as processing, packaging and selling. Management control is extended to the integrator so that savings derived from performing all the functions involved will be passed back to the producer. In addition, risks due to price variation may be slightly reduced.

The following quoted material outlines conditions that favor integration.

Conditions Favoring Integration¹

Obviously the major motive for anyone thinking of becoming an "integrator" is that of enhancing his own profit position. What, then, are the conditions which will make a farm enterprise a logical candidate for successful integration? An affirmative answer to the following questions means a favorable climate exists for some agencies to attempt to integrate a farm enterprise operation with some non-farm activity. There are apparently several activating conditions. One, two, or all of these may be present for a particular enterprise.

a Is there a potential for the application of standardized and specialized management?

Scientific advances tend to make farm production more of science, less an art. As standardization in work routines is feasible it becomes possible to specialize tasks. Planning becomes the most critical management function and much of management then is amenable to centralization and specialization. Obviously, this transfer ability of management is the key and limiting question. If the technology of production of an enterprise has not become standardized to where substantial portions of management can be successfully removed from the individual farmer-producer, then the essence of integration -- the transfer of management, cannot take place.

b Is there a real possibility that the farm product can be produced in a specified form and/or a predetermined schedule of supply?

Many farm products are currently variable in quality and uncertain in supply. This is contrary to effective functioning of modern food processing concerns and mass merchandising institutions. If by using prescribed technology and management practices, these products can be standardized in form, package, quality, time, and amount of delivery, mass processors and merchandisers would find such changes advantageous.

c Is the enterprise facing a situation of rapid and/or continuous major change in technology?

This may require more complicated equipment and management know-how. The industry may know or believe that new technology is available which is currently unused. Integrators might see opportunity for profit by either controlling the speed of adoption of new developments or by trying to retain the benefits of such new

¹From "Vertical Integration in Agriculture," Agricultural Extension Service, Purdue University, October 1957. pp. 6 & 7. Questions have been indented and bold faced for emphasis.

developments for themselves. Such a situation would also make the farmer-producer quite receptive since he recognizes that better ways are available but lacks the necessary ability or resources to put them into effect.

- d. Is there a great potential for the profitable increased use of some production resources?**

In farm enterprise this usually takes the form of potential for increased equipment, operating capital, and/or increased managerial and technical know-how. New developments frequently require substantial additional capital investment. Scientific developments may be so complicated that the management ability of the average farmer is not enough. This is often associated closely with the situation in (3) above.

- e. Is there a possibility of reducing market risks?**

For example, the farmer represents a market and therefore selling costs to a feed dealer. A processor must buy his farm products either from the farmer or other market agencies with the resultant uncertainties and costs. The farmer himself may be faced with uncertain outlet and price situations. Closer control and coordination over the farm enterprise may permit the reduction of these buying and selling costs. Obviously this situation exists to some degree for all commodities. However, when the risks are especially severe and/or are accompanied by some of the other favorable conditions, this encourages integration.

- f. Is there a special market opportunity for a new or different product?**

Risks are many in a farmer's successfully marketing on his own a large output of a product new to his area. He may experiment with a product new to him and his area if a guaranteed market exists. To guarantee that market, the merchandiser would, of course, want to see profit opportunity in the venture. Farm enterprises not typical of an area may come into production in this manner. Integration in these circumstances, however, would only occur if many of the above questions could also be answered affirmatively.

- g. Is there a chance to increase control over a larger share of the supply and improve price-bargaining power?**

The closer control of a large portion of the supply may result in price advantages to the controller. This may occur because of the ability either to secure the supply cheaper from farmer-producer or to sell it at higher prices to consumers. This cannot be denied as a possible motive for integration. However, if decided advantages were realized because of such control, the integrator might be in violation of anti-monopoly laws.

7.5 Marketing Pools

Pooling means putting many small amounts of a product together to form one larger amount. A marketing pool gathers together the product of many farm producers. The accumulated product is then marketed by a knowledgeable professional group.

The objectives of pooling are to improve price stability and promote orderly marketing. A pooling arrangement can:

- a Market in large volume to large-volume buyers and obtain higher prices.
- b Offer an added marketing function such as grading or packaging to obtain higher net returns.

Pooling can be used as a device to control supplies in connection with marketing orders, but supply control does not have to be an objective of pooling.

In general, there are two types of marketing pools:

- a The seasonal pool which places total authority for marketing the product in the hands of the professional group.
- b The contract pool where the producer has the right to set the price and /or time of sale for his product.

In each type, the producer receives payment based on the average price received for his product.

The cooperative business organization is appropriate for most types of pools and pool objectives. Each producer has an equal voice in setting the policies of the pool. The accumulated resources of the pool can be used to hire a professional staff to carry out the marketing activity. It is important to maintain a professional staff that knows how to gather and use market information to the pool's best advantage. In addition, the storage and transportation operations require professional managers.

The two major problems of beginning a pool are:

- a Organizing the farm producers so their individual production can be marketed from a single pool.
- b Acquiring financial resources to build or lease storage facilities for all or a portion of the accumulated pool.

The problem of organizing is often approached through one or several existing agricultural organizations. Through the existing organization, an educational program can be carried out to explain the objectives of a pool to the farm producers and to

discuss alternative facilities, costs and regulations.

Example: Market Pool Membership Agreement²

- a The grower appoints the association as agent to sell, market, and pool rice delivered by him to a warehouse for the account of the association, or by delivery of a negotiable warehouse receipt to the association.
- b The association shall determine or have determined the grade, weight, milling yield, class, quality, and variety of the rice.
- c The association agrees to make an advance as soon as possible after delivery, in an amount determined by the board of directors.
- d The grower agrees to allow the association to pledge the rice as security for loans, and/or borrow money on any accounts receivable from sale of the rice.
- e The association retains the right to reject rice delivered in a non marketable condition, and to stop member delivery after all storage space has been filled.
- f The association may sell rice anywhere at its complete discretion, in either the natural or the processed state. All rice of the same variety, grade, and quality shall constitute one pool, whether sold rough or clean, unless placed in a separate late-delivery pool as designated by the board.
- g Deductions from the net proceeds of sales may be made for costs and expenses of the association, amounts for the purchase of revolving capital certificates as specified in the by-laws, and reserves not to exceed 2 percent of the gross selling price of all rice.
- h The grower agrees to notify the association of any and all liens against rice delivered.
- i The agreement continues in force from year to year, unless canceled in writing by either party prior to August 1 of any year.

The above regulations are for a seasonal pool where marketing of the product is controlled by a professional group. A contract pool would require regulations for the

²From "Cooperative Market Pooling," Circular of Information 657, Agricultural Experiment Station, Oregon State University, Corvallis, November 1976, pp. 25 and 26.

producer to set the price at which the product would be sold and an arrangement for the producer to designate the time of sale. Regulations for a contract pool should also include provisions for handling products that are not sold within a given period.

Some disadvantages of pooling are:

- a Loss of freedom to the individual producer in decision making.
- b Loss of the chance of windfall profits for the lucky few.
- c Lower sale prices for large volume producers who have professional marketing training and/or experience.
- d The danger of increased administrative costs.
- e Cheaters.

7.6 Types of Business Organizations

Specific market-related business operations can be organized under several business forms. In each case, the market organization activity is carried out to obtain a specific goal such as obtaining a market and a higher price for products sold, obtaining lower prices for products purchased, or performing marketing functions more effectively and efficiently. The way the individual business is organized determines who owns, controls and receives returns from the business.

7.6.1 Cooperatives

A cooperative is collectively owned by people who benefit from its services. The members elect a governing body to administer the affairs of the cooperative. Shares of the cooperative are divided equally among the members of the cooperative and each member has only one vote for each individual on the board of directors and on each major financial decision as outlined in the charter. The business operations are concluded so as to approach a cost basis and any returns above cost are returned to the members. Each member is paid patronage refunds based on his usage of the cooperative and not on the shares of stock owned or equity accumulated. Returns on capital are limited.

Example: Grain Storage Cooperatives

The member who stores and markets 10,000 cwt of grain through the cooperative will receive ten times more dividends than the member who stores and markets 1,000 cwt of grain. Also, when the cooperative accumulates equity, the member who uses the cooperative more will have a proportionately larger share of the equity allocated to him. However, regardless of the levels of equity or patronage refunds accumulated by individual members, the weight of each individual's voting power is equal -- one person, one vote.

The cooperative business organization can be used to perform many functions that involve servicing large numbers of producers or consumers.

7.6.1.1 Marketing Cooperative

Marketing cooperatives sell the farm products for the farmer. They can be used to assemble, store and sell a number of commodities such as grains, vegetables and livestock.

7.6.1.2 Purchasing Cooperative

Purchasing cooperatives are those through which member buy supplies. They can be used to purchase in volume and then sell in small quantities to their patrons.

7.6.1.3 Service Cooperative

Service cooperatives can be used to provide credit or insurance for individual patrons. They can be used as a business organization for owning electrical power, telephone or irrigation facilities and provide these services to patrons.

7.6.1.4 Processing Cooperative

Processing cooperatives are organized to carry out the packaging or processing of farm products. For example, a processing cooperative can, on a fee basis to the patron, provide livestock slaughter and packaging, grain milling or vegetable canning.

7.6.1.5 Types of Cooperative Organizations.

There are four types of cooperative organizations:

7.6.1.5.1 Local Independent Association

The cooperative is organized locally by producers or consumers. This is the simplest type and most cooperatives are organized as local independent associations.

7.6.1.7 Federated Association

The Federated Association is composed of several local associations operating as an integrated unit. The Federated Association might be composed of local cooperatives

performing similar functions or it can be used to integrate several functions. Under a Federated Association the local cooperatives are organized under a governing board elected by the individual local cooperatives.

Example: Federated Association

A Federated Association may include a marketing cooperative that assembles and stores grain, a processing cooperative that mills the grain, and another processing cooperative that uses the milled grain for baking.

7.6.1.8 Centralized Cooperative Association

Under the Centralized Cooperative Association, each local patron is a direct member of the central organization and exercises control through election of delegates. The Centralized Cooperative Association is particularly useful for centralized purchasing; for making investments in the production of inputs such as fertilizer plants, fuel refining and machinery manufacture; for processing and marketing, such as slaughtering, milling, packaging, and standardization; and for product pooling.

7.6.1.9 Mixed Association

The Mixed Association is a combination of the Federated Association and the Centralized Cooperative Association. Associations which are federated in nature may undertake new operations which are organized on a centralized basis.

7.6.2 Corporations

The corporation is a business organization that allows private ownership. The business assets are divided into shares which are sold to individuals. An individual may buy as many shares as he wishes. Each share carries with it voting rights for the election of directors to the board of directors (the executive group for the corporation). The board of directors selects the executive officers of the corporation and approves all major investment and any other business strategies or operations as outlined in the corporation charter.

For the most part, the corporation form of business organization can be used to conduct export marketing, production, processing, distribution and wholesaling. It can be used to integrate marketing services by holding and owning companies at different levels in the marketing system. For example, a corporation can hold and operate a processing firm, a distribution firm and a wholesaling firm. It can also be used for selected service functions such as grading, standardization or packaging. It is for the most part not useful in carrying out market orders, pooling arrangements or publishing information about price and market for public use. Market orders are usually based

on the enforcement of regulations for production and price. Government agencies are usually more appropriate regulatory organizations. Corporations that depend on the profit motive usually cannot enforce regulations in an equitable manner.

A corporation has the advantage of accumulating capital from the sale of shares (stock). The corporation can expand by issuing additional stock and selling it to raise capital or it can reduce its size by buying back its own stock. The stock can be traded freely so the value of the stock can vary based on the fluctuating profit potential of the corporation. Further, the corporation has a profit incentive. Profits can be returned to shareholders as dividends (payments for each share of stock held) or held by the corporation for further expansion or to accumulate equity.

The level of taxation and the responsibilities of the corporation depend on the legal system in the country in which the corporation is located. In most countries the corporation is recognized as a business entity. The corporation, not the individuals owning shares in the corporation, is responsible for debts and other obligations of the business.

7.6.3 Multinational Corporations

Multinational corporations are business organizations whose firms and assets are located in several nations. In developing countries, the government is often the key institution that offers the incentives to attract multinational corporations to carry out marketing functions for domestically produced products. The arrangements will depend on the individual government and the multinational corporation involved. The multinational corporation has a number of advantages:

- a The ability to obtain financing from a number of sources.
- b The accumulation of business experience.
- c A background of technical knowledge and experience.
- d The ability to evaluate and obtain markets.

Disadvantages of a multinational corporation may include:

- a Problems with domestic regulations.
- b Using its power to the disadvantage of the domestic government.
- c Requiring relatively high profit margins to obtain a fast pay-out period.

7.6.4 Private Enterprises

The strictly private enterprise firm is usually formed under private ownership. Mostly, private enterprises will operate under the profit incentive, which in a country of relatively free commerce can be very efficient. Each privately owned firm competing against other firms will entice the consumer with low prices and a quality product. However, without free commerce one firm may dominate in a product area and charge higher prices and deliver a low quality product. On the other hand, small competing firms may never be able to accumulate the capital necessary to grow to a size necessary to capture economies of scale.

7.7 **Market Structure, Conduct and Performance Analysis**

One approach to the analysis of markets is based on the key concepts of structure, conduct and performance.

7.7.1 Market Structure

Market structure is defined as the underlying characteristics of a market which determine the relations of buyers and sellers to each other. As such, these characteristics influence the nature of competition and pricing within a market. The most important elements of market structure are:

- a The degree of sellers concentration i.e. the numbers and market shares of sellers in the market
- b The degree of buyers concentration.
- c The degree of product differentiation.
- d The conditions of entry to the market.

Seller concentration refers to whether the number of sellers in the market is one (monopoly), few (oligopoly), or many (atomistic), and to the sizes of the various sellers. Theory and observation both suggest that the nature and intensity of competition among sellers is influenced by the degree of seller concentration. Buyer concentration has a similar significance in determining the nature of competition among buyers and the character of the relationship between buyers and sellers.

The degree of product differentiation reflects the extent to which consumers view the products of different firms in the industry as homogeneous or "identical". Product differentiation exists when there is a strong consumer preference for products of particular firms based upon real or perceived differences in quality, design, packaging, etc.

The condition of entry to the market refers to the extent to which barriers or disadvantages exist for potential new firms to enter the market. These barriers can be due to economies of scale, cost advantages stemming from possession of patents or control of low-cost sources of raw material, strong consumer preference for established products, or government policies. In each case, however, they affect the ease with which new firms can enter the market and hence the competition which established firms face from potential entrants.

Other important elements of market structure include the degree of vertical integration, the price elasticity of market demand, and the structure of costs in the industry.

7.7.2 Market Conduct

Market conduct refers to the behavior of sellers (or buyers) in competing with one another in the market. An important aspect of market conduct is the principle and method by which a firm or a group of firms determine price and output. For example, are prices arrived at by express agreement, collusion or independently of other firms in the industry? Are prices made by adding a certain margin to costs or other devices? Is a uniform price charged to all customers or are there discriminatory prices for different buyers?

Other important aspects of market conduct include the policies of sellers towards product design, sales promotion, research and development, and legal tactics.

