

AGRIBUSINESS

H A N D B O O K



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AGRIBUSINESS **HANDBOOK**

Authors:

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Finally, we commend the Liberian TVET trainees for their dedication and commitment to learning. It is our hope that the knowledge and experiences gained at KNUST will enable them to return as agents of transformation and innovation within Liberia's technical and vocational education sector.



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Foreword

The Institute of Distance Learning (IDL) of the Kwame Nkrumah University of Science and Technology (KNUST), Ghana, is honoured to host this cohort of trainees from the Republic of Liberia under the United Nations Industrial Development Organization (UNIDO)–funded Technical and Vocational Education and Training (TVET) Capacity-Building Programme.

This 10-month intensive training in Sustainable Agriculture forms part of UNIDO’s broader commitment to strengthening Liberia’s TVET sector through the Youth Rising and Promoting Youth Employment projects, implemented in collaboration with the Government of Liberia, the Ministry of Education (MOE), and the Ministry of Youth and Sports (MoYS), with funding support from the European Union and the Government of Sweden.

As part of this collaboration, KNUST–IDL has been selected as the Training Provider responsible for delivering a certificate-level, applied, and practice-oriented curriculum designed to deepen trainees’ technical and pedagogical competencies in key areas of Sustainable Agriculture. The programme integrates theory and hands-on practice across modules in Crop Production, Animal Husbandry, Fish Farming, Animal Nutrition, Agribusiness, and Commercial Farm Internship. The Agribusiness component of the programme provides trainees with practical exposure to the principles and practices of managing agricultural enterprises—covering areas such as farm business planning, financial management, marketing strategies, value chain development, and risk assessment.

This manual serves as both a learning guide and a reference resource, designed to enable trainees to apply economic and managerial knowledge in real-world agribusiness settings. It emphasizes participatory learning, experiential practice, and the integration of modern technologies to promote profitability and sustainability.

It is our hope that the knowledge and insights provided in this manual will not only benefit the current cohort of trainees but will also serve as a reference resource for future trainers, educators, and agricultural practitioners in Liberia and beyond.

On behalf of the University, I extend our warmest welcome to the trainees and express appreciation to UNIDO, the European Union, the Government of Sweden, and the Government of Liberia for entrusting KNUST with this critical human capacity development initiative.

Together, we re-affirm our collective commitment to promoting education, innovation, and sustainable livelihoods across Africa.



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List of Acronyms

Acronym	Full Meaning
ASDA	Agriculture Sector Development Agenda
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CEPA	Comprehensive Economic Partnership Agreement
COCOBOD	Ghana Cocoa Board
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization
FBOs	Farmer-Based Organizations
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GoG	Government of Ghana
GPRS	Growth and Poverty Reduction Strategy
GSS	Ghana Statistical Service
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IITA	International Institute of Tropical Agriculture
JICA	Japan International Cooperation Agency
MOFA	Ministry of Food and Agriculture
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
PPP	Public-Private Partnership
R&D	Research and Development

Acronym	Full Meaning
SDGs	Sustainable Development Goals
SMEs	Small and Medium Enterprises
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
WTO	World Trade Organization

Course Overview

This course introduces learners to the fundamental principles and practices of agribusiness. It focuses on the management, finance, marketing, and entrepreneurship aspects within agricultural value chains. The course is designed for learners who aim to apply knowledge in real-world settings. Emphasis is placed on practical skills for identifying agribusiness opportunities, developing business plans, accessing finance, leveraging technology, and responding to market demands. Through case studies, simulations, and hands-on activities, learners will be equipped to operate and manage profitable and sustainable agribusiness enterprises in Liberia and beyond.

Course Objectives

By the end of this course, learners will be able to:

1. Understand the concept, scope, and significance of agribusiness in national and global contexts.
2. Analyze agricultural value chains and identify agribusiness opportunities across production, processing, marketing, and distribution.
3. Develop practical business plans tailored to various types of agribusiness enterprises.
4. Apply financial principles to manage costs, pricing, profits, and investments in agribusiness.
5. Use ICT and innovative technologies to improve market access and productivity.
6. Explore policy, legal, and institutional frameworks that affect agribusiness development in Liberia.
7. Demonstrate entrepreneurial skills for starting and growing an agribusiness venture.

Learning Outcomes

Upon successful completion of the course, learners will be able to:

1. Explain key agribusiness concepts and differentiate them from traditional farming approaches.
2. Conduct market research and value chain analysis to inform agribusiness decisions.

3. Write and present a complete agribusiness plan, including financial projections and marketing strategies.
4. Evaluate financing options and investment strategies suitable for small to medium-scale agribusinesses.
5. Apply mobile apps and smart farming tools to improve operational efficiency and market integration.
6. Navigate agricultural laws, policies, and regulations relevant to doing agribusiness in Ghana.
7. Launch and manage an agribusiness venture, demonstrating innovation, record-keeping, and risk management.

Introduction To Agribusiness

1.1 Definition and scope of agribusiness

1.1.1 Definition and Explanation of Agribusiness

Definition and Explanation of Agribusiness

The concept of agribusiness has evolved significantly over time from being regarded only as a food and fiber production system to a more holistic market-oriented system delivering a wide range of farm produce and processed agricultural products to meet the changing consumer demands and preferences. A look at how the definitions of agribusiness have changed over time will make this clear.

Earlier definitions of Agribusiness

The term “agribusiness” was first used by John H. Davis in a speech he gave at a conference on ‘Business Responsibility and the Market for Farm Products’ in Boston, USA in 1955 (Fleet, 2016). His focus was on agricultural production and he referred to agribusiness as “the sum total of all operations involved in the production and distribution of farm commodities”. Subsequently, in 1957 John H. Davis along with Ray A. Goldberg published a book entitled “A Concept of Agribusiness”, in which they expanded the definition of agribusiness. “In this book, they defined Agribusiness as “the sum total of all operations involved in the manufacture and distribution of farm supplies; production operations on the farm; and the storage, processing, and distribution of farm commodities and items made from them”.