7.7.3 Market Performance

Market performance is just the final result produced by the adopted conduct. Where market conduct refers to whether a group of sellers arrived at prices through collusive agreement or through independent action, market performance refers to, for example, what the margin or price over costs turned out to be for these sellers. Market performance of firms in an industry is usually judged in terms of efficiency or progressiveness. Important criteria in this respect are the level of prices relative to average production costs, and the rate of progressiveness in developing new products and production techniques.

Market structure, conduct and performance are interrelated. Generally the direction of causation is presumed to run from structure through conduct to performance as in the case of concentration and profitability. However, the possibility of feedback effects also exists. For example, price warfare (conduct) can increase concentration (structure) by eliminating rival firms.

7.8 Marketing Efficiency in Theory and Practice

Marketing efficiency is usually defined in terms of the optimization of an input-output ratio. Any change that reduces the input cost of performing a particular marketing service without reducing consumer satisfaction with the output of goods and services is regarded as an improvement in efficiency.

7.8.1 Types of Marketing Efficiency

Conceptually, it is possible to distinguish between two types of marketing efficiency economic (or pricing) efficiency and technical efficiency.

7.8.1.1 Economic (Pricing) Efficiency

Economic (pricing) efficiency relates to the manner in which markets create and transmit signals to buyers and sellers on how to allocate resources. Markets are generally regarded to be price efficient if competitive conditions exist in the form of many buyers and sellers, equal access, complete market information, etc. The basic idea is that such conditions prevent market actors from earning excess or monopoly profits which result in distortion of incentives and misallocation of resources.

7.8.1.2 Technical Efficiency

Technical efficiency on the other hand is concerned with the effectiveness with which the physical functions of marketing are carried out. To be technically efficient, a marketing system would have to utilize with maximum effectiveness the best technology available for each marketing activity.

Although marketing efficiency is a reasonable sounding concept, it is difficult to define in practical terms. For example, few sellers (or buyers) in a market do not necessarily imply inefficient price formation if they compete with each other rather than colluding. In such cases, high concentration ratios would be a misleading indicator of market inefficiency. The definition of market efficiency as the optimization of an input-output ratio also has practical limitations because of the intangible nature of marketing outputs. Unlike the input costs of providing marketing services which can be measured fairly accurately, marketing outputs are difficult to quantify in value terms.

7.8.2 Indicators of Marketing Efficiency

The following are some commonly used measures of marketing efficiency:

- a Marketing margins

- b Market competition
- c Physical product losses

7.8.2.1 Marketing Margins

Large marketing margins (the spread between farm prices and consumer prices) are usually regarded as evidence of inefficiencies in the marketing system. However, these margins need to be examined in relation to the cost and the level of services provided by the marketing system before any firm conclusions regarding inefficiency can be drawn. For example, large marketing margins may reflect the fact that the marketing system offers many services rather than marketing activities are being carried out inefficiently. Conversely, low marketing margins may be due to few services being provided by the marketing system rather than its efficiency.

Marketing margins consist of two elements: explicit costs and profits. Explicit costs refer to the actual costs incurred in the performance of various marketing functions such as assembling, transportation, storage, processing, etc. Physical losses which occur as products move from the farm to consumers are a part of these explicit costs. These costs are often high in developing countries where roads and communications are poor, interest rates high, and processing facilities poorly maintained and operated.

Profits refer to the income earned by marketing intermediaries after all explicit costs incurred on performing various marketing functions are accounted for. These profits are normally calculated as a percentage of the total amount of capital invested in the business. In developing countries, middlemen profits are thought to be very high and mainly responsible for the large marketing margins observed. This view, however, often does not adequately take into account the total cost of the various direct and indirect services provided by middlemen. Much of what is termed profit in fact reflects middlemen's costs. Studies of middlemen profit in developing countries particularly tend to ignore or underestimate the following cost items:

- a the cost on the money loaned out by the intermediary to farmers, consumers or other intermediaries;
- b the cost of working capital funds employed;
- c the cost due to spoilage of product;
- d the cost of bribes or gifts needed to effectively do business;
- e the cost of social help extended to farmers; or
- f the cost of risks and uncertainties borne by middlemen in agricultural trade.

7.8.2.2 Market Competition

An indirect way of measuring market efficiency is to ask to what extent characteristics of a competitive market are present in a specific marketing system. A homogeneous product, many buyers and sellers each unable to influence prices, equal access to market activities, and complete market information on the part of participants are some of the more important characteristics associated with a competitive market. If these conditions are fulfilled, it is likely that the market will perform efficiently with no scope for monopoly or excess profits.

A problem with this indirect approach is that the absence of these conditions does not necessarily mean that a market is inefficient. Efficient price formation can also take place in a market dominated by two or three large firms if the latter compete with each other rather than resorting to price fixing.

Nevertheless, an examination of the structure of a market can often provide important clues as to whether it is operating efficiently. In most cases, however, it needs to be supplemented by in-depth analysis of the behavior of market participants as well as by direct evidence from information on marketing margins, prices, etc.

7.8.2.3 Physical Product Losses

Another indicator of marketing efficiency is the extent of physical product losses which occur as a commodity moves through the marketing channels from producers to consumers. Product losses are normally measured as percentages of the original volume of the product. By identifying at what stage-- transportation, storage or processing-- the largest physical losses take place it is possible to pinpoint where the main inefficiencies in the marketing system are located. These can then be addressed by appropriate investments or policies.

Review Exercise One

Organization of the Marketing System

- 1 Construct an outline of the agricultural marketing system in your country. Include each marketing function performed and the need satisfaction to the consumer.
- 2 Now, using your agricultural marketing system outline, consider if:
 - a Additional marketing functions could potentially increase revenues for the total product.
 - b Different market-related business operations would increase consumer satisfaction.
- 3 What types of business organizations now perform the functions you have identified in your agricultural marketing system? What other types might be used to perform these or additional functions? what are the possibilities for using cooperative associations?
- 4 What, if any, institutional or other constraints would make it difficult for certain types of business organizations to operate in your country? What modifications might be made so the business organization could operate successfully?
- 5 Discuss an example of a multinational corporation and demonstrate how they might be useful in a developing marketing system.
- 6 Discuss the concepts of market analysis and explain different types of market efficiencies and its indicators.

CHAPTER 8

GOVERNMENT MARKETING SERVICES

Rationale

The role of government in agricultural marketing is to facilitate the marketing operations. The need for government services, such as the establishment of standards and grades and the collection and dissemination of market information, usually increases as the marketing segment of the economy grows and products move greater distances from producers to consumers. Standardization and grading of agricultural products enables any individual in the marketing system to know the characteristics of the product being purchased or sold. Market information on prices, production and consumption facilitates the process of pricing, production planning and inventory control. Ideally, the government can effectively perform these functions as an objective ruling body which is not unduly affected by the special interests of any of the parties involved in agricultural marketing. Such services can result in substantial improvements in market efficiency.

Objectives

Upon completion of this unit, participants will be able to:

- * Identify and explain government services which can support the development of an efficient agricultural marketing system.
- * Outline the criteria for good standards and their advantages in the performance of marketing operations.
- * Identify the types of market information needed by producers, wholesalers and consumers and methods for collecting and disseminating such information.
- * Evaluate the quality of government services and show how improvements might be made.

Key Points

- * The two government services usually demanded first in a developing agricultural marketing system are: a) standardization and classification of products into grades and b) collection and dissemination of market information.
- * Established standards and consistent grading in terms of these standards allow buyers and sellers to refer to products in a realistic and meaningful way.
- * The best test of any grade, or standard associated with the grade, is the extent to which they are used in the marketing system.
- * Relevant, accurate and up-to-date information on prices, quantities available, forecasts of future supplies and demand characteristics is essential if the marketing system is to operate efficiently.
- * Information on production, consumption and long-term trends should be adapted to local conditions and presented in ways most likely to assist users in their decision making.
- * Price information has meaning only if it is related to product quality.
- * General confidence in the accuracy of the information provided is essential if it is to be widely used.

8.1 Introduction

As a marketing system develops within a country and moves from a traditional subsistence to transitional economy, the demand for government services within the marketing system increases. The services usually demanded first are:

- a Establishment of standards for classifying into grades.
- b Collection and dissemination of market information, including forecasts of future production levels.

The need for better services occurs as agricultural products move greater distances to urban markets. Informal information systems are no longer sufficient for commercial marketing. At this point in development, the agricultural marketing system requires widely known and accepted quality standards and reliable market information. Such services need not only be available, but must be consistent and trusted by all individuals involved in market transactions.

8.2 Standardization and Grading

The systematic development of a national market requires the consistent use of an accurate and intelligible trade language. Consumers and producers need to understand particular words, numbers and symbols used to describe an agricultural product when they cannot actually see, smell and touch the product.

Standards are established criteria of measurement. Standards are divided into two basic categories:

- a Standards of weights and measures.
- b Quality standards.

Quality standards are criteria which describe the attributes that give the product value in the market. Quality standards are subdivided into several classes. Each class is called a grade and is usually given a number, word or letter.

Grading is the sorting of a product into the various quality classifications. Established standards and consistent product grading in terms of these standards allow buyers and sellers to refer to products in a realistic and meaningful way.

Example: Standardization

A wheat importer specifies by Telex that he wants to buy Number 1, hard, red, winter wheat. The specifications for Number 1, hard, red, winter wheat are well defined. The importer could request hundreds of wheat samples from potential suppliers. But the time required to gather representative samples for labeling, shipping and re-inspection could delay the transaction for months.

The advantages of using uniform standards are:

- a Products can be sold by weights and measures and description of quality in the form of grades, sight unseen.
- b Meaningful price quotations can be distributed throughout the marketing system.
- c Products can be pooled into large units through blending and upgrading.
- d Product financing can be facilitated since it is possible to obtain a more accurate estimate of the value of the product.
- e Transportation costs can be reduced by shipping only the product that makes grade.
- f Standardization can help maintain competition since all sellers and buyers are competing for grades which are understood by all.

The main objective of good standards is to aid the consumer in telling the producer what he considers desirable in a product. The best grading system is one that moves the largest amount of product to the consumers and obtains the highest price for the producers.

Good standards should be based on the following criteria:

- a Classification should be based on the product characteristics which consumers consider important and valuable. These characteristics should be easily understood and recognized. Standards must be designed to reflect differences in consumer demand.
- b The various classifications and the language used to describe them should make the grades meaningful to the largest segment of consumers possible.
- c Characteristics used should be those which can be accurately and uniformly measured and interpreted.

- d The cost of operating and maintaining the grading system must be reasonable.
- e The grade classifications should be based on the quality variations of the product available for market. Grades have little value if the standards are set above or below the quality of the product being produced.

The best test for evaluation of any grade, or standard associated with the grade, is the extent to which they are used in the marketing system. If the grading standards are widely used, it can usually be assumed that they are fairly adequate and economically meaningful to both consumers and producers.

8.3 Market Information

Market information is the data needed by producers, wholesalers and consumers to help them make decisions. Information on prices, quantities available, forecasts of future supplies and demand characteristics is necessary throughout the marketing system in determining what, when and where to sell and in planning future marketing activities. Relevant, accurate and up-to-date information is essential if the marketing system is to operate efficiently.

8.3.1 Need for Market Information

Producers need information to help them plan their operations from the time they plant their crops until they sell their products. Such information helps them decide when, where, how and to whom their products can be sold to their best advantage. They can check the prices offered by various forms of marketing and by alternative outlets in each. Even when they cannot change the time of sale or shift easily into other forms of production, they may still benefit indirectly by having access to pertinent market information. The knowledge that a farmer can compare prices may influence buyers to offer fair prices.

With market information, wholesalers can be aware of consumer demands and producer supplies which might otherwise be neglected because their existence is not known. It reduces their business risks and enables them to operate profitably on lower margins. When up-to date, accurate information is not available, local buyers use wider margins as a hedge against price changes in distant markets which they might not know about. In the case of perishable products, inadequate market information is a frequent cause of physical waste. Produce from distant points may be unloaded on an already saturated market and sold at very low prices or subsequently moved to another market with considerable cost and loss. At the same time, shortage of supplies in another area may force consumers to pay higher prices. Transportation and storage facilities also depend on advance information in planning their schedules to meet seasonal agricultural requirements. Similarly consumers can buy in the most advantageous markets if price and quality information is conveniently available.

Often governments are handicapped in carrying out important national policies because they lack accurate statistics on production, consumption and available supplies. This type of information is especially important in countries where the government is responsible for meeting deficits or facilitating the disposal of excess supplies. Excessive supplies have been imported because the amount of domestic supplies held privately was not known and exports have been made from countries which subsequently had to import supplies to meet a deficit which did not become apparent until later in the year.

8.3.1.1 Type of Information

The type of information needed to meet the needs of the various individuals throughout the marketing system falls into two general categories. The first is basic production and consumption statistics for the commodities traded in the country as well as data relating to the movement of these commodities, long-term trends and factors influencing future prices such as area cultivated in particular crops and expected yields.

This type of market information should be presented in ways most likely to assist users in their decision making. It may need to be adapted to local conditions and terminology. Much of the information published by statistical departments is presented in a form most suited for use in academic studies, reviewing past conditions or formulating government policies. Further interpretation and additional data on current and expected supply, demand and other price determining factors are usually needed before the information can be effectively used by producers and wholesalers.

The second major category of market information is the reporting of day-to-day prices and commodity supplies at various points throughout the marketing system as a guide for current transactions. Usually this type of information must be obtained by direct investigation of strategic markets in the immediate area it is intended to serve. The main requirements are accuracy and rapid collection and dissemination as timeliness is very important.

Price quotations have meaning only if they are related to product quality. The terminology used to describe the product must be clearly understood by the users of the information. Descriptions such as "local rice" have limited value since there are usually many varieties and qualities of "local rice". A rise in price from one week to the next may not be an indication of a marketing trend but merely a difference in quality or variety of product. Thus, uniformly applied grading standards are necessary in order to provide meaningful and accurate price information.

8.3.2 Collection and Dissemination

Methods of collecting production estimates vary greatly in different countries. In many countries the central agencies have depended upon reports from district officers

and village headmen who often are untrained in making estimates, may quote the same figure every year or may have other interests such as the reduction of tax assessments. In some countries where yields vary sharply from year to year, mobile reporting teams have been sent into key areas and have been successful in increasing the accuracy of the estimates. The compilation of output information in such a way as to obtain the maximum accuracy with the minimum cost involves the use of sampling techniques and objective measurement procedures developed specifically for this purpose and tested out in practice.

Price information is usually collected by reporters who go into the market during the early trading hours and take a random sample of early sales. A final report is also compiled of closing or end-of-the-day prices. The information is generally averaged, giving the lowest highest and most frequently occurring price for each item sold and for its various types and grades. This information is then distributed as rapidly as possible to potential buyers and producers.

The methods used to disseminate market information vary according to the need for speed in reaching the users throughout the marketing system. Fast and accurate communication is most important in the marketing of perishables. Access to such facilities as telegraph, telephone, teletype and radio is of critical importance.