Later definitions of Agribusiness

Later as agriculture became commercialized and moved away from small family farms to larger commercial farms, agribusiness came to be defined as “all those business and management activities performed by firms that provide inputs to the farm sector,

produce farm products, and/or process, transport, finance, handle or market farm products” (Downey and Ericson, 1987). This definition underlines the application of management principles and techniques in agriculture. With time, the definition of agribusiness was expanded to move beyond the farm to include related businesses like warehousing, wholesaling, processing, retailing, and so on. Thus, Edwards and Schultz in 2005 came out with a definition that included a broader set of market-oriented activities: “Agribusiness is a dynamic and systemic endeavor that serves consumers globally and locally through innovation and management of multiple value chains that deliver valued goods and services from sustainable orchestration of food, fiber, and natural resources”. In brief, agribusiness may be defined as the sum total of all operations involved in the manufacture and distribution of farm supplies; production operations on the farm; and the storage, processing and distribution of farm commodities and items made from them.

Agribusiness basically entails three main concepts:

Agriculture: Art of cultivating various categories of crops and animals including animal husbandry, finishing and other related activities.

Business: An economic unit that aims to sell goods and services to customers at prices that will provide an adequate return to its owner.

Management: A set of activities (planning and decision making, organizations, leading / directing and controlling) , directed at an organizations resources (human, financial, physical, information). With the aim of achieving organizations goals in an efficient and effective manners.

1.2 Evolution of Agribusiness

The evolution from agriculture to agri-business has brought with it numerous benefits. These include reduced drudgery for laborers; the release of purpose for non – agricultural endeavors; a better quality of food of fibrous; a greater variety of products; improve nutrition; and increase mobility of people. the release of farm man-power and the creation of new, off – the farm jobs have been the basis for countries economic growth and development for last 150 years. The key to this growth and development has been increased worker productivity, which in turn spurs creativity new products and wealth. This translates into risk capital, new factories, job and increase consumer purchasing power.

Important Key points in the History of Agri business Management

- 1957 – “A concept of Agri business” book written by John Davis & Ray Goldberg.
- 1966 – University of Philippines Introduced UG level ABM programme
- 1969 – 1st Advanced Agribusiness Management seminar was held in MANILA

1.3 The Agribusiness System

Agriculture is an excellent example of how consumers can benefit from a partnership between science and free enterprise. Agriculture goes about its task of feeding hungry people each day quietly and with little fanfare. Moreover, advances in agriculture are the basis of the economic prosperity of a country. Growth in agriculture triggers economic growth in a country. A large number of industries draw raw materials from agriculture. Further increased per capita income in the farm sector is translated into a huge growth in demand for various categories of goods and services produced or imported into the country.

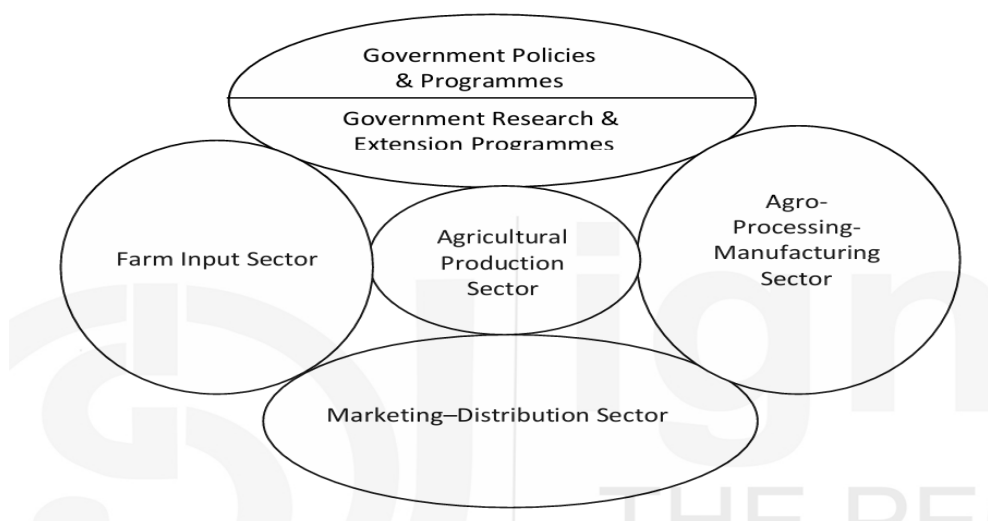


Figure 1: The Components of the Agribusiness System

1.3.1 Linkages among subsystems in the Agribusiness system

Consumers need and demand a variety of agricultural and food products and fiber daily. Also, consumers demand and buy these commodities and products at convenient places. One can imagine the work and effort involved in ensuring the availability of these commodities and products to geographically dispersed heterogeneous consumers. Besides availability, it is also important to ensure efficiency in this whole processing and distribution function. This system begins with many varied activities from the farm supply sector, which provides a myriad of production inputs and services to the farm, and then continues through the marketing, processing, and distribution chain necessary to satisfy consumer wants. As the agricultural production process becomes increasingly complex and specialized, the farm supply sector takes on important new dimensions.

Also, as consumers' incomes rise, more services are demanded with respect to food products purchased. As these trends continue, the agribusiness sector becomes increasingly important because it is faced with the responsibility of providing not only the right type and amount of purchased inputs to the farm sector but the correct mix of services to products as they move through the food system to the final consumer. The system becomes more complex involving more sub-systems.