The dissemination of market information has improved greatly since radio is more widely available. It is usually more convenient and economical to disseminate information by radio and there is little delay in getting the information to users. Local price quotations can also be disseminated through loudspeakers set up in the marketplace. Announcements are usually made before markets open, at midday and at the closing of the market.

Regular series of statistics on output, prices, sales and inventories can be distributed by less rapid and lower cost methods. They are usually issued weekly or monthly along with commodity situation reports. It is important that such reports are statistically reliable and made available simultaneously to all traders at strategic times throughout the season.

Administrative methods for collecting, appraising and disseminating each category of market information must be based on a realistic assessment of its purpose and value. It is most important, however, that a high level of integrity be maintained by those responsible for an information service and that they take great care in checking the validity of comments given wide distribution. General confidence in the information provided is essential if it is to be widely used.

Review Exercise One

Evaluation of Government Marketing Service

Working in teams, collect samples of the market information available in your country. Each team should collect information relating to a different commodity. If possible, the samples collected should illustrate the types of information available, the use of grades and standards and forecasts of future production levels. For the commodity which your team has chosen:

- a Describe the stage of development of the marketing information system for your commodity.
- b Evaluate the grades and standards established for your commodity and how well they meet the criteria for good standards.
- c Evaluate the methods used in preparing forecasts of future production levels and whether the material is presented in such a way as to be meaningful for producers and wholesalers in planning their marketing activities.
- d Evaluate the accuracy and timeliness of the price information available for current transactions.
- e Describe the adequacy of the information available and the methods used for collection and dissemination.
- f What improvements, if any, would you suggest should be made in the market information service?

After your team has evaluated the market information for your particular commodity, class discussions will be held to evaluate the overall market information service and suggested improvements.

Review Exercise Two

Government Marketing Services Project

Please purchase a sample of the commodity designated below and show how the commodity could be graded:

Team A - Oranges

Team B - Eggs

Team C - Wheat

Team D - Bananas

- 1 What are the specific requirements for each grade?
- 2 Describe the commodity information provided by each province and the government of Pakistan.
- 3 Describe new legislation that would support grading and market information in Pakistan that would not require extra funding.

CHAPTER 9

EXPORT MARKETING

Rationale

Non-traditional agricultural products (products not currently being exported by a country) can in some circumstances be exported successfully. Exporting of non-traditional agricultural products can expand market size and increase profit levels. For the country as a whole, exporting usually adds to the trade balance and strengthens the development process. As markets are expanded, additional labor, capital and other resources can be utilized, causing an increase in business activity that contributes to economic growth.

Objectives

Upon completion of this unit, participants will be able to:

- * Evaluate the potential for exporting locally produced non-traditional agricultural products.
- * Construct a market study and survey.
- * Identify and evaluate alternative channels of distribution for export.
- * Identify and describe the elements of an export sale and the six basic methods of payment.
- * Identify and describe the special requirements for shipping agricultural products overseas and the various shipping and customs documents required.

Key Points

- * Exporting is an extension of the domestic market. It consists of selling products and serving customers.
- * Before embarking on export sales, the profit potential in the export market should be thoroughly investigated and compared with domestic market possibilities.
- * A market study is conducted to determine if the product has export possibilities and which countries are potential export markets.
- * A market survey is usually conducted in the country which is a potential export market and provides more in-depth information on consumer needs, packaging and labeling requirements, distribution channels and costs.
- * Distribution channels for marketing overseas include indirect exporting using independent export marketing middlemen and direct exporting using overseas offices of the exporting firm or overseas-based middlemen.
- * Delivery terms of sale should be clearly understood by all parties participating in the sale and confirmed in writing through a sales contract or agreement.
- * The six basic methods of payment for export sales are consignment, joint account, open account, cash against documents, draft and letter of credit.
- * Special requirements may be encountered in packing, labeling, insuring and transporting agricultural products overseas.
- * A number of documents are needed for exporting that differ from those required for domestic sales, such as bill of lading, air waybill, insurance certificate, international forwarding agents' documents, certificate of health, certificate of origin, commercial invoice, and consular invoice.

9.1 Introduction

Non-traditional agricultural products (products not currently being exported by a country) may have the potential for being successfully exported. Export markets can expand market size, extend product demand and increase the balance of trade (or decrease the trade deficit) of the country. A good product, reasonably priced and with foreign demand, can be profitably exported if supplies and delivery services are maintained.

There is nothing magic about exporting. Export marketing involves decisions any businessman or firm would make for domestic sales. Exporting is an extension of domestic sales. It consists of selling products and serving customers.

The major difference between export and domestic marketing is that the buyer and seller are separated by national borders and distance. This increases the communication problems and transportation times. Recent technological advances in communications and transportation, however, are bringing export/domestic business decisions closer together.

Before embarking on export sales, the profit potential in the export market should be thoroughly investigated and compared with domestic market possibilities. One of the keys to determining export marketing potentials is market research.

9.2 Market Research

Market research is a vital step in export marketing. Research for export can be divided into two basic types:

- a Market Study
- b Market Survey

The differences between the two types are the way information is gathered and the depth of the research.

9.2.1 Market Study

A market study is a relatively low-cost method of compiling information. Many businessmen do it by letter and telephone. The primary objective of a market study is to determine if the product has export possibilities and which countries are potential export markets.

A market study should first consider the following question:

9.2.1.1 Is the product exportable?

Is it too perishable to be preserved during the time needed for transport? Can it withstand the handling and shipment? (Often, export goods are inspected, loaded and unloaded many times).

If the product appears to be exportable, the following questions then need to be answered.

- a Does the cost of transportation and preservation make it possible to export?

Often, bulky, perishable and low-price products cannot profitably move out of the domestic market because of the higher cost for transportation and preservation.

- b Is there a need for the product beyond our borders?

If foreign customers have not developed a taste or desire for the product, it may not be acceptable and therefore not have a market.

- c Where are potential export markets?

What countries have developed a need or demand for the product? Economic conditions affect the types of commodities demanded. Among less developed countries, demand centers around basic agricultural products; more developed countries desire processed products.

- d What is the size of potential markets in terms of financial returns and amount demanded?

Returns and demand are determined by looking at the level and trend of purchases within a receiving area. If the product can be produced in the country, how will this affect short-run and long-run sales?

- e Is the product already being imported?

If it is being imported, look at the competition. If the market is saturated, it may be difficult to obtain customers. What countries are presently marketing the product and is effective competition possible at a reasonable cost? If other exporters are not competing, what market conditions made trade unfeasible?

f What are the costs?

When products move into export, they usually require more expensive packaging for in-transit protection. Other costs may include document preparation for exporting and higher long-distance freight charges.

g What is the established product price in the potential export market?

Knowledge of the established price is necessary for comparison with the costs.

h What is the form of the product marketed?

The product form is linked to processing costs. Also, the product produced domestically may not fit into the traditional consumption patterns and tastes of other markets.

Example: Consumer Resistance

An exporter of white or red beans to a country which traditionally uses black beans would find resistance to the new bean product. Or, canned milk exported in one-liter cans would find resistance in a culture which uses 12-ounce cans. Consumers would resist changing their normal consumption pattern.

i What is the current product distribution system?

Factors such as the number of retailers and wholesalers, and supermarket sales are important. Exporters who research the distribution system can determine potential buyers.

j Are there trade barriers for the product?

Tariffs or import restrictions such as product quotas and licensing may make exporting unprofitable. Monetary exchange controls may be another factor. Some countries set quotas on the amount of money which can be exchanged.

k Are there seasonal factors in production or consumption of the product in the potential receiving country?

If consumption patterns remain constant through out the year but production patterns have peaks and valleys, the exports to that country should match the valleys of production.

l What are current competitive products and their price structure?

Before exporting, a firm should investigate competitive sales trends and their effect on the market potential of exported products.

m How stable is the foreign government?

Because governments set trade regulations, this is vital information. An unstable government might result in uncertain trade.

The export firm should answer these questions as part of their market study. Answers can come from interviewing knowledgeable people within their country, bank officials and other exporters. Information is available from such agencies as international banks, Departments of Agriculture and local offices of international agencies.

9.2.2 Market Survey

Market surveys are more expensive than market studies. A market survey is usually conducted in the country which is to receive potential imports. Thus, the market survey often requires a visit to the country by the export firm's manager or a professional research organization. In some cases, a survey may not be needed if the market study has provided adequate information. However, for many products, specific information is necessary.

A market survey should include answers to the following questions:

a What are the needs of the foreign consumers?

This is very important information for determining the form of the product and the type of sales program to be used. A research firm could conduct part of the survey to determine if consumers would accept the product under consideration and if enough consumers could pay for it. Consumer testing is especially important for competitive products.

b How well are presently available brands of the same product selling?

To answer this question, an assessment will need to be made of current market volume and percentage of sales controlled by various competitors.

c What packaging and labeling instructions should be followed?

This answer will be determined partially by government regulations and carrier requirements as well as consumer preferences.

d Who will handle the product?

An important step in the survey is to look into potential firms or agents who will sell the product in the receiving country. An initial visit to the country is recommended to collect information about potential consumers and marketing organizations.

e What will it cost to enter the country's market?

Specific costs have to be determined. All possible expenses must be included. Will media advertising or salesmen be needed to establish the product? Agent and distributor fees need to be analyzed. The cost of the survey should be included in the entry cost.

f What will be the probable terms of sale?

Determining the price of exchange and whether the ownership of the product will change hands on a foreign dock or at a customer's door are both important for determining the cost of entry. The terms of sale are usually the terms of the potential customer's firm. These terms can be determined by talking to foreign exporters and customers. Other questions not answered by secondary sources in the market study can be handled in the survey research.

Institutions and agencies which can provide information for the market survey include:

- a Embassies or consulates of your country. These should probably be the first places visited. If a commercial or agricultural attache is available, their help could be invaluable. In many cases the commercial or agricultural attache will be able to arrange additional appointments and provide potential exporters with contacts in their country.
- b Trade organizations for the product being considered.
- c Editors. Commercial publications such as trade journals and export magazines have editors knowledgeable about their particular field. An interview with one or more of them may provide detailed background information for your survey.
- d Commercial and financial institutions. Banks and financial institutions can provide financial information about firms which may be customers for the

product. Monetary exchange problems can be discussed. Introduction to bank officials in the receiving country may be obtained through the foreign banks or correspondence banks in your country.

- e Importers, agents, distributors, wholesalers, retailers and freight forwarders. The agricultural or commercial attache can provide assistance in identifying the initial firms to visit.
- f Transportation companies. Local offices of many carriers such as steamship companies and airlines can provide information on transportation costs and problems.
- g Advertising agencies. Agencies with branches, affiliates or correspondents in foreign countries can provide information on local promotion campaigns for the product.

9.3 Channels of Distribution

There are several alternative distribution channels which exporters can use to market their product overseas. These channels fall into two basic classifications:

- a Indirect exporting
- b Direct exporting

These two basic classifications are differentiated by how transactions are carried out between the exporter and the foreign importer or buyer. Usually new exporters will use established middlemen to begin their exporting experiences and, in time, may switch to other alternatives.

9.3.1 Indirect Exporting

Indirect exporting involves the use of independent export marketing middlemen. The responsibility for selling the product is transferred to another organization. Some types of middlemen take title to the product while others do not.

9.3.1.1 Combination Export Manager

The combination export management firm serves as representative to a number of different organizations. One of the important advantages of using a combination export management firm is that it works with a group of clients. Thus, overhead and overseas travel costs can be spread over several firms when export sales of an individual firm could not support such activities.

Two directories are available for information on combination export management firms.

a American Register for Exporters and Importers, published annually by the American Exporters and Importers Firm, 90 West Broadway, New York, New York.

b Directory of Combination Export Managers, published in five parts by the Office of Small Business, Agency for International Development, U.S. Department of State, Washington, DC 20523

Both directories provide a list of firms handling particular types of products. Names of firms also may be obtained from a number of other sources such as Dunn & Bradstreet, Inc., and the American Exporter, a Johnston International Publication.

9.3.1.2 A Buyer for Export.

Established buyers of export products for resale in foreign markets act as specialized brokers. Flexibility is essential for the buyer's operation. They try to avoid entangling relationships and usually do not represent a product on a continuing basis. In general, the buyer for export specializes in a particular line of goods. Such specialization enables development of buying and handling skills for a particular line.

9.3.1.3 Trading Company.

A trading company resembles an export buyer in that both buy products from firms to resell overseas. The trading company represents product lines on a continuing basis. Most trading companies are large organizations engaged in importing and exporting. They handle large volumes of commodities and are often integrated backwards into the production of various products and sometimes integrated forward into the operation of retail outlets.

9.3.1.4 Firms with Established Export Departments.

Frequently, established firms will use their overseas distribution facilities to handle products from other smaller firms. Such an arrangement is most beneficial when the overseas distribution network of the established firm fits the needs of the smaller firm. Usually, but not always, this is a larger firm which operates its own sales branches in foreign countries and does not rely upon local representatives.

9.3.2 Direct Exporting

Direct exporting involves the use of dependent overseas offices of the exporting firm or overseas based middlemen. Most larger firms operate sales branches or subsidiaries in foreign countries. These wholly owned operations are expensive but permit direct control in branches rather than dealing with independent sales representatives.

9.3.2.1 Export Salesmen.

Export salesmen have been employed successfully by smaller firms in foreign markets. In most instances, these salesmen are individuals who solicit business from export firms. The advantage of using this type of salesmen is that they often contribute considerably more time to sales than many foreign representatives will give to an exporter's product line. It is possible to exercise some control over such salesmen since they are dependent, to some extent, on the firm.

9.3.2.2 Foreign Manufacturers.

Foreign manufacturers are frequently used by exporting firms to distribute their products. Manufacturers are often larger and have more technically qualified sales forces and resources than other distributors.

9.3.3 Elements of a Sale

After a foreign buyer is selected, the specific elements of the sale must be worked out. The foreign buyer is interested in four basic elements:

- a Product
- b Price
- c Performance
- d Profit

The buyer usually wants to examine a sample of the product offered for sale. The sample should be representative of the product that will be supplied on a regular basis. Many foreign buyers stress uniformity in quality. They want the same quality of size and grade in each shipment. For agricultural products sold under the brand name of a particular firm, the foreign buyer often seeks exclusive use of that brand name and a designated geographical area as a sales territory. This enables the buyer to cash in on sales promotion or advertising efforts to promote the brand. Export firms might find it advantageous to grant buyers an exclusive lease to the brand name and a designated territory.

9.3.3.1 Agreement on Terms

After selecting a market and potential buyer, there are still many details involved in completing a sale. Major terms on which agreement is needed are:

- a Buyer's preference with respect to product specification, including variety, price range, size, kind of shipping container, season of year during which deliveries are desired, quantity per shipment per season, and terms of purchase including method of payment.
- b Import restrictions and requirements for labels and markings on package containers, import periods, licenses, quotas, levies, and documents such as certificate of product composition.
- c Shipping requirements, particularly temperature and humidity. Other requirements may involve various modes of ocean and air transportation, frequency, and dependability of the method of shipping.
- e Cost incurred by the shipper in preparing an export shipment. Also, the cost from the time the shipment leaves the local shipping point to the time and place the buyer takes title.

9.3.3.2 Delivery Terms of Sale

Delivery terms of sale should always be clear to all participating parties. They should be considered carefully. Each of the delivery terms of sale is used in domestic as well as export markets. Both carrier and location should be specified.

The following list of abbreviations indicates the point at which the title to a shipment is transferred from seller to buyer:

- a FAS (free alongside ship) - The commodity is alongside an ocean-going vessel or aircraft at a loading port. The buyer is responsible for having the goods loaded on board and paying the cost of shipping from that point on.
- b FOB (free on board) - The commodity is loaded into an ocean-going vessel or aircraft at a loading port. The seller assumes all costs until the goods are loaded on board.
- c C&F (cost and freight) - The commodity is delivered to a foreign port with the seller paying all costs except that of insurance on the cargo while it is enroute from the point of departure. The seller's liability ends when the goods are loaded on board.

- d CIF (cost, insurance and freight) - The commodity is delivered to a foreign port and all costs up to that point are the responsibility of the seller.

9.3.4 Sales Offer and Contract

An export sale, like a domestic sale, involves both a sales offer and a sales agreement. However, export marketing sales are likely to be more formal and use more precise documents than domestic marketing transactions.

9.3.4.1 Sales Offer

An export sales offer includes a price quotation and description of the product, the quantity or range of quantities of a product available, and specified shipping arrangements and payment terms. In order to arrange for transportation and to estimate costs, the buyer will need to know the number of individual items to be handled (such as bags or cases of a designated size and weight), the gross and net shipping weights and the cubic volume of each packing unit and of the total shipment. The buyer also needs to know the approximate date that the shipment can be loaded at a port or be expected to arrive at a foreign discharge port.

The sales offer is usually made with an expiration date for its acceptance by the buyer or with inclusion of the term "subject to confirmation". This gives the exporter some flexibility in case domestic or foreign prices for the commodity rise suddenly, another sales opportunity with better terms develops, or orders from a number of buyers are greater than the total quantity of product that the exporter has in inventory.

It is customary to receive counter-offers from buyers seeking to purchase supplies of a commodity at a lower price than offered by the exporter. This is an expected part of the sales negotiation process.

A pro forma invoice is often supplied to a foreign buyer who is definitely interested in making the purchase. This is a temporary document that states the terms of sale tentatively agreed upon by the buyer and seller. It provides estimates of shipping specifications, costs and dates, and assists the buyer in meeting certain requirements that may exist in his country. For example, a buyer may need an import license that cannot be obtained without providing a pro forma invoice with his application for such a license. The example below illustrates a pro forma invoice and indicates the kind of information that might be included.

Example: Pro Forma Invoice:

COMMODITY
BRAND
ORIGIN

PANAMA #2 YELLOW BANANAS
HAPPYLAND
PANAMA

PACKING	30 POUND CASES
QUANTITY	APPROXIMATELY 32 PER CASE
PRICE	\$8.85 PER CASE
TERMS	FOB PORT OF PANAMA, PANAMA CITY
PAYMENT	SITE DRAFT, AND DOCUMENTS TO THE NATIONAL BANK OF PANAMA
SHIPMENT	FROM PANAMA CITY, PANAMA VIA GENERAL CARGO SPACE SEALINE CONTAINER DATE FOLLOWING CONFIRMATION OF SALE
DESIGNATION	PORT OF LOS ANGELES
DOCUMENTS	NEGOTIABLE OCEAN BILL OF LADING (ORIGINAL AND TWO COPIES); COMMERCIAL INVOICE IN QUADRUPLE; AND HEALTH CERTIFICATE
SHIPPING MARK	XYZ, PANAMA

Normally, the pro forma invoice would indicate under the payment column that the handling charges of the exporter's bank would be for the buyer's account.

Sometimes the importer will accept the terms of the pro forma invoice and by cablegram or letter make a commitment to purchase on those terms. In other cases, the importer will submit a formal export order.

9.3.4.2 Sales Contract

Each export sale should be confirmed in writing. Both buyer and seller must be firmly committed. A special sales contract or agreement is the safest way to form and record a contractual agreement.

The sales contract may be in a format similar to the pro forma invoice as shown in the previous example. Provisions may be added that would compensate for an impending change in the relative value of local currencies.

9.3.5 Receiving Payment

Many exporters require payment in either their local currency or stable currencies of other governments. Currencies frequently used are the U.S. dollar, the West German mark and the Swiss franc. In every export sale it is desirable to specify in the sales contract that payment is to be made in either an acceptable local currency or in currency acceptable to both parties.

Items to be considered in establishing the payment terms of sale include the type of product, the amount of money involved, business customs, credit rating of the buyer, country of the buyer, and whether the buyer is a new or old customer. The six basic methods of payment are consignment, joint account, open account, cash against documents, draft and letter of credit. The methods are listed below in relation to the amount of risk to the seller, starting with the highest risk method.

9.3.5.1 Consignment

In a consignment sale, the commodity is shipped to a foreign importer and payment to the exporter is deferred until the importer has resold the commodity. The importer provides a statement showing the gross sale value, his expenses and commission, and the net amount due the exporter. For the exporter, this is a high risk method payment. If there is a sharp drop in the price on the foreign market, exceptional deterioration of the product, or an inaccurate cost statement from an unscrupulous importer, the exporter may not receive enough to cover his expenses. Conversely this is a low-risk situation for the importer. The importer cannot lose money except under extraordinary circumstances when the receipts for his sale are less than his expenses.

9.3.5.2 Joint Account

In a joint account sale, the exporter is guaranteed a specific minimum price at a certain delivery point. All net proceeds received in excess of that price are divided equally between the exporter and the import buyer. For example, the exporter will calculate the price that should be received CIF port of destination. Then the importer will guarantee payment at that price. The sale is made and the net proceeds (gross proceeds from the sale minus certain expenses and payments to third parties such as import duties, customs charges and handling at the dock) are divided equally between exporter and importer. The principal risks, excluding loss due to quality deterioration are shared by the export seller and the import buyer. From the standpoint of the exporter, there is considerably less risk with this method than with the consignment sale.

9.3.5.3 Open Account

Under the open account method of payment, commodities are shipped to the foreign importer who takes title to them according to the delivery terms of sale. Payment is made at some future date such as thirty days after delivery or at the end of each month if deliveries are made frequently. In effect, the exporter makes an interest-free loan for the value of the shipment from the time of delivery until payment is made. This payment method is used sparingly in sales of processed agricultural products and only in sales to established buyers with very high ratings for credit and performance. It is considered to have too high a risk for most export sales, especially to buyers located in foreign countries with unstable currencies and/or governments.

9.3.5.4 Cash Against Documents

The C.O.D. (Collect On Delivery) method of payment, which is often used in domestic trade, has an adaptation for use in international trade. A relatively small exporter working with an export agent may rely on the agent to select buyers with exceptionally high credit and performance ratings to whom sales can be made on the basis of cash against documents. This method of payment has less risk than a consignment, open account or joint account sales, but there may be more risk for the exporter than with a draft or letter of credit.

9.3.5.5 Draft

A draft, also called a bill exchange, is a financial document prepared by the exporter ordering the foreign importer to make prompt payment to the designated bank for commodities shipped. It is a "clean draft" if the documents that control the title to the goods shipped are not attached; and a "documentary draft" if they are attached.

A "site draft" is payable upon presentation of the draft to the importer. A "time draft" is payable after a given period of time indicated on the draft such as 30, 60 or 90 days after site. This period of time allowed for payment is referred to as usance. The time period begins when the representative of the importer or the importer's bank has signed their name on the face of the draft along with the date, name of the firm and the word, "Accepted". When the time draft has thus been accepted, it becomes known as an acceptance.

The usual procedure is for the exporter to send the draft with the shipping and collection documents to the importer's bank. Included with the documents is the original bill of lading. The bill of lading is endorsed by the shipper if the negotiable form is used. The bank notifies the importer that the document has been received. When the site draft is used, the importer must promptly pay the amount of the draft to the bank. Then the bill of lading is given to the importer and he can take possession of the shipment. In the case of a time draft, the buyer can take possession of the commodity upon acceptance of the draft. Payment is made later based on the time specified on the draft.

This method of payment, especially the use of the site draft, has been commonly used for exports of bulk and packaged agricultural products. The risk to the exporter is less than for a consignment, open account, joint account, or cash against document sale but more than a letter of credit. When dealing with financially reputable importers, it usually is not necessary to incur the additional cost and paperwork of a letter of credit.

9.3.5.6 Letter of Credit

A letter of credit is a financial document providing for payment of commodities purchased. It is issued by a foreign bank at the request of the importer and in favor of the exporter. It is a promise, by the bank, to pay within a specified time when specified conditions are met. Preferably, it should be an irrevocable letter of credit. The importer cannot alter the terms in any way without agreement by the exporter. It should also be confirmed for the exporter by the exporter's local bank. The bank then has accepted responsibility to pay the exporter as soon as the documents are received regardless of the current financial condition of the importer or the foreign bank. This assures prompt payment to the exporter. The letter of credit presents the least risk to the exporter and is a method that should be considered for initial export sales.

9.4 **Physical Distribution**

Most products in international trade are transported by ocean freight. Ocean transportation is a relatively low cost method and can easily handle large shipments. Air transportation at present is the least important means of transportation for international shipments in terms of total amount handled but is growing the fastest. Air freight is usually more expensive but has the advantage of speed and direct access to inland customers.

A totally different set of requirements can be encountered in shipping agricultural products across an ocean by air or sea than those encountered in domestic shipments. Packing used in domestic marketing may not be adequate for shipments transported over water, subject to excessive handling or going to parts of the world with extreme climates. Ocean carriers usually bear less liability for loss or damage of goods than do inland carriers. Many factors affect the cost of ocean transportation and the rates charged by carriers are only a portion of the overall cost.

9.4.1 Packing and Labeling

The first step in packing is to assemble the kind and quantity of commodity needed. The second step is to pack the commodity according to the specifications given in the final sales agreement or contract.

Both the package and the container should be designed and filled with careful consideration given to holding product losses to a minimum and maintaining product quality during shipment. Causes of product losses include excessive movement of the product within the container and too much weight on the product. Some perishables may be damaged by excessively high or low temperatures. The threat of pilferage of products such as high value produce which can be consumed on the spot or moved for quick sale requires special packing and handling precautions.

Special labels with information expressed in the language of the importing country rather than the language of the exporter may be needed on consumer-size packages and even some larger units. Weights may need to be expressed in the metric or the English system. Most foreign customers are in nations using the metric system. However, English, Canadian and United States importers require the English weights and measures.

9.4.2 Insurance

On sales for overseas delivery, cargo insurance is an important consideration. Carriers are exempt by law from responsibility for certain types of losses. Thus, either the seller or the buyer (depending on the terms of sale) must insure the goods against any loss or damage that might occur between the time the goods are shipped by the exporter and received by the foreign buyer.

A sale on C&F delivery terms may be preferable to CIF if:

- a The buyer has a low cost open or blanket policy to cover all his purchases.
- b The exporter would have to obtain a special policy for a single shipment.

The exporter must obtain trans-ocean insurance coverage when the sale is made on CIF delivery terms. There are essentially three choices:

- a Obtain a policy covering the single shipment.
- b Obtain an open policy to cover all shipment during a given period.
- c Arrange to have the shipment covered under an open policy held by the freight forwarder.

Individual policies, written for a single shipment, are rarely used by firms regularly engaged in foreign trade. Most firms insure under long-term contracts known as open or floating policies which automatically cover all shipments made by the insured. This saves having to arrange for a separate insurance policy to cover each shipment.

9.4.3 Ocean Freight

Ocean freight service is provided by three types of shipping lines: (a) carriers belonging to conference; (b) non-conference or independent lines; and (c) tramp or break bulk carriers.

9.4.3.1 Conferences

Conferences are associations of shipping lines that have grouped themselves together for the purpose of establishing common freight rates, regularly scheduled departures and common shipping conditions. They are represented on most trade routes. A common freight rate means that the conference members have agreed to compete only with respect to the quality and efficiency of their service. Shippers may sign an exclusive patronage contract in which they agree to send all their shipments on carriers belonging to the conference. The shipper then receives a lower rate than that charged to shippers who sometimes deal with nonconference lines.

9.4.3.2 Nonconference lines

Nonconference lines operate and quote freight rates independently. They provide services usually less frequently than the conference lines but on the same trade routes and in competition with the conference lines. Generally, they do not require the signing of an exclusive patronage contract and will accept bookings from all shippers provided space is available.

9.4.3.3 Tramp vessels

Tramp vessels do not operate a scheduled service but their space is usually available on a "voyage" or "time" charter basis. When the chartering is for a series of voyages, the term "consecutive voyages" is used. In this case, one or more vessels are chartered to make fixed voyages, usually between two ports, in order to carry a large consignment.

In general, conference rates on regular runs are higher than tramp or nonconference rates on regular runs. However, this is less likely to be true for the mixed general cargo in which the liners specialize than for the bulk commodities that often move by tramp.

The ease of transport and the commercial value of the goods represent important elements in determining ocean freight charges. Shipping lines use a rating system based on weight and one based on volume in determining freight charges. They will usually charge the higher of the two rates. Significant characteristics which influence rates are:

- a Density of goods as this affects space per ton.
- b Shape of goods or packages as this affects stowability.
- c Susceptibility to damage of the goods being shipped, other cargo or the ship by breakage, fire, rust, spoilage, etc.

- d Susceptibility to pilferage.
- e Handling costs.
- f Need for special protection such as refrigeration.

Goods that are more likely to cause transport problems usually have higher freight rates.

Significant commercial characteristics influencing rates are:

- a Intrinsic value.
- b Difference in value of the product at the port of origin and the destination port.
- c Stage of manufacture--raw, semi-finished, etc.
- d Market competition with goods originating in another country.

Those goods which are finished, have a higher value or compete with other goods overseas will tend to have higher freight rates.

9.4.4 Freight Forwarder

A foreign freight forwarder acts on behalf of other persons in sending onward a commodity moving in international trade. When used in reference to exporting, the term always refers to a firm located in the exporting country.

Foreign freight forwarder can be an important link in the export marketing chain. They provide information to exporters about foreign market regulations and practices, including packaging and labeling requirements. Forwarders assist with domestic and international transportation arrangements and help with the preparation and handling of various documents. They may also arrange for the marine insurance and suggest sources of financial assistance. Freight forwarders are independent businessmen who have no financial interest in the merchandise. Their ability to give impartial advice on matters concerning transportation and documentation, such as the choice of carriers, can be of great value. They can handle most of the functions connected with export shipments except manufacture and sale of the product.

9.4.5 Shipping and Customs Documents

A number of documents are needed for exporting that differ from those required for domestic sales. Many countries have regulations and special requirements that must

be considered when completing these forms. Here, again, a freight forwarder is a specialist and should probably take care of the documentation for a new exporter.

9.4.5.1 Bill of Lading

The bill of lading has three broad functions. It is (a) a receipt for the goods shipped, (b) a transferable document of title to the goods enabling the holder to demand the cargo, and (c) evidence of the terms of the contract.