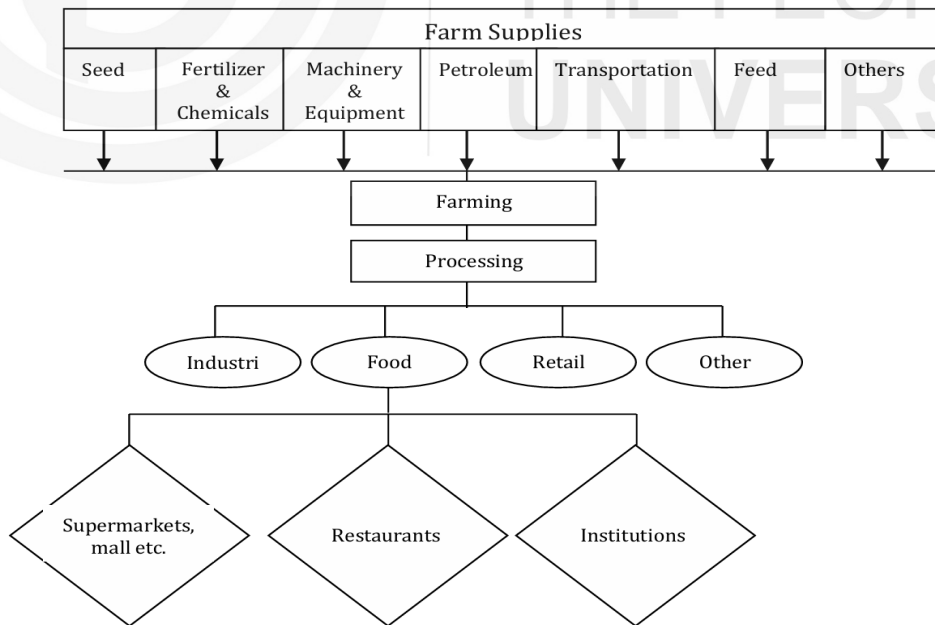


Figure 2: Linkages among subsystems in the Agribusiness system

Today more than ever before, every sector of the economy is affected by agriculture. The agribusiness sector in today's economic environment combines diverse commercial enterprises, using a heterogeneous combination of labor, materials, capital, and technology.

The food and fiber system is an extremely large and complicated system that is constantly changing to meet current consumer demands and provide food and fiber for both domestic and world markets. Agribusiness thus includes the **agricultural input businesses**, **farm production businesses**, **processing**, and **distribution and marketing** sectors. All these sub-sectors have logical linkages amongst them which ensure the efficient functioning of the overall agribusiness system. Figure 2 depicts the linkages among subsystems of the agribusiness system.

1.3.2 Coordination in the Agribusiness system

Farm supplies, including feed, seed, fertilizers, agrochemicals, machinery and equipment, fuel, transportation, etc., are produced and supplied to the farmers by the firms in the respective sub-sectors constituting the input supply sector. The input supply sector must ensure input supply at right time, at the right place, and in the right quantity to be effective. Farmers or farming sub-sector utilize the input supplies in the course of agricultural production. Best production technology should be used at the farm level to attain maximum production from the given bundle of inputs. Farm output then is processed to make it consumable by the ultimate consumers. Then come the linkages with distribution or marketing sub-sectors which facilitate the acquisition of agro-products by the final consumer. Supermarkets, restaurants, wholesalers, and retailers of agricultural products constitute this sub-sector.

A variety of skills and knowledge is utilized by the different sub-sectors of the agribusiness system, thus, the knowledge and skills required by those employed in Agribusiness may be broken down as:

- Agricultural production and raisins of animals, animal products, plants, plant products, forests, and forest products.
- The provision of services associated with agricultural production and the manufacture and distribution of supplies used in agricultural production.
- The design, installation, repair, operation, servicing of machinery equipment, and power sources, and construction of structures used in agricultural production.
- Any activity related to the inspecting, processing, and marketing of agricultural products and primary by-products.
- Any aspect of greenhouse, nursery, landscaping, and other ornamental horticultural operation.
- The conservation, propagation, improvement, and utilization of renewable natural resources.
- The multiple uses of forestlands and resources.

1.4.1 Distinctive features/Characteristics of Agribusiness

The important distinctive features or the principal characteristics of agribusiness are as follows

1. **Diverse nature of business:** There exist various kinds of business in the agribusiness sector i.e. of basic producers, wholesalers, brokers or CAs, processors, packagers, storage firms, transporters, financial institutions, retailers, food chains, etc.
2. **Existence around production areas:** Agribusiness is established around several million producers/ farmers that produce hundreds of different food and fiber products.

3. **Dealing with farmers/ producers:** Most agribusinesses deal with farmers both directly and indirectly. No other industry is set up principally around the basic producer of the raw product.
4. **Variety and size of agribusiness organization:** There is infinite variety in the size of agribusiness from one person and one family to giants/huge/tall organization. Most agribusiness tends to be small when compared to other businesses and industrial segments.
5. **Scale and type of competition:** Agribusinesses are small and compete in a relatively free market (Perfect Competition) where there are many sellers and buyers as well. The size of agribusiness does not allow monopoly. Product differentiation is also difficult.
6. **Conservativeness of agribusiness:** The workers (labourers) and producers have traditional philosophical touch, so they make agribusiness more of conservative type.
7. **Decision making:** Agricultural operation decisions are taken by families i.e. husbands and wives are often heavily involved in decision – makings.
8. **Community oriented business:** The agribusinesses tend to be community oriented in small towns and rural areas.
9. **Seasonality:** The agribusinesses are highly seasonal in nature due to planting and harvesting seasons and interdependence of specific enterprise.
10. **Vagaries of nature:** Agribusiness deals with vagaries of nature viz; drought, flood, insects, diseases etc. and everyone from producer, banker and manufactures is concerned with the weather.
11. **Government programmes and policy:** Government programmes and policies have direct impact on agribusiness. Many agricultural products are directly influenced by government programmes and regulations.

1.5 Scope of Agribusiness

Agriculture business has got tremendous scope as it covers not only a wide range of activities but also a multifarious magnitude of activities like

1. **The Resource Supply Sector:** Many industries can be started in resources supply sector e.g feed industries, financial institution, fertilizer industries, agriculture chemicals and oiler services.
2. **Product Marketing Sectors:** There is a tremendous scope in marketing of agricultural commodities. About 1/3rd of the working population is engaged in the agricultural marketing. This sector consists of market development, storage, warehousing, cold storage, pre-cooling transportation etc.
3. **The Processing Sector:** Several food processing industries like sugar factories, dairy Industry, poultry, fruit processing Industries, textiles Industries, wood paper

Industries, can be started which can adds the value to the product from 50 % to 300%

- 4. The Wholesale and retail sector:** The Industries producing food, soaps, paints, leather, textiles etc. are agro based industries. In this original farm of the product is altered prior to its sale to the wholesaler or retailers.