There are two main types of bills of lading: (a) "received-for-shipment bill" and (b) "on-board lading". The "received-for-shipment bill", or the "received bill" as it is sometimes called, acknowledges receipt of the goods by the carrier. The "on-board lading", sometimes known as the "shipped bill", acknowledges receipt of the goods on board the stated vessel.

Upon receipt of the goods, the vessel's captain, owners or agent signs the bills of lading (three or more copies are often required). The exporter then presents the bills to the bank for collection. The bills are then sent by airmail to the consignee (buyer) so that the goods can be claimed at the port of entry. This procedure may vary but it will always be specified in the contract or letter of credit.

9.4.5.2 Air Waybill

An air waybill is issued by an airline. It is a receipt for the goods and documentary evidence that the contract of carriage has been concluded. It is a record of the consignment for the airlines and a means of ensuring the correct charging for carrying such a consignment. Unlike a bill of lading for an ocean shipment, the air waybill is not a document of title and is not negotiable. It can be completed by the shipper or the forwarding agent.

9.4.5.3 Insurance Certificate

As evidence of having insured a shipment under an "open" policy, the exporter prepares an insurance certificate on forms supplied by the insurance company. This form certifies that the shipment described on it is insured subject to the insurance terms shown on the certificate.

9.4.5.4 International Forwarding Agent's Documents

These documents are the Forwarding Agents' Certificates of Receipt (FCR) and Forwarding Agents' Certificate of Transport (FCT). The essential elements are the same as for the individual forwarder's bills of lading. The FCR and FCT are documents of control and show the receipt of goods and the receipt of instructions to

transport the goods to a specified destination. The FCR certifies that the forwarder has assumed control of a specified shipment, with irrevocable instructions to send it to the consignee indicated on the document or hold it at his disposal. The FCI certifies that the forwarder has taken charge of a specified shipment for shipment and delivery in accord with the consignor's instructions as indicated on the document. With these documents, the forwarder assumes a greater responsibility in the delivery of goods than with a simple bill of lading.

9.4.5.5 Certificate of Health or Sanitary Certificate

Many countries require such a certificate when animals, animal products or plant products are shipped. This is to ensure that (a) the goods shipped are free from disease and insects, and (b) food products have been prepared according to prescribed standards. These certificates are usually issued by the appropriate government authority in the exporting country. When the shipping documents require consular invoices or visas, the health certificate must be included with the documents submitted to the consul.

9.4.5.6 Certificate of Origin

The main purpose of the certificate of origin is to establish the right of the goods to preferential duties. For example, a certificate of origin is required for Commonwealth goods entering the United Kingdom and other parts of the Commonwealth. Such certificates are also required between countries that have customs or free-trade area agreements. Another purpose of the certificate of origin is for the control of export quotas that have been established by international agreement.

9.4.5.7 Commercial Invoice

Generally speaking, an invoice is an itemized bill specifying price, terms of sale and terms of payment for goods shipped. The term "commercial invoice" as used in foreign trade has a somewhat broader meaning and serves some special purposes peculiar to export commerce such as determining the value for customs. The form, arrangement of content and nature of information shown frequently is the same as for a domestic sale, but often is more complicated, written in a specified language, on a special form and conforming to detailed information requirements of the destination country as well as to specifications in the letter of credit. It is not just a document concerning buyer and seller but is used by a country of entry, as well as an insurance company and bank, to determine value. For firms that do not have an export department and depend on a forwarder, it is usually sufficient to furnish the forwarder the usual domestic invoice. The forwarder, by consulting the country of destination's regulation and referring to the letter of credit and other pertinent documents, then prepares a commercial invoice that will allow the shipment to move to its destination and allow collection without delay.

If the shipper elects to prepare his own invoices, he can obtain information and/or assistance from his freight forwarder, governmental offices which have information on individual foreign countries, the consular office of the destination country, the Exporter's Encyclopedia, and export information published by the Commerce and Industry Association of New York.

In addition to the special requirements of the letter of credit and destination country, each commercial invoice should include the following basic information:

- a Date of order
- b Order and invoice number
- c Name and address of buyer and seller
- d Insurance date (when available)
- e Price per unit and total price
- f Terms of sale
- g Shipping date
- h Port of shipment
- i Name of vessel
- j All fees and miscellaneous charges connected with the shipment and permitted by the letter of credit.
- k Complete description of the goods, showing quantity, weight, number of packages, measurements and export marks.

9.4.5.8 Consular Invoice

A consular invoice calls for a detailed description of the goods, with spaces for showing marks, numbers, weights, value, origin of goods and a declaration concerning the accuracy of the contents of the invoice. It is used for administering import regulations and is the most exacting document an exporter is likely to encounter. It must be prepared with particular care. It is most generally needed for exports to South America but a few other countries also require it.

Review Exercise One

- 1 What are the basic questions which should be answered by a market study?
- 2 What are the basic questions which should be answered by a market survey?
- 3 Give examples of the types of institutions and agencies which can provide information to firms conducting a market survey?
- 4 Define the two basic types of distribution channels used in export marketing and give examples of each.
- 5 Define the following terms:
FAS
FOB
C&F
CIF
- 6 What is a pro forma invoice and what information is usually included on it?
- 7 Name and define the six basic methods of payment used in export sales.
- 8 What three choices does an exporter have for obtaining insurance when a sale is made on CIF delivery terms?
- 9 Name and describe the three types of shipping lines which provide ocean freight service.
- 10 What are the transport and commercial characteristics of a product which influence the rates charged for ocean freight?
- 11 Name the three functions of a bill of lading.
- 12 What is the purpose of a certificate of origin?

Review Exercise Two

Evaluating Export Potential for Agricultural Products

- 1 Select an agricultural product which is produced in your country which you believe may have export potential. Outline briefly on paper the steps you would take to determine the export marketing potential of your product. Use the questions from the core material on market research as a guideline and include the primary and secondary sources you would use to obtain this information.
- 2 Using the sources available to you, collect as much information as possible as you have outlined above.
- 3 Now evaluate the information you have collected. Would it be profitable to export your product? What specific foreign market would you choose to export your product to?
- 4 Outline in detail how you would export your product to the market you have chosen. Describe specifically the form of the product best suited for this market. Include information on the channels of distribution, terms of sale and payment methods, packing, labeling and shipping requirements.

CHAPTER 10

COMPARATIVE ADVANTAGE ITS ROLE IN REGIONAL AND INTERNATIONAL TRADE

Rationale

Specialization in production and trade are closely connected . A nation or region can gain by what it is best suited to produce and exchanging its products for those of other nations or regions. The gain from specialization and trade depend on the comparative advantage one nation or region has over another in the production of a certain commodity.

Objectives

Upon completion of this unit, participants will be able to:

- * Explain the concept of comparative advantage.
- * Determine the gains which can be obtained from specialization and trade.
- * Illustrate how the concept of comparative advantage can be useful in determining which agriculture products to produce and export and which products should be imported.

Key Points

- * One country or region has an absolute advantage over another if, with the same quantity of resources, it can produce more of a certain commodity than the other country or region.
- * Comparative advantage refers to the relative advantage one country or region has over another in the production of a certain commodity.
- * If each country or region specializes in the commodities in which it has the greater comparative advantage, an overall net gain will result from specialization and trade.

10.1 Introduction

International and regional trading of agricultural commodities is an important part of agricultural marketing. Importation of at least some agricultural products is usually necessary. In addition, domestic markets can be extended into export markets to enhance production, economic development and the balance of payments.

Trade and specialization are closely connected. With trade, a nation can specialize in what it is best suited to produce and obtain other needed items by exchanging its products for those of other nations. Trading makes specialization possible; specialization makes trade necessary.

10.2 The Concept of Comparative Advantage

What a nation is best suited to produce depends on the quantity and quality of its factors of production--climate, soil, labor, capital and management skills. Some areas may be more efficient producers of a certain commodity than others. A country is said to have an absolute advantage in production when it can produce a certain commodity more efficiently than another country.

With the same quantity of resources, Country A can produce more cotton than Country B and country B can produce more rice than Country A. Total production can be increased if Country A specializes in cotton and Country B specializes in rice. Country A has an absolute advantage in cotton and Country B has an absolute advantage over the other, the gains from specialization and trade are obvious.

Of course, one country may have an absolute advantage over another in the production of two or more commodities. Does this mean that the country should produce both products? The answer depends on the country's comparative advantage. A country is said to have a comparative advantage in production when it has a greater relative efficiency in the production of a certain commodity than another country.

If Country A can produce two times as much cotton as Country B but only $1\frac{1}{3}$ times as much rice, Country A has a comparative advantage in cotton. Country B can produce only $\frac{1}{2}$ as much cotton but it can produce $\frac{3}{4}$ as much rice. If each country specializes in the commodity in which it has the greater comparative advantage, an overall net gain will result from specialization and trade.

The following example illustrates in more detail the gains from specializing in the production of commodities in which a country has the greater comparative advantage and then trading for other needed commodities.

10.3 An Example of Comparative Advantage: Gains from Specialization and Trade

Two countries, Republic and Kube, can produce both corn and sugar. Each country has a million hectares on which corn and sugar cane can be grown. The following table 10.1 shows the amount of each crop which could be produced with various cropping patterns.

Table 10.1 Production Possibilities on Available Land for Corn and Sugar

Cropping Pattern	Proportion of Land in:		Production			
	Corn	Sugar Beets	Republic		Kube	
			Corn	Sugar	Corn	Sugar
----- Thousand Metric Tons-----						
A	100%	0%	72	0	20	0
B	75%	5%	54	2	15	10
C	50%	0%	36	4	10	20
D	25%	5%	18	6	5	30
E	0%	0%	0	8	0	40

The soil is thin and poor in Kube and yields are low. In Republic, yields are higher and production is greater for both corn and sugar. Republic has an absolute advantage in both corn and sugar.

The table shows that when Kube reduces corn production by 5 thousand metric tons, it can increase sugar production by 10 thousand metric tons. The trade off ratio in Kube is 1/2 ton of corn to 1 ton of sugar. On the other hand, Republic has to lower corn production by 18 thousand metric tons in order to increase sugar production by 12 thousand metric tons. Republic's trade-off ratio is 1 ton of corn to 2/3 ton of sugar.

Trade-Offs

	<u>Production of</u>
	<u>Corn</u> <u>Sugar</u>
Republic	1 ton = 2/3 ton
Kube	1/2 ton = 1 ton

Kube has a comparative advantage in the production of sugar cane. Republic has a comparative advantage in the production of corn.

In other words, sugar is expensive relative to corn in Republic and it is less expensive when compared to corn in Kube. Both countries would benefit if they could exchange one ton of sugar for one ton of corn. In Republic one ton of corn will exchange for only 2/3 ton of sugar. In Kube, one ton of sugar will buy only 1/2 ton of corn. This suggests that both countries could obtain more corn and sugar by specializing in the production of the crop in which they have a comparative advantage and then trading.

As shown in table 10.2, if both countries do not specialize but produce for their own various levels of need, total production can reach only 92 tons of corn or 88 tons of sugar.

Table 10.2 Total Product Available without Specialization

Cropping Pattern	Republic		Kube			Total Product for Both Countries	
	Corn	Sugar	Total	Corn	Sugar		Total
----- (Thousand Metric Tons) -----							
A	72	0	72	20	0	20	92
B	54	12	66	15	10	25	91
C	36	24	60	10	20	30	90
D	18	36	54	5	30	35	89
E	0	48	48	0	40	40	88

Specialization can pay. As shown in table 10.3, when Republic specializes in corn production and Kube specializes in sugar production, total production of sugar and corn increases to 112 thousand metric tons. This is a gain of 20 thousand metric tons over the maximum of 92 thousand tons that can be produced without specialization.

Table 10.3 also shows how total production declines when either country reduces the level of production of the crop in which it has a comparative advantage. Figure 10.1 shows a graphical representation of the gains from specialization in Republic and Kube.

Even though specialization will increase production as shown in table 10.3 and figure 10.1, trade must follow. The commodities, corn and sugar, are misplaced and not available to the consumer in each country. At the highest level of specialization, all the corn is in Republic and all the sugar is in Kube. Table 10.4 shows the holdings and flow of trade that could take place in a one-for-one exchange--one ton of corn for one ton of sugar.

Table 10.3 Total Product Available With Different Degrees of Specialization

	<u>Republic</u>		<u>Kube</u>		Total Product for Both Countries
	Corn	Sugar	Corn	Sugar	
----- (Thousand Metric Tons) -----					
Both Countries					
Specialize in Corn	72	0	20	0	92
Republic	72	0	15	10	97
Specializes in Corn	72	0	10	20	102
	72	0	5	30	107
Republic					
Specializes in Corn and Kube	72	0	0	40	112
Specializes in Sugar					
Kube Specializes in Sugar	54	12	0	40	106
	36	24	0	40	100
	18	36	0	40	94
Both Countries					
Specialize in Sugar	0	48	0	40	88

Figure 10.1
Production With and Without Specialization in Republic and Kube

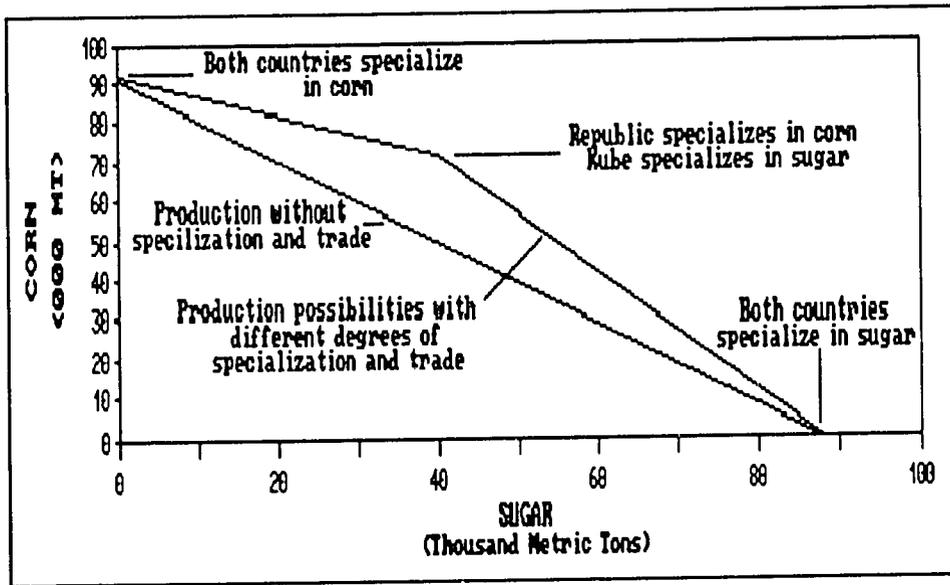


Table 10.4 Trade Between Republic and Kube¹

Republic		Trade		Kube	
<u>Position with Trade</u>		Corn Shipped by Republic	Sugar Shipped by Kube	<u>Position with Trade</u>	
Corn Held	Sugar Received			Corn Received	Sugar Held
----- (Thousand Metric Tons) -----					
72	0	0	0	0	40
62	10	10	10	10	30
60	12	12	12	12	28
54	18	18	18	18	22
52	20	20	20	20	20
48	24	24	24	24	16
42	30	30	30	30	10
36	36	36	36	36	4
32	40	40	40	40	0

Trading will improve the position of both countries. As shown in the following tables 10.5 and 10.6, both countries gain either corn or sugar over what they would have without specializing and without trading. Republic could gain as much as 13.3 tons of sugar and Kube could gain as much as 20 tons of corn.