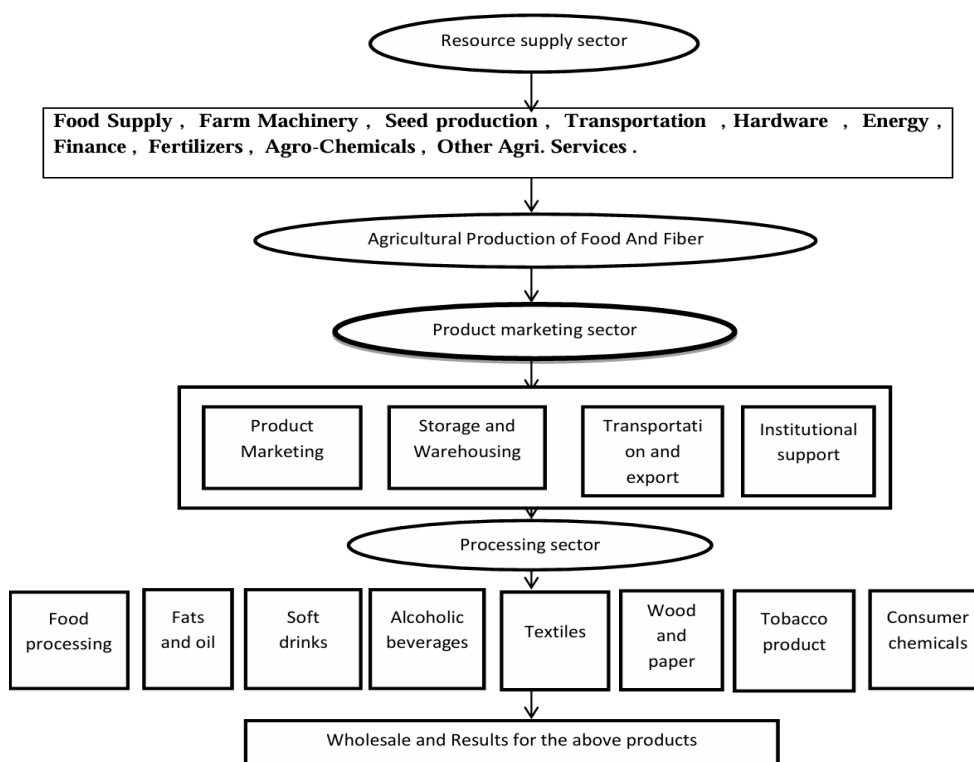


Figure 3: Scope of Agribusiness

1.6 Importance of agribusiness in economic development

1. Daily requirements of food and fiber products at the right (place, form and time) come from efficient and hardworking of many business personnel in input, farm and food production and also in marketing them.
2. Agribusiness is combining the diverse commercial enterprises, using heterogeneous combination of labour, materials, capital and technology.

3. It is a dynamic sector and continuously meets current demands of consumers in domestic and world markets.
4. It strengthening of infrastructural facilities i.e., area, expansion of credit, raw materials supply agencies, adoption of modern technology in production and marketing of agricultural products.
5. Agri-business provides crucial forward and backward linkages.
6. Agri-business generates potential employment opportunities.
7. It adds value to products and thereby increases the net profits.

1.7 Introduction to Management in Agribusiness

“There is no single definition of management; management is administration of business concerns or public undertaking.” “It is technique by means of which the purpose and objectives of a particular human group are determined, classified and effectuated.” “Management is a process by which a cooperative group directs action towards common goals.” “It is the accomplishment of desired objectives by establishing an environment favorable to performance by people operating in organized groups.” “Management is the unifying and coordinating activity, which combines the action of individuals into meaningful and purposeful group endeavor.”

Levels of Management

In the hierarchical organization structure, Robert L. Katz identified three kinds of skills for managers and correlated with the different levels of the organization structures.

a. Top management: consist of boards of directors and the chief executive officer. The CEO is concerned with the overall management of the company.

b. Middle Management: This level of management consists of sectional heads e.g., plant manager, area managers, branch managers, etc.

c. Lower management: This level of management consists of supervisors, purchase officers, sales officers, accounts officers, foremen, etc.

The major functions of management are presented in the diagram below.

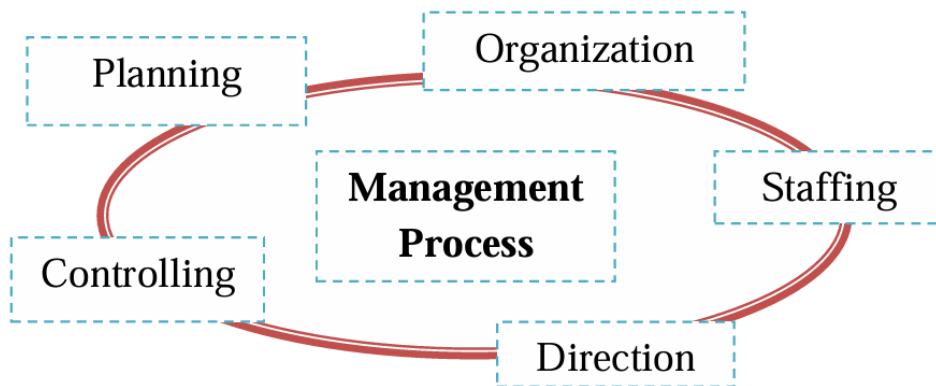


Figure 4: Major functions of agribusiness managers

Planning: Forward thinking about courses of action based on understanding of all related factors involved and directed at specific goal. OR “Planning is the function that determines in advance what should be done.”

Organizing: Organization is an effective instrument for realizing the objective of an agribusiness enterprise.

1. The first step in this process is to divide the total effort into a number of functions and sub functions each to be performed, preferably, by a single individual or a group of individuals. thus, specialization is a guiding principle in the division of activities.
2. **Assignment of responsibilities:** – It involves selection of suitable persons to take charge of activities to be performed at each work point. Also, the tasks to be performed by each member or group should be clearly defined.
3. **Delegation of authority:** – Along with the assignment of duties, there should be proper delegation of authority. It would be unrealistic to expect an individual to perform his job well if he lacks the authority to secure performance from his subordinates.

Directing:

Directing has been defined by several authors. These include:

- a. According to Haimann, “Directing consists of the processing and techniques utilized in issuing instructions and making certain that operations are carried on as originally planned.”
- b. According to Koontz and O’Donnell, defined “Direction is the interpersonal aspect of managing by which subordinates are led to understand and contribute effectively to the attainment of enterprise objective.”

- c. According to Urwick and Breach, "Directing is the guidance, the inspiration, the leadership of those men and women that constitute the real core of the responsibilities of management."
- d. J. L. Massie defined, "Directing concerns the total manner in which a manager influences the actions of his subordinates. It is the final action of the manager in getting others to act after all preparations have been completed."
- e. According to Earnest Dole, "Directing is telling people what to do and seeing that they do it to the best of their ability. It includes making assignments, corresponding procedures, seeing that mistakes are corrected, provided-on-the job instructions and of course, issuing orders."

Controlling: Controlling is defined as the process of ensuring that activities are producing the desired results. It involves guiding and regulating operations towards some pre-determined goals. Controlling is the management function in which managers set and communicate performance standards for people, processes and devices. A standard is the benchmark established as the basis for measuring capacity, quantity, value, content, cost, quality or performance. Controlling is about managing risk. According to R N Anthony, "Management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of an organization's objectives."

Value chains in agribusiness

1.8.1 Michael Porter's Generic value chain

The term 'Value Chain' was used by Michael Porter in his book "Competitive Advantage: Creating and Sustaining superior Performance" (1985). The value chain analysis describes the activities the organization performs and links them to the organizations competitive position.

Value chain analysis describes the activities within and around an organization, and relates them to an analysis of the competitive strength of the organization. Therefore, it evaluates which value each particular activity adds to the organization's products or services. This idea was built upon the insight that an organization is more than a random compilation of machinery, equipment, people and money. Only if these things are arranged into systems and systematic activates it will become possible to produce something for which customers are willing to pay a price. Porter argues that the ability to perform particular activities and to manage the linkages between these activities is a source of competitive advantage.

1.8.2 Types of activities in the value chain

Porter distinguishes between primary activities and support activities. Primary activities are directly concerned with the creation or delivery of a product or service. They can be grouped into five main areas: inbound logistics, operations, outbound logistics, marketing and sales, and service. Each of these primary activities is linked to support activities which help to improve their effectiveness or efficiency. There are four main areas of support activities: procurement, technology development (including R&D), human resource management, and infrastructure (systems for planning, finance, quality, information management etc.).

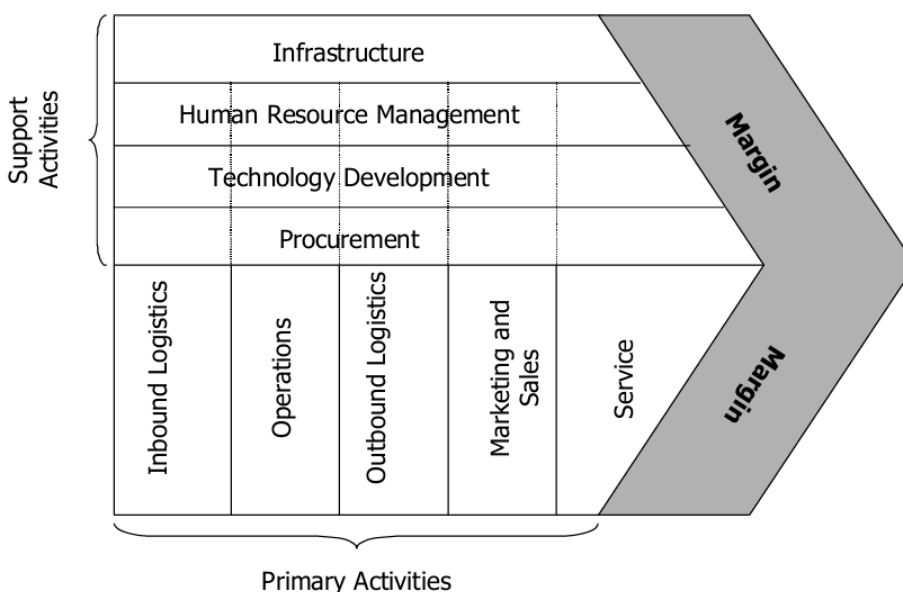


Figure 5: Support and Primary activities in a value chains

The term, 'Margin' implies that organizations realize a profit margin that depends on their ability to manage the linkages between all activities in the value chain. In other words, the organization is able to deliver a product / service for which the customer is willing to pay more than the sum of the costs of all activities in the value chain.

1.8.3 Linkages in value chain activities

Some thought about the linkages between activities: These linkages are crucial for corporate success. The linkages are flows of information, goods and services, as well as systems and processes for adjusting activities. Their importance is best illustrated with some simple examples: Only if the Marketing & Sales function delivers sales forecasts for the next period to all other departments in time and in reliable accuracy, procurement will be able to order the necessary material for the correct date. And only

if procurement does a good job and forwards order information to inbound logistics, only than operations will be able to schedule production in a way that guarantees the delivery of products in a timely and effective manner – as pre-determined by marketing. In the result, the linkages are about seamless cooperation and information flow between the value chain activities.