Table 10.5 Comparison of Republic Position With and Without Trade

<u>Without Trade</u>		<u>With Trade</u>		Additional Sugar Gained By Trading
Corn	Sugar	Corn	Sugar	
----- (Thousand Metric Tons) -----				
72	0	72	0	0
62	6.7	62	10	3.3
52	13.3	52	20	6.7
42	20.0	42	30	10.6
32	26.7	32	40	13.3
18	36.0	Trade is not possible because Kube has used all its sugar in trading.		
0	48.0			

¹Corn is produced by Republic, sugar is produced by Kube, and the exchange is one metric ton of corn for one metric ton of sugar.

Table 10.6 Comparison of Kube Position With And Without Trade

<u>Without Trade</u>		<u>With Trade</u>		Additional Corn Gained By Trading
Corn	Sugar	Corn	Sugar	
------(Thousand Metric Tons)-----				
0	40	0	40	0
5	30	10	30	5
10	20	20	20	10
15	10	30	10	15
20	0	40	0	20

Although this example is hypothetical, it demonstrates some of the pressures that cause trading. Trading occurs because commodities have different values in the economic settings of different countries. To some extent, transport costs and trade barriers can frustrate or eliminate the pressures for trading. Further, even a hypothetical example cannot demonstrate comparative advantage or gains from specialization when many products are involved and several values of money are included. International trade is complex.

Review Exercise One

A Local Example Of Comparative Advantage

In this exercise, you will construct a local example to illustrate the concept of comparative advantage and the gains that can occur from product specialization and trade. Select agricultural commodities which are produced in your country and show the production possibilities for these commodities using several cropping patterns. Then determine:

- 1 The trade-off.
- 2 The gains from specialization.
- 3 The gains from trading after specialization.

CHAPTER 11

FEASIBILITY ANALYSIS OF NEW MARKETING VENTURES

Rationale

As agricultural marketing systems develop, a number of new business ventures are usually necessary. A feasibility analysis can be helpful in planning these new ventures. Such an analysis can be used to identify the costs and returns likely to be associated with the proposed venture and allow these to be compared with alternative investment possibilities, the investor's goals and the level of risk involved. Financial measures that can be used in evaluating new marketing ventures include the payback period, rate of return on the total investment and on equity, net present value, benefit-cost ratios and internal rate of return. Another valuable information for a feasibility analysis is performing a market test between competing products.

Objectives

Upon completion of this unit, participants will be able to:

- * Identify and describe the elements of a feasibility analysis.
- * Calculate financial measures for evaluating new marketing ventures, such as payback period, rate of return on total investment and on equity, net present value, benefit-cost ratios and internal rate of return.
- * Identify and describe potential risks involved in a new agricultural marketing venture.
- * Use contingency allowance and sensitivity analysis to deal with uncertainty and inflation.
- * Conduct a taste test to evaluate consumer taste preferences for a (food) product being developed.

Key Points

- * Every new agricultural marketing venture involves risk because the future is unknown and management and technology are untried in the new situation.
- * Financial measures that can be used to evaluate a new business venture include the payback period, rate of return on the total investment and equity, net present value, benefit-cost ratios and internal rate of return.
- * The payback period is the time required for the cash proceeds from the business operation to accumulate to a sum equal to the investment.
- * The rate of return on investment is a measure of the productivity of the investment.
- * The rate of return of equity takes into consideration the interest cost on borrowed funds and the return to the investor's equity.
- * Discounting can be used to account for the time value of money. Three measures which use discounting are net present value, benefit-cost ratios and internal rate of return.
- * A feasibility analysis should also examine the impact potential setbacks and inflation might have on the new marketing ventures.
- * In a feasibility analysis there may be occasion to conduct a taste test to compare preferences between a new and a competing product.

11.1 Introduction

As an agricultural marketing system develops, a number of new business operations are necessary. Every new business venture involves risks. The risks occur because (a) the future is unknown and (b) management and technology are untried in the new situation.

A feasibility study can be used to help in deciding whether to proceed with the new business venture. Such a study is useful in identifying the costs and returns likely to be associated with the proposed venture and comparing it with other possible investments.

The feasibility study should define the new marketing venture in terms of the services it will perform for a customer group and the operations used to perform the service. It should include the costs and returns involved in producing and marketing the new product or service. All costs should be based on the best estimate of the actual cost that will be incurred. The original investment needed for the venture should include all costs of building, equipping and starting the new operation.

The feasibility study should also show the risks involved and, whenever possible, their probability of occurring. The financial consequences of the risk should be included as a cost where such calculation are possible.

Example 1 illustrates the costs, returns and the risks for a new bean storage operation. In this unit, cash proceeds refers to total returns minus total costs, excluding the original investment.

11.2 Analysis: An Example Study of Bean Storage

Example 1: Bean Storage Operation

A new business venture is proposed which would provide a continuous supply of dry beans to a group of bean wholesalers through a storage operation. The costs incurred are the costs of the beans purchased by the storage operation, including in this case the loan costs for purchasing the beans, and . . . storage costs. The returns are the receipts from the wholesalers who purchase the beans from the storage operation. The following tables show the typical costs and returns for the two seasons of each year.

Typical costs and returns

The following table gives the costs and returns for the first season:

Month	Receipts from Wholesalers	Bean Purchase and storage costs	Cash Proceeds
	U. per cwt*		
Oct.	6.00	6.10	(.10)
Nov.	6.10	6.15	(.05)
Dec.	6.40	6.20	.20
Jan.	6.45	6.25	.20
Feb.	6.40	6.30	.10
Mar.	6.20	6.35	(.15)
			=====
	TOTAL		.20

* U. = monetary unit.

The following tables give the costs and returns for the second season:

Month	Receipts form Wholesalers	Bean Purchase and storage costs	Cash Proceeds
----- U. per cwt* -----			
April	6.10	6.15	(.05)
May	6.25	6.20	.05
June	6.45	6.25	.20
July	6.50	6.30	.20
Aug.	6.40	6.35	.05
Sept.	6.20	6.40	(.20)
TOTAL			.25

Typically, one season in every six is a "loss season ". The following shows the costs and returns for this season.

Month	Receipts form Wholesalers	Bean Purchase and storage costs	Cash Proceeds
----- U. per cwt* -----			
April	6.20	6.25	(.05)
May	6.25	6.30	(.05)
June	6.35	6.35	0
July	6.50	6.40	.10
Aug.	6.40	6.45	(.05)
Sept.	6.20	6.50	(.30)
TOTAL			(.35)

Example 1 (continued)

The overall risk in the bean storage operation is that the receipts will not cover costs. Risks include:

- a The possibility that the beans purchased cannot be sold.
- b The size of the market may be smaller than the storage capacity.
- c The storage facility may be faulty and heavy spoilage could occur.
- d Bean crop production could decrease and bean purchases would not fill the storage capacity.

It is estimated that the storage facility will have a life of twenty years. Example 2, 3 and 4 show the cash proceeds for this period if the operation is carried out at 100, 90 or 80 percent capacity. The actual capacity is 110,000 cwt but operationally only 100,000 cwt can be purchased, carried and sold.

Example 2: Cash Proceeds From Bean Storage Operation at 100 Percent Capacity

Year/ Season	Cash Proceeds (100,000 cwt)		Year/ Season	Cash Proceeds (100,000 cwt)	
	Season	Accum.		Season	Accum.
	----- U. -----			----- U. -----	
<u>1st Year</u>			<u>11th Year</u>		
1st Season	20,000	20,000	1st Season	20,000	290,000
2nd Season	25,000	45,000	2nd Season	25,000	315,000
<u>2nd Year</u>			<u>12th Year</u>		
1st Season	20,000	65,000	1st Season	20,000	335,000
2nd Season	25,000	90,000	2nd Season	(35,000)	300,000
<u>3rd Year</u>			<u>13th Year</u>		
1st Season	20,000	10,000	1st Season	20,000	320,000
2nd Season	(35,000)	75,000	2nd Season	25,000	345,000
<u>4th Year</u>			<u>14th Year</u>		
1st Season	20,000	95,000	1st Season	20,000	365,000
2nd Season	25,000	20,000	2nd Season	25,000	390,000
<u>5th Year</u>			<u>15th Year</u>		
1st Season	20,000	40,000	1st Season	20,000	410,000
2nd Season	25,000	65,000	2nd Season	(35,000)	375,000
<u>6th Year</u>			<u>16th Year</u>		
1st Season	20,000	85,000	1st Season	20,000	395,000
2nd Season	(35,000)	150,000	2nd Season	25,000	420,000
<u>7th Year</u>			<u>17th Year</u>		
1st Season	20,000	70,000	1st Season	20,000	440,000
2nd Season	25,000	95,000	2nd Season	25,000	465,000
<u>8th Year</u>			<u>18th Year</u>		
1st Season	20,000	15,000	1st Season	20,000	485,000
2nd Season	25,000	40,000	2nd Season	(35,000)	450,000
<u>9th Year</u>			<u>19th Year</u>		
1st Season	20,000	60,000	1st Season	20,000	470,000
2nd Season	(35,000)	225,000	2nd Season	25,000	495,000
<u>10th Year</u>			<u>20th Year</u>		
1st Season	20,000	45,000	1st Season	20,000	515,000
2nd Season	25,000	70,000	2nd Season	25,000	540,000

As shown in example 1, cash proceeds per cwt for the first season are .20 U.; for the second season, .25 U.; for the "loss season", (.35 U.) which, for purposes of this analysis is considered to be the second season of every third year.

Example 3: Cash Proceeds From Bean Storage Operation at 90 Percent Capacity

Year/ Season	Cash Proceeds (90,000 cwt)		Year/ Season	Cash Proceeds (90,000 cwt)	
	Season	Accum.		Season	Accum.
	----- U. -----			----- U. -----	
<u>1st Year</u>			<u>11th Year</u>		
1st Season	18,000	18,000	1st Season	18,000	261,000
2nd Season	22,500	40,500	2nd Season	22,500	283,500
<u>2nd Year</u>			<u>12th Year</u>		
1st Season	18,000	58,500	1st Season	18,000	301,500
2nd Season	22,500	81,000	2nd Season	(31,500)	270,000
<u>3rd Year</u>			<u>13th Year</u>		
1st Season	18,000	99,000	1st Season	18,000	288,000
2nd Season	(31,500)	67,500	2nd Season	22,500	310,500
<u>4th Year</u>			<u>14th Year</u>		
1st Season	18,000	85,500	1st Season	18,000	328,500
2nd Season	22,500	108,000	2nd Season	22,500	351,000
<u>5th Year</u>			<u>15th Year</u>		
1st Season	18,000	126,000	1st Season	18,000	369,000
2nd Season	22,500	148,500	2nd Season	(31,500)	337,500
<u>6th Year</u>			<u>16th Year</u>		
1st Season	18,000	166,500	1st Season	18,000	355,500
2nd Season	(31,500)	135,000	2nd Season	22,500	378,000
<u>7th Year</u>			<u>17th Year</u>		
1st Season	18,000	153,000	1st Season	18,000	396,000
2nd Season	22,500	175,500	2nd Season	22,500	418,500
<u>8th Year</u>			<u>18th Year</u>		
1st Season	18,000	193,500	1st Season	18,000	436,500
2nd Season	22,500	216,000	2nd Season	(31,500)	405,000
<u>9th Year</u>			<u>19th Year</u>		
1st Season	18,000	234,000	1st Season	18,000	423,000
2nd Season	(31,500)	202,500	2nd Season	22,500	445,500
<u>10th Year</u>			<u>20th Year</u>		
1st Season	18,000	220,500	1st Season	18,000	463,500
2nd Season	22,500	243,000	2nd Season	22,500	486,000

* see footnote for example 2

Example 4: Cash Proceeds From Bean Storage Operation at 80 Percent Capacity

Year/ Season	Cash Proceeds (80,000 cwt)		Year/ Season	Cash Proceeds (80,000 cwt)	
	Season	Accum.		Season	Accum.
	----- U. -----			----- U. -----	
<u>1st Year</u>			<u>11th Year</u>		
1st Season	12,000	12,000	1st Season	12,000	139,000
2nd Season	16,000	28,000	2nd Season	16,000	155,000
<u>2nd Year</u>			<u>12th Year</u>		
1st Season	12,000	40,000	1st Season	12,000	167,000
2nd Season	16,000	56,000	2nd Season	(35,000)	132,000
<u>3rd Year</u>			<u>13th Year</u>		
1st Season	12,000	68,000	1st Season	12,000	144,000
2nd Season	(35,000)	33,000	2nd Season	16,000	160,000
<u>4th Year</u>			<u>14th Year</u>		
1st Season	12,000	45,000	1st Season	12,000	172,000
2nd Season	16,000	61,000	2nd Season	16,000	188,000
<u>5th Year</u>			<u>15th Year</u>		
1st Season	12,000	73,000	1st Season	12,000	200,000
2nd Season	16,000	89,000	2nd Season	(35,000)	165,000
<u>6th Year</u>			<u>16th Year</u>		
1st Season	12,000	101,000	1st Season	12,000	177,000
2nd Season	(35,000)	66,000	2nd Season	16,000	193,000
<u>7th Year</u>			<u>17th Year</u>		
1st Season	12,000	78,000	1st Season	12,000	205,000
2nd Season	16,000	94,000	2nd Season	16,000	221,000
<u>8th Year</u>			<u>18th Year</u>		
1st Season	12,000	106,000	1st Season	12,000	233,000
2nd Season	16,000	122,000	2nd Season	(35,000)	198,000
<u>9th Year</u>			<u>19th Year</u>		
1st Season	12,000	134,000	1st Season	12,000	210,000
2nd Season	(35,000)	99,000	2nd Season	15,000	226,000
<u>10th Year</u>			<u>20th Year</u>		
1st Season	12,000	111,000	1st Season	12,000	238,000
2nd Season	16,000	127,000	2nd Season	16,000	254,000

* When capacity drops to 80 percent, costs cannot be reduced proportionately. Cash proceeds drop to .15 U. per cwt in the first season and .20 U. per cwt in the second season. The loss during the second season of every third year increases to (.4375 U.) per cwt.

Example 5: Investment Required to start a 100,000 cwt Bean Storage Operation

Land	6,000 U
Storage Facility	98,000 U
Equipment	32,000 U
Contingency	19,000 U
Capital Fund	<u>30,000 U</u>
	185,000 U

The investment cost of the land is based on the cost of land surrounding a rail siding that can be used to transport beans to wholesalers or to port facilities. The land is also adjacent to a road that can be used to deliver beans. This land is for sale for 5,000 U. An option to purchase it in one year at 5,500 U. can be obtained for 500 U. The purchase price of 5,500 U. one year later when construction will begin and the 500 U. option make the investment cost to obtain the land when it is needed equal to 6,000 U.

The storage facility costs are based on a contractor's bid to build the 100,000 cwt storage facility and then sell it to the storage operation at the prearranged price of 98,000 U. The contractor will guarantee that the facility will be built and ready for operation within six months.