1.8.4 Value Chain Analysis

Within the whole value system, there is only a certain value of profit margin available. This is the difference of the final price the customer pays and the sum of all costs incurred with the production and delivery of the product/service (e.g., raw material, energy etc.). It depends on the structure of the value system, how this margin spreads across the suppliers, producers, distributors, customers, and other elements of the value system. Each member of the system will use its market position and negotiating power to get a higher proportion of this margin.

Nevertheless, members of a value system can cooperate to improve their efficiency and to reduce their costs in order to achieve a higher total margin to the benefit of all of them (e.g. by reducing stocks in a Just-In-Time system). A typical value chain analysis can be performed in the following steps:

- *Analysis of own value chain* – which costs are related to every single activity
- *Analysis of customers value chains* – how does our product fit into their value chain
- *Identification of potential cost advantages* in comparison with competitors
- *Identification of potential value added for the customer* – how can our product add value to the customers value chain (e.g. lower costs or higher performance) – where does the customer see such potential

A deeper level notes on value chain is fully treated in the next unit

AGRICULTURAL VALUE CHAIN AND MARKET LINKAGES

2.1 Understanding agricultural value chains

2.1.1 Definition of Agri-Value chain

In simple terms, agri-value chain means the application of a value chain in any agri farm or agri business. Normally people think the agri-value chain is a separate concept. But it is not true. It can be said that the Agri value chain describes the whole range of actions necessary for moving agricultural products from conception through the intermediate stages of production, delivery to end consumers, and final disposal after usage. The persons who are involved in this process are known as actors or chain actors. The chain actors who actually transact a particular product as it moves through the value chain include input (e.g., seed suppliers), farmers, traders, processors, transporters, wholesalers, retailers and final consumers.

2.1.2 Process of Agri Value chain, Using a Real World Demonstration

There are different players involved in this value chain activity including raw suppliers, producers, harvesters, processors, wholesalers, transporters, and other players. Of course, all links are affected by the national and global policy environment.

Let's take an example to understand the value chain in a real-life situation. Domestic Mango Value Chain. For example, we can mention about domestic mango value chain. However, a typical mango value chain model is depicted in Figure below.

The first stakeholder in the mango value chain is the Pre-Harvest Contractor (PHC) which enters into a contract with a farmer around four months before the harvest season, based on the flowering of the trees. The PHC enters into contracts with several farmers to achieve economies of scale by being an aggregator.

Agri Value chain in the next step, PHC transports the harvested mangoes to the wholesale markets in big cities or consumption centres. These markets or mandis where commission agents are registered with those wholesale markets buy the mango consignment from PHC.

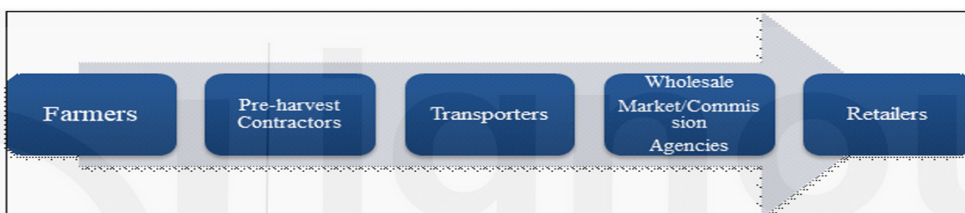


Figure 6: Simplified Value chain for Fresh Mangoes

Lastly, retailers – small vendors or neighbourhood retailers sell the fruits to consumers after buying from the commission agents. Although small vendors and neighbourhood markets are still the main outlets for fruits and vegetables, there are several organized retailers or supermarkets that are expanding their base. Mangoes going for exports do not follow this value chain. After completing several legal procedures, the exporters who are registered with wholesale markets buy from the farmers and export the goods. The mandis and PHCs are not involved as exporters directly purchase the mangoes from the farmers to ensure the quality standard.

2.1.3 Importance of Agricultural Value chains

You are aware that after Covid 19 Pandemic, the agribusiness environment is becoming increasingly volatile in the present VUCA (Volatility, Uncertainty, Complexity and Ambiguity) world. This rapid change stems from several different sources: the changing climate, political actions and social changes. You know that the weather has been responsible for fluctuating yields and a supply shortfall which has put pressure on crop prices. So, setting the appropriate strategy for the value chain in agribusiness is very important. At present, the sustainability of the value chain is also a considerable issue. The importance of the Agri value chain is as follows:

- i. It helps to identify the stakeholders and their activities (primary and supportive) in the whole agriculture process.
- ii. It identifies the actors involved in the value chains including their roles and interactions.
- iii. It measures the efficiencies in the cultivation and marketing of their products and understands the demand for their products.

- iv. It estimates the marketing costs and marketing efficiency in the value chains.
- v. It identifies the potential for value addition in different stages.
- vi. It estimates the product-wise value addition in processing like jelly, jam and ketchup from mango and tomato.
- vii. It examines investment requirements and technology support to establish a value chain
- viii. It suggests suitable strategies for the improvement of their agribusiness.

2.1.4 Key Challenges in the Upstream and Downstream of Agriculture Value Chain

A typical agricultural value chain is comprised of upstream actors (primarily the suppliers of input factors), primary producers and downstream actors. Sustainable and efficient crop production is a matter of cultivation systems, in which many upstream and downstream actors play an important role. Upstream activities are those close to the exploitation of natural resources. The output obtained is the primary commodity. Downstream activities add value to the products, through manufacturing or customization, resulting in the final commodity.

i. Upstream challenges

- a. Lack of freedom for farmers to sell wherever and whomever.
- b. Farm produce should be sold only at regulated markets through registered intermediaries.
- c. Lack of efficient price discovery due to cartelization by traders.
- d. Imposition of multiple fees.
- e. Lower price realization for farmers.
- f. Scarcity of resources: Land, water and the health of the soil are all under severe stress in Ghana.
- g. Scope to improve yield: Crop yields continue to be far below international averages. To increase the income level of farmers, the entire value chain process needs to be improved.

ii. Down Stream challenges

Some of the key challenges in the downstream of agriculture value chain are:

- a. Multiple intermediaries and lack of transparency and traceability: Mandis and FPOs need digitization to bring more transparency into transactions. Farmers need more sales channels.
- b. losses in the food chain: Around 60 per cent of food loss and waste in developing countries happens between the field and the end-consumer and this is concentrated in a few crops especially fruits, vegetables and cereals.