The equipment costs are based on the cost of hauling, cleaning, sacking and office facilities-- all facilities other than the storage building that are required for the bean storage operation.

A contingency fund is required to cover cost overruns and delays in starting the operation. A capital fund is required to cover start-up costs, including salaries before returns are realized on the business.

11.3 Financial Measures to Evaluate a New Marketing Venture

Financial measures that can be used to evaluate a new business venture include:

- a The payback period.
- b Rate of return on investment.
- c Rate of return on equity
- d Net present value.
- e Benefit-cost ratio.
- f Internal rate of return.

In each case, the financial measure can be compared to alternative investment possibilities, the investor's goals and level of risk involved. If the risk involved are high, the financial measures must be favorable in order to attract investors. In some cases, investors integrate the new venture with other related business operations and therefore are willing to accept less favorable financial results. For instance, in the bean storage example, a bean wholesaler could add the storage operation to the wholesale business to assure a year-round supply of beans.

11.3.1 Payback Period.

The payback period is the time required for the cash proceeds from the business operation to accumulate to a sum equal to the investment. In most cases, a shorter payback period is more desirable.

In those cases where cash proceeds are the same each year, the payback period can be calculated as:

$$\text{Payback Period} = \text{Investment} / \text{Annual Cash Proceeds}$$

When the cash proceeds are not constant from year to year, the payback period is calculated by adding the cash proceeds until the total is equal to the original investment.

Example 6: Payback Period for the Bean Storage Operation

By looking at the accumulated cash proceeds in Examples 2,3 and 4, the payback period can be determined for the bean storage operation. At 100% capacity, the payback period falls in the sixth year; at 90% capacity, it falls in the eighth year. These are probably comparable to other businesses. At 80% capacity it falls in the fourteenth year and may be too long when compared to other similar businesses.

The use of the payback period as a measure to compare alternative investments has two weaknesses. First, it fails to take into account the cash proceeds after the payback period. An investment might be recovered rapidly but have low cash proceeds after the payback period. In contrast, cash proceeds from another investment with the same payback period could increase greatly during later years. Second, the payback period does not take into account the differences in the timing of cash proceeds. Two investors may have identical payback periods but one investment may have larger cash proceeds in the first year and less in the second year than the other investment. The first investment would have more funds available for reinvestment after one year.

11.3.2 Rate of Return on Investment

The rate of return on total investment indicates the productivity of the investment funds. When this measure is used, average annual depreciation is subtracted from the average annual cash proceeds. This is then divided by the investment cost.

$$\text{Rate of return on investment} = \frac{\text{Average annual cash proceeds} - \text{average annual depreciation}}{\text{Investment cost}}$$

The rate of return on investment is a useful measure of performance for an investment but is less useful for comparing alternative investments. Like the payback period, the rate of return on investment does not take into account the timing of cash proceeds.

Example 7 illustrates the calculation of the rate of return on investment for the bean storage operation.

11.3.3 Rate of Return on Equity

Another consideration in evaluating investments is the interest cost on borrowed funds and the return to the investor's equity. If interest rates are lower than the rate of return on investment, the rate of return on equity will be greater than the rate of return on total investment. All earnings above interest costs accrue to equity. If interest rates are higher, a loss accrues to equity. Interest costs exceed the average

annual cash proceeds minus depreciation. The rate of return on equity can be calculated as follows:

$$\text{Rate of return on equity} = \frac{\text{Average annual cash proceeds} - \text{average annual depreciation} - \text{average annual interest cost}}{\text{Equity}}$$

The rate of return on equity for the bean storage operation is shown in Example 8.

11.3.4 Discounting and Net Present Value

The financial measures discussed thus far fail to recognize that investing in any new marketing venture means tying up funds that might have been used to earn income somewhere else. They also fail to recognize that earnings from the venture could be reinvested to produce still more income.

What this really means is that money has a time value. Which would you prefer--100 U. income now or 100 U. five years from now? Undoubtedly, you would rather have it now so you could use it or reinvest it sooner. Similarly, for a given return 10 years from now, which would you prefer-- a venture that requires investing 50 U. now or one that does not need the investment until three years from now? Probably the latter because you could keep the funds in savings or other investments during the first three years. The earlier an investment pays off, the sooner that income can be used in other ways; the longer money is tied up, the less time there is to invest it elsewhere.

Discounting can be used to account for the time value of money. Discounting (a) takes into account the income given up from other investment possibilities and (b) converts the costs and return of alternative investments into equivalents that can be compared at a single point in time.

Discounting determine the present value of money spent or received at a given time in future assuming a given rate of return. The appropriate interest rate to use in discounting is

Example 7: Rate of Return on Investment for Bean Storage Operation

Straight-line depreciation is used for the storage operation. The storage facility and equipment, including the contingency, are depreciated over 20 years. Land, by convention, is not depreciated. The average annual depreciation is 7,450 U.

Rate of return on investment at 100% capacity:

$$\frac{27,000 - 7,450}{185,000} = 10.6\%$$

Rate of return on investment at 90% capacity:

$$\frac{24,300 - 7,450}{185,000} = 9.1\%$$

Rate of return on investment at 80% capacity:

$$\frac{12,700 - 7,450}{185,000} = 2.8\%$$

Investors who wish to obtain returns of 12% or more would find this investment unacceptable. Investors who wish to integrate backward or forward and are expecting to obtain returns of 7-10% would more likely invest in the bean storage operation.

Example 8: Rate of return on equity for Bean Storage Operation

The investor has 37,000 U. equity and will borrow 148,000 U. at 6% compound interest to cover the investment cost. The loan will be repaid in equal annual installments over 20 years.

Rate of return on equity at 100% capacity:

$$\frac{27,000 - 7,450 - 5,476}{37,000} = 38.0\%$$

Rate of return on equity at 90% capacity:

$$\frac{24,300 - 7,450 - 5,476}{37,000} = 30.7\%$$

Rate of return on equity at 80% capacity:

$$\frac{12,700 - 7,450 - 5,476}{37,000} = (0.6\%)$$

the best rate that could be earned in investment possibilities. This will not necessarily be the same as the interest rate at which funds can be borrowed.

To compare the net present value of an investment:

- a Choose an appropriate rate of interest.

- b Compute the present value of the cash proceeds.
- c Compute the present value of the investment.
- d Subtract the present value of the investment from the present value of the cash proceeds.

Example 9,10 and 11 show the calculation of the net present value for the bean storage operation.

11.3.5 Benefit-Cost Ratios

The net present value measure provides an indication of amount. But it does not provide any indication of the rate of return. The fact that one investment has a higher net present value than another does not necessarily mean that it uses funds more efficiently. It could simply be that it is larger in scope than the other.

A commonly used indicator of productivity is the Benefit-Cost Ratio (BCR). When all benefits (returns) and costs (including investment costs) are included, it is called the BCR(all) and is calculated as:

$$\text{BCR(all)} = \frac{\text{Present value of total benefits}}{\text{Present value of total costs}}$$

In order to focus on payoffs to the investment itself, the benefit-cost ratio can be calculated by dividing the present value of the investment costs into the present value of the cash proceeds. This is referred to as the BCR(inv).

$$\text{BCR(inv)} = \frac{\text{Present value of cash proceeds}}{\text{Present value of investment costs}}$$

Some investments may have a net present value that is negative (that is, discounted costs exceed discounted benefits). Accordingly, the benefit-cost ratio will be less than 1.0. This means that income would be sacrificed by tying up funds in the

Example 9: Net Present Value For Bean Storage Operation, With 10% Interest Rate at 100% Capacity

Year	Investment	Cash Proceeds	Discount Factor at 10%	Present Value	
				Invest.	Cash proceeds
		----- U. -----		----- U. -----	
0	185,000		1.000	185,000	
1		45,000	0.909		40,909
2		45,000	0.826		37,190
3		(15,000)	0.751		(11,270)
4		45,000	0.683		30,736
5		45,000	0.621		27,941
6		(15,000)	0.564		(8,467)
7		45,000	0.513		23,092
8		45,000	0.467		20,993
9		(15,000)	0.424		(6,361)
10		45,000	0.386		17,349
11		45,000	0.350		15,772
12		(15,000)	0.319		(4,779)
13		45,000	0.290		13,035
14		45,000	0.263		11,850
15		(15,000)	0.239		(3,591)
16		45,000	0.218		9,793
17		45,000	0.198		8,903
18		(15,000)	0.180		(2,698)
19		45,000	0.164		7,358
20		45,000	0.149		6,689
		Total		<u>185,000</u>	<u>234,444</u>

Net Present Value = 234,444 - 185,000 = 49,444

Example 10: Net Present Value For Bean Storage Operation, With 10% Interest Rate at 90% Capacity

Year	Investment	Cash Proceeds	Discount Factor at 10%	Present Value	
				Invest.	Cash proceeds
	----- U. -----			----- U. -----	
0	185,000		1.000	185,000	
1		40,500	0.909		36,818
2		40,500	0.826		33,471
3		(13,500)	0.751		(10,143)
4		40,500	0.683		27,662
5		40,500	0.621		25,147
6		(13,500)	0.564		(7,620)
7		40,500	0.513		20,783
8		40,500	0.467		18,894
9		(13,500)	0.424		(5,725)
10		40,500	0.386		15,615
11		40,500	0.350		14,195
12		(13,500)	0.319		(4,302)
13		40,500	0.290		11,731
14		40,500	0.263		10,665
15		(13,500)	0.239		(3,232)
16		40,500	0.218		8,814
17		40,500	0.198		8,013
18		(13,500)	0.180		(2,428)
19		40,500	0.164		6,622
20		40,500	0.149		6,020
		Total		<u>185,000</u>	<u>211,000</u>

Net Present Value = 211,000 - 185,000 = 26,000

Example 11: Net Present Value For Bean Storage Operation, With 10% Interest Rate at 80% Capacity

Year	Investment	Cash Proceeds	Discount Factor at 10%	Present Value	
				Invest.	Cash proceeds
	----- U. -----			----- U. -----	
0	185,000		1.000	185,000	
1		28,000	0.909		25,455
2		28,000	0.826		23,140
3		(23,000)	0.751		(17,280)
4		28,000	0.683		19,124
5		28,000	0.621		17,386
6		(23,000)	0.564		(12,983)
7		28,000	0.513		14,368
8		28,000	0.467		13,062
9		(23,000)	0.424		(9,754)
10		28,000	0.386		10,795
11		28,000	0.350		9,814
12		(23,000)	0.319		(7,329)
13		28,000	0.290		8,111
14		28,000	0.263		7,373
15		(23,000)	0.239		(5,506)
16		28,000	0.218		6,094
17		28,000	0.198		5,540
18		(23,000)	0.180		(4,137)
19		28,000	0.164		4,578
20		28,000	0.149		4,162
		Total		<u>185,000</u>	<u>112,014</u>

Net Present Value = 112,014 - 185,000 = (72,986)

venture. It would earn a lower rate of return than the interest rate used to discount benefits and costs and the investor could earn more by putting the money to use in other ways.

The benefit-cost ratios for the bean storage operation are illustrated in example 12, 13 and 14.

11.3.6 Internal Rate of Return

The internal rate of return method uses the present-value concepts but avoids the need to determine an appropriate interest rate for evaluating investments. The internal rate of return is the interest rate at which the present value of the cash proceeds equals the present value of the investment; in other words, the net present value is zero. It represents the highest rate of interest an investor could pay, without losing money, if all funds to finance the investment are borrowed and the loan (principal plus interest) is repaid from the cash proceeds as they are earned.

Determining the internal rate of return is a trial-and-error process. Normally, the process is carried out by "zeroing in" on the rate of return by (a) guessing at the relevant range of interest rates (say 10% to 30%) and then (b) discounting at intervals of, say, 5% to find which rates are too high and too low. Having approximated the rate of return, it is then possible to calculate it more precisely by discounting at still closer intervals. Although the interest rate at which the net present value exactly equals zero will usually fall between two rates, there is no need to compute the rate of return beyond the nearest full percentage.

The calculation of the internal rate of return is illustrated in Examples 15, 16 and 17 for the bean storage operation.

11.3.7 Dealing with Uncertainty and Inflation

The evaluation of new marketing ventures is based on expected future events. Since the future is difficult to predict, actual events never coincide exactly with expectations. Estimates of costs and returns are generally based on assumptions of normal operating conditions, a stable price level and an absence of adversities such as floods, labor strikes or the like. Obviously, these assumptions are subject to various sources of uncertainty. Wide deviations from the initial estimates could have serious consequences. For this reason, the effects of possible setbacks should be carefully examined.

Example 12: Benefit-Cost Ratios For Bean Storage Operation, With 10% Interest Rate At 100% Capacity

Year	Benefits	Costs	Discount Factor at 10%	Present Value	
				Benefits	Costs
	----- U. -----			----- U. -----	
0	0	185,000	1.000	0	185,000
1	7,545,000	7,500,000	0.909	6,859,091	6,818,182
2	7,545,000	7,500,000	0.826	6,235,537	6,198,347
3	7,545,000	7,560,000	0.751	5,668,670	5,679,940
4	7,545,000	7,500,000	0.683	5,153,337	5,122,601
5	7,545,000	7,500,000	0.621	4,684,851	4,656,910
6	7,545,000	7,560,000	0.564	4,258,956	4,267,423
7	7,545,000	7,500,000	0.513	3,871,778	3,848,686
8	7,545,000	7,500,000	0.467	3,519,798	3,498,805
9	7,545,000	7,560,000	0.424	3,199,817	3,206,178
10	7,545,000	7,500,000	0.386	2,908,924	2,891,575
11	7,545,000	7,500,000	0.350	2,644,476	2,628,704
12	7,545,000	7,560,000	0.319	2,404,070	2,408,849
13	7,545,000	7,500,000	0.290	2,185,518	2,172,483
14	7,545,000	7,500,000	0.263	1,986,834	1,974,984
15	7,545,000	7,560,000	0.239	1,806,213	1,809,804
16	7,545,000	7,500,000	0.218	1,642,012	1,632,219
17	7,545,000	7,500,000	0.198	1,492,738	1,483,835
18	7,545,000	7,560,000	0.180	1,357,035	1,359,732
19	7,545,000	7,500,000	0.164	1,233,668	1,226,310
20	7,545,000	7,500,000	0.149	1,121,516	1,114,827
		Total		64,234,838	64,185,394
				64,234,838	

					= 1.00
				64,185,394	

The BCR(inv) can be calculated from the information in example 9.

$$\text{BCR(inv)} = \frac{234,444}{185,000} = 1.27$$

Example 13: Benefit-Cost Ratios For Bean Storage Operation, With 10% Interest Rate At 90% Capacity