- c. Trends in consumption moving towards fruits, vegetables and pulses: Over time, the local diet has seen a significant shift towards higher protein intake. An increase in per capita income is changing customer preferences towards healthy foods, leading to increased consumption of proteins, especially pulses.

Overall, the future demand will be driven by fruits, vegetables and pulses, while demand for wheat and rice will only grow in proportionately with the population. This leads to an upstream impact on the type of crops the farmers are focusing on producing.

- d. other Reasons: Several reasons are there like high cost of stable power supply, low-capacity utilization and limited financing options. We have to address these challenges to render maximum benefits to the farmers.

2.2 The extended value chain

In the real world, of course, value chains are much more complex than this. For one thing, there tend to be many more links in the chain. Take, for example, the case of the furniture industry (Figure 7).

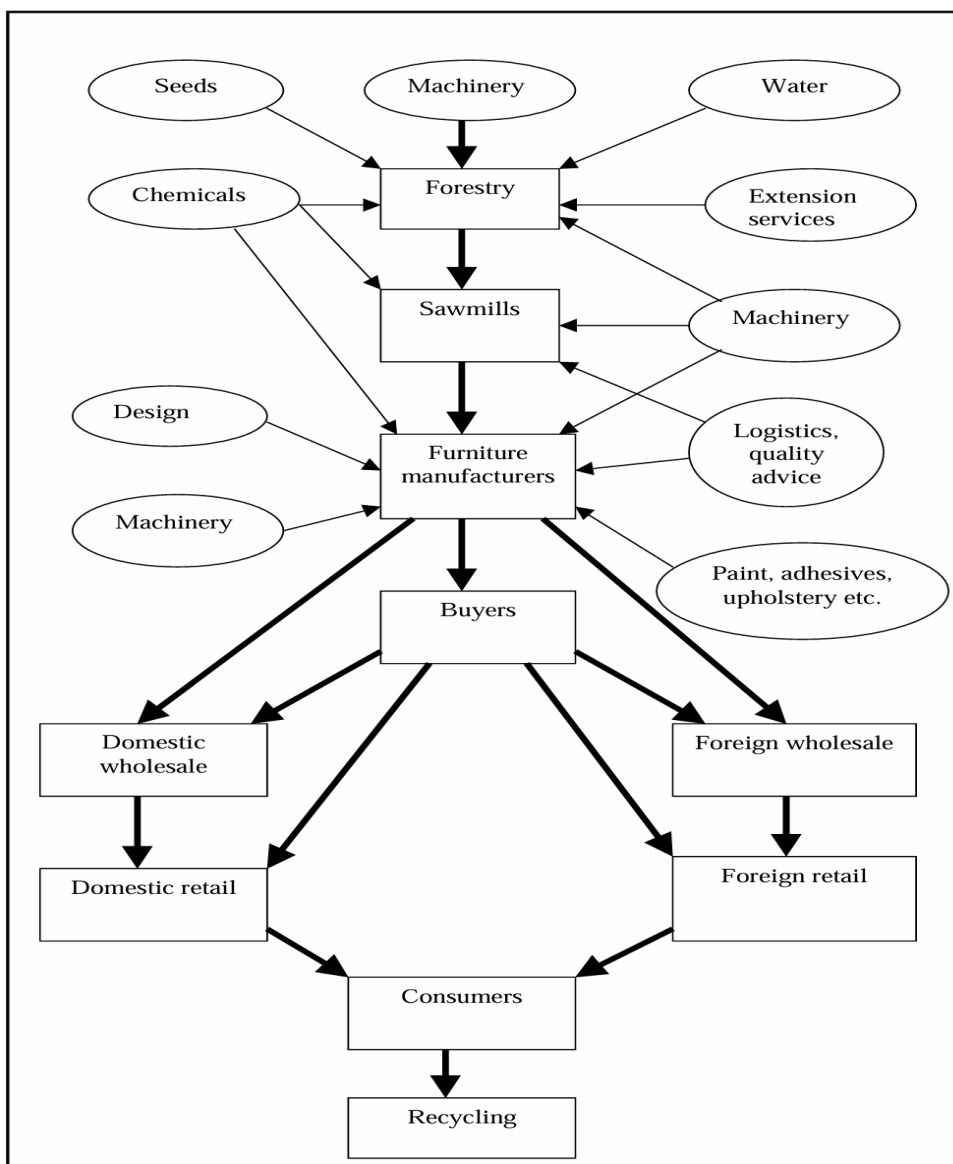


Figure 7: The extended value chain

This involves the provision of seed inputs, chemicals, equipment and water for the forestry sector. Cut logs pass to the sawmill sector which gets its primary inputs from the machinery sector. From there, sawn timber moves to the furniture manufacturers who, in turn, obtain inputs from the machinery, adhesives and paint industries and also draw on design and branding skills from the service sector. Depending on which market is served, the furniture then passes through various intermediary stages until it reaches the final customer, who after use, consigns the furniture for recycling.

2.3 Identifying market opportunities in the Agricultural value chains

Opportunities in the Agricultural value chain in Ghana include the following:

Digitization of the value chains:

- a. Precision farming including integrating field data, and weather patterns to drive agronomic advice to farmers and yield forecasting.
- b. Efficient farm lending with electronic applications, disbursement of loans, insurance payouts linked to weather, field data, and Direct Benefits Transfer in agriculture.
- c. Centralized platform integrating farmers and wholesale markets, to provide timely information for price realization.
- d. Internet of Things (IoT) based advanced analytics in manufacturing plants to improve availability, throughput, and save costs.

Financing and crop Insurance It can help in strengthening the ecosystem.