Year	Benefits	Costs	Discount Factor at 10%	Present Value	
				Benefits	Costs
	----- U. -----			----- U. -----	
0	0	185,000	1.000	0	185,000
1	6,790,500	6,750,000	0.909	6,173,182	6,136,364
2	6,790,500	6,750,000	0.826	5,611,983	5,578,512
3	6,790,500	6,804,000	0.751	5,101,803	5,111,946
4	6,790,500	6,750,000	0.683	4,638,003	4,610,341
5	6,790,500	6,750,000	0.621	4,216,366	4,191,219
6	6,790,500	6,804,000	0.564	3,833,060	3,840,681
7	6,790,500	6,750,000	0.513	3,484,600	3,463,817
8	6,790,500	6,750,000	0.467	3,167,818	3,148,925
9	6,790,500	6,804,000	0.424	2,879,835	2,885,560
10	6,790,500	6,750,000	0.386	2,618,032	2,602,417
11	6,790,500	6,750,000	0.350	2,380,029	2,365,834
12	6,790,500	6,804,000	0.319	2,163,663	2,167,964
13	6,790,500	6,750,000	0.290	1,966,966	1,955,235
14	6,790,500	6,750,000	0.263	1,788,151	1,777,486
15	6,790,500	6,804,000	0.239	1,625,592	1,628,824
16	6,790,500	6,750,000	0.213	1,477,811	1,468,997
17	6,790,500	6,750,000	0.198	1,343,464	1,335,452
18	6,790,500	6,804,000	0.180	1,221,331	1,223,759
19	6,790,500	6,750,000	0.164	1,110,301	1,103,679
20	6,790,500	6,750,000	0.149	1,009,365	1,003,344
		Total		57,811,354	57,785,355

$$\text{BCR(all)} = \frac{57,811,354}{57,785,355} = 1.00$$

The BCR(inv) can be calculated from the information in example 10.

$$\text{BCR(inv)} = \frac{211,000}{185,000} = 1.14$$

Example 14: Benefit-Cost Ratios For Bean Storage Operation, With 10% Interest Rate At 80% Capacity

Year	Benefits	Costs	Discount Factor at 10%	Present Value	
				Benefits	Costs
	----- U. -----			----- U. -----	
0	0	185,000	1.000	0	185,000
1	6,036,000	6,008,000	0.909	5,487,273	5,461,818
2	6,036,000	6,008,000	0.826	4,988,430	4,965,289
3	6,036,000	6,059,000	0.751	4,534,936	4,552,216
4	6,036,000	6,008,000	0.683	4,122,669	4,103,545
5	6,036,000	6,008,000	0.621	3,747,881	3,730,495
6	6,036,000	6,059,000	0.564	3,407,165	3,420,148
7	6,036,000	6,008,000	0.513	3,097,422	3,083,054
8	6,036,000	6,008,000	0.467	2,815,839	2,802,776
9	6,036,000	6,059,000	0.424	2,559,853	2,569,607
10	6,036,000	6,008,000	0.386	2,327,139	2,316,344
11	6,036,000	6,008,000	0.350	2,115,581	2,105,767
12	6,036,000	6,059,000	0.319	1,923,256	1,930,584
13	6,036,000	6,008,000	0.290	1,748,414	1,740,304
14	6,036,000	6,008,000	0.263	1,589,467	1,582,094
15	6,036,000	6,059,000	0.239	1,444,970	1,450,476
16	6,036,000	6,008,000	0.218	1,313,609	1,307,516
17	6,036,000	6,008,000	0.198	1,194,190	1,188,651
18	6,036,000	6,059,000	0.180	1,085,628	1,089,764
19	6,036,000	6,008,000	0.164	986,934	982,356
20	6,036,000	6,008,000	0.149	897,213	893,051
	Total			51,387,871	51,460,857

$$BCR(\text{all}) = \frac{51,387,871}{51,460,857} = 1.00$$

The BCR(inv) can be calculated from the information in example 10.

$$BCR(\text{inv}) = \frac{112,014}{185,000} = 0.61$$

Example 15: Internal Rate Of Return For Bean Storage Operation
At 100% Capacity

Year	Cash Flow	Discount Factor at 14%	Net Present Value at 14%	Discount Factor at 15%	Net Present Value at 15%
	- U. -		--- U. ---		--- U. ---
0	(185,000)	1.000	(185,000)	1.000	(185,000)
1	45,000	0.877	39,474	0.870	39,130
2	45,000	0.769	34,626	0.756	34,026
3	(15,000)	0.675	(10,125)	0.658	(9,863)
4	45,000	0.592	26,644	0.572	25,729
5	45,000	0.519	23,372	0.497	22,373
6	(15,000)	0.456	(6,834)	0.432	(6,485)
7	45,000	0.400	17,984	0.376	16,917
8	45,000	0.351	15,775	0.327	14,711
9	(15,000)	0.308	(4,613)	0.284	(4,264)
10	45,000	0.270	12,138	0.247	11,123
11	45,000	0.237	10,648	0.215	9,672
12	(15,000)	0.208	(3,113)	0.187	(2,804)
13	45,000	0.182	8,193	0.163	7,314
14	45,000	0.160	7,187	0.141	6,360
15	(15,000)	0.140	(2,101)	0.123	(1,843)
16	45,000	0.123	5,530	0.107	4,809
17	45,000	0.108	4,851	0.093	4,182
18	(15,000)	0.095	(1,418)	0.081	(1,212)
19	45,000	0.083	3,733	0.070	3,162
20	45,000	0.073	3,274	0.061	2,750
	Total		224		(9,213)

Internal Rate of Return = 14%

Example 16: Internal Rate Of Return For Bean Storage Operation
At 90% Capacity

Year	Cash Flow	Discount Factor at 12%	Net Present Value at 12%	Discount Factor at 13%	Net Present Value at 13%
	- U. -		--- U. -		--- U. ---
0	(185,000)	1.000	(185,000)	1.000	(185,000)
1	40,500	0.893	36,161	0.885	35,841
2	40,500	0.797	32,286	0.783	31,717
3	(13,500)	0.712	(9,609)	0.693	(9,356)
4	40,500	0.636	25,738	0.613	24,839
5	40,500	0.567	22,981	0.543	21,982
6	(13,500)	0.507	(6,840)	0.480	(6,484)
7	40,500	0.452	18,320	0.425	17,215
8	40,500	0.404	16,357	0.376	15,234
9	(13,500)	0.361	(4,868)	0.333	(4,494)
10	40,500	0.322	13,040	0.295	11,931
11	40,500	0.287	11,643	0.261	10,558
12	(13,500)	0.257	(3,465)	0.231	(3,115)
13	40,500	0.229	9,282	0.204	8,269
14	40,500	0.205	8,287	0.181	7,317
15	(13,500)	0.183	(2,466)	0.160	(2,159)
16	40,500	0.163	6,606	0.141	5,731
17	40,500	0.146	5,899	0.125	5,071
18	(13,500)	0.130	(1,756)	0.111	(1,496)
19	40,500	0.116	4,702	0.098	3,972
20	40,500	0.104	4,199	0.087	3,515
	Total		<u>1,497</u>		<u>(8,911)</u>

Internal Rate of Return = 12%

Example 17: Internal Rate Of Return For Bean Storage Operation
At 80% Capacity

Year	Cash Flow	Discount Factor at 3%	Net Present Value at 3%	Discount Factor at 4%	Net Present Value at 4%
	- U. -		--- U. -		--- U. ---
0	(185,000)	1.000	(185,000)	1.000	(185,000)
1	28,000	0.971	27,184	0.962	26,923
2	28,000	0.943	26,393	0.925	25,888
3	(23,000)	0.915	(21,048)	0.889	(20,447)
4	28,000	0.888	24,878	0.855	23,935
5	28,000	0.863	24,153	0.822	23,014
6	(23,000)	0.837	(19,262)	0.790	(18,177)
7	28,000	0.813	22,767	0.760	21,278
8	28,000	0.789	22,103	0.731	20,459
9	(23,000)	0.766	(17,628)	0.703	(16,159)
10	28,000	0.744	20,835	0.676	18,916
11	28,000	0.722	20,228	0.650	18,1880
12	(23,000)	0.701	(16,132)	0.625	(14,366)
13	28,000	0.681	19,067	0.601	16,816
14	28,000	0.661	18,511	0.577	16,169
15	(23,000)	0.642	(14,763)	0.555	(12,771)
16	28,000	0.623	17,449	0.534	14,949
17	28,000	0.605	16,940	0.513	14,374
18	(23,000)	0.587	(13,510)	0.494	(11,353)
19	28,000	0.570	15,968	0.475	13,290
20	28,000	0.554	15,503	0.456	12,779
	Total		4,636		(11,296)

Internal Rate of Return = 3%

Two methods can be used to deal with inflation and uncertainty in evaluating new marketing ventures. These are:

- a Contingency Allowance
- b Sensitivity Analysis.

11.3.7.1 Contingency Allowance.

Contingency allowance is often defined as the possibility of expected, but unidentified, occurrences. Thus, a contingency allowance is a certain amount of funds set aside to cover likely, but unspecified, events that might increase costs. In this way, contingency allowances compensates for inflation and other uncertainties in estimating costs and returns. These allowances can be included in the analysis by adding some specified amount to the cost estimates.

11.3.7.2 Sensitivity Analysis.

Sensitivity analysis simply involves computation of two or more different estimates of costs and returns to evaluate the outcome under alternative conditions. This procedure was used in the bean storage operation example by estimating costs and returns at 100, 90 and 80 percent capacity.

Example 18: Financial Measures for Evaluating
Bean Storage Operation

Financial Measure	100%	Capacity Level	
		90%	80%
Payback Period	in 6th year	in 8th year	in 14th year
Rate of Return on Investment	10.6%	9.1%	2.8%
Rate of Return on Equity at 6% Interest	38.0%	30.7%	(0.6%)
Net Present Value at 10% Interest	49,444 U.	26,000 U.	(72,986 U.)
BCR(all)	1.00	1.00	1.00
BCR(inv)	1.27	1.14	0.61
Internal Rate of Return	14%	12%	3%

A market survey is especially important for this bean storage operation. A market that would support the operation at 80 percent capacity or less would cause a loss when money is borrowed to finance the investment cost. With an internal rate of return of 3% and a BCR(inv) of less than one, this would not be a good investment. The investor could earn more by putting the money to use in other ways.

11.4 Procedures for Conducting a Taste Test for Product Evaluation

In feasibility analysis there may be occasion to evaluate consumer preferences for a food product being developed. One valuable piece of information is the assessment of consumer taste preference between the new product and competing products.

11.4.1 Procedures

- a Select the competing product(s) to be compared.
- b Set up taste samples of two products according to the Form entitled, Numbering samples for Triangle Test Differences.
- c Conduct taste test with judges blind folded of samples that can be differentiated by color.
- d Have judges complete the questionnaire prepared for the specific products being tested. (See sample questionnaire for the "Preference Test for Juice").
- e Tabulate the judges taste response and utilize the form entitled "Triangle Test Difference Analysis" to determine the statistical confidence level that judges can or cannot recognize the difference between product, i.e. 95%, 99% and 99.9%.
- f Tabulate the preference indications and the degree to which judges feel there are differences (small, moderate,large).

11.4.2 Preference Test for Juice

Date _____

Name _____

Instructions:

You have received 3 samples of 2 types of juice evaluation. Each sample has been marked with a different number. Two of the samples are duplicates, which is to say they are the same kind of juice, and one sample is different. Taste the samples and answer the following questions:

- a Identify the sample which you think is different with respect to flavor. Write the number of the sample in the brackets below:

()

- b The amount of difference between the samples in duplicate and the 3rd sample is : (check one)

Small ()
Moderate ()
Quite Large ()
Very Large ()

- c Preference: (Check one)

The third sample is better ()

The samples in duplicate are better ()

- d Comments:

11.4.3 Triangle Test Difference Analysis

Judges	Number of correct answers necessary to establish significance			Judges	Number of correct answers necessary to establish significance		
	5%	1%	.1%		5%	1%	.1%
1	-	-	-	26	14	15	17
2	-	-	-	27	14	16	18
3	3	-	-	28	15	16	18
4	4	-	-	29	15	17	19
5	5	5	-	30	15	17	19
6	5	6	-	31	16	18	20
7	5	6	7	32	16	18	20
8	6	7	8	33	17	18	21
9	6	7	8	34	17	19	21
10	7	8	9	35	17	19	22
11	7	8	10	36	18	20	22
12	8	8	10	37	18	20	22
13	8	9	11	38	19	21	23
14	9	10	11	39	19	21	23
15	9	10	12	40	19	21	24
16	9	10	12	41	20	22	24
17	10	11	13	42	20	22	25
18	10	12	13	43	21	23	25
19	11	13	14	44	21	23	25
20	11	13	14	45	22	24	26
21	12	13	15	46	22	24	26
22	12	14	15	47	23	24	27
23	12	14	16	48	23	25	27
24	13	15	16	49	23	25	28
25	13	15	17	50	24	26	28

11.4.4 Numbering Samples for Triangle Test Differences

Judges	Sample	Number	Judges	Sample	Number
1	AAB	11-47-96	21	ABA	76-13-65
2	BBA	83-20-42	22	BAB	86-41-23
3	ABA	41-27-90	23	BAA	40-77-15
4	BAB	11-06-84	24	ABB	50-24-87
5	BAA	62-56-17	25	AAB	78-10-87
6	ABB	18-82-68	26	BBA	43-25-79
7	BBA	71-15-22	27	ABA	32-16-99
8	BBA	61-91-19	28	BAB	94-26-70
9	ABA	20-72-44	29	BAA	52-29-43
10	BAB	55-83-14	30	ABB	80-51-31
11	BAA	92-73-36	31	AAB	24-11-53
12	ABB	98-13-59	32	BBA	30-88-42
13	AAB	45-16-63	33	ABA	53-33-25
14	BBA	58-46-74	34	BAB	54-17-95
15	ABA	96-19-59	35	BAA	77-89-27
16	BAB	12-64-84	36	ABB	50-12-81
17	BAA	93-47-66	37	AAB	81-20-67
18	ABB	49-71-25	38	BBA	68-29-13
19	AAB	14-85-23	39	ABA	90-52-21
20	BBA	22-48-97	40	BAB	28-69-49

Review Exercise One

1 As an agricultural marketing/financial expert in a cooperative bank your job is to analyze the projects under consideration at the bank. You are given the following set of information about a proposed flour mill.

a Investment required to start the flour mill.

	<u>Rupees (million)</u>
Land	0.30
Buildings and other Civil Works	2.70
Machinery	4.00
Furniture and Fixture	0.05
Vehicles	0.50
Preoperational Expense	0.10
Working Capital	0.80

b The flour mill has the capacity to produce 48,000 tons/year selling it at Rs. 2400/ton.

c The estimated life of the project is 10 years.

d The total cost at 100%, 85% and 70% capacity is Rs.(mill.) 111, 95 and 79.5 respectively.

e Annual depreciation is Rs. 650,000 which includes buildings, machinery, equipment, vehicles, and furniture.

g Debt equity ratio is 60:40.

f The yearly debt servicing cost is Rs. 300,000.

h Opportunity cost for the project is 15%.

Analyze the information and base your recommendation to either approve the project or reject it after calculating the following questions at 100%, 85% and 70% capacity.

- i Payback period.
- ii Rate of return on investment.
- iii Rate of return on equity.
- iv Net present value.
- v BCR(all) and BCR(inv).
- vi Internal rate of return.

- 2 What type of risks will this business enterprise has to account for and their financial consequences. How can the investor hedge itself against these risks?