- a. Provide innovative equipment-financing models to farmers through Agri Value chain partnerships with manufacturers, weather forecast agencies, and digital partners.
- b. Offer easy financing for FPOs for community infrastructure for storage and transportation.
- (c) Create digital ecosystems for financing and crop insurance.

Establishing Market linkages Between Farmers and Buyers: This will establish transparency in pricing and better value, especially for perishable products. In addition, it will enable the downstream players to source more effectively by eliminating intermediaries.

Investing in cold-Storage Utilizing digital technologies: farmers are able to predict the dynamics of supply and demand for agricultural products. As a result, farmers are able to safely store their agricultural products and supply them in accordance with market demand. (figure 8)



Figure 8: Cold storage room for vegetables and fruits

There is the need to invest in Fruits, Vegetables and Pulses to Meet Demand There is a huge scope for investing in fruits, vegetables and pulses to meet our demand. After fulfilling the domestic consumption demand, we can export also.

One or many value chains

In addition to the manifold links in a value chain, typically intermediary producers in a particular value chain may feed into a number of different value chains (Figure 9). In some cases, these alternative value chains may absorb only a small share of their output; in other cases, there may be an equal spread of customers. But the share of sales at a particular point in time may not capture the full story – the dynamics

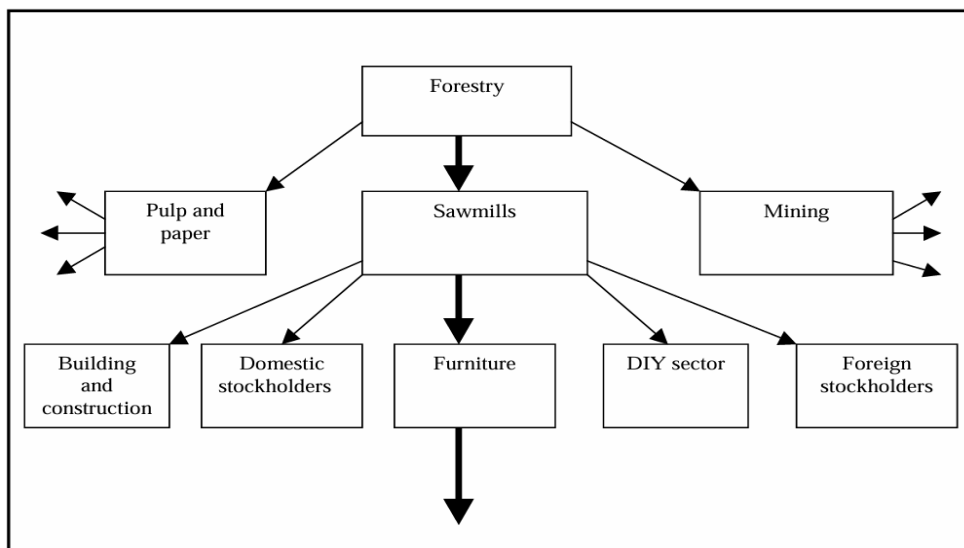


Figure 9: Value chains feeding into other value chains

of a particular market or technology may mean that a relatively small (or large) customer/supplier may become a relatively large (small) customer/supplier in the future. Furthermore, the share of sales may obscure the crucial role that a particular supplier controlling a key core technology or input (which may be a relatively small part of its output) has on the rest of the value chain.

2.4 Value chain analysis

Value chain analysis is intended to collect and analyse all information needed to make strategic decisions for upgrading a value chain to increase its competitiveness and contribution to achieving the sustainable development goals (SDGs).

The approach takes a systems perspective, of value chain actors influenced by analysing the behaviour and performance a complex environment. Value chain upgrading is based on the identification of systemic causes of value chain bottlenecks and centres on the development of systems-based solutions.

Sustainability relates to **the triple-bottom line**, requiring an analysis of the economic, social and environmental impacts. Sustainability also relates to the value chain's resilience to shocks and stresses. The ultimate goal is to develop a concrete upgrading plan for the sustainable development of a selected value chain.

2.4.1 Functional analysis

The functional analysis is about describing and understanding the structure and dynamics of the value chain. This includes three key aspects: (i) discovery of the VC

elements (full range of VC actors, input and service providers, enabling environment, natural environment); (ii) all stake holders, their behaviour, their interactions and their dimensions (numbers, volumes, values); and (iii) identifying root causes for observed underperformances. The analysis focuses on understanding VC actors' behavioural aspects, i.e., why actors choose particular markets, technologies or governance mechanisms over others that may seem more rewarding or efficient (e.g. not using improved agro-inputs and equipment, not recycling waste, not participating in groups, etc.).

The value chain map

A VC map is a flow chart that provides a general picture of the VC from production to consumption, indicating the functions, actors, the linkages between them, and the main channels (see example in Figure 10). It facilitates an understanding of the structure and dimensions (volumes, values, and numbers of actors) of the VC. The VC map allows for the identification of possible leverage points, i.e., those points in the system where upgrading can have the biggest impact because it influences or affects large volumes of product or numbers of actors. Once the VC map is completed, it is complemented by a brief text describing the map – viz., the different functions, actors and channels, and the overall dimensions (volumes, values, jobs, and numbers of actors). It also provides an indication of how and why each of these four elements is changing over time (dynamic perspective).

End-market analysis

The next step of the functional analysis is the identification of concrete, end-market opportunities, because the (economic) performance of the VC is ultimately determined by its ability to capture value in an end-market, where consumers make their purchase decisions from a set of competing alternative products. Through secondary data, market reports, interviews with local retailers, traders and overseas buyers, a (domestic) consumer survey, and other means, a detailed understanding of existing and potential end-markets is established. This includes market sizes and growth rates, trade flows, customer purchasing trends, prices and price trends, packaging, market drivers, market segments and channels, competitors, flow of products to end-markets, client order specifications, critical success factors, barriers to entry (standards), operational practices (logistics), unique selling propositions and consumer buying processes as overall perceptions.



Figure 10: Four steps in functional analysis

2.4.2 Analyses of the VC elements

The objective of this part of the analysis is to identify concrete and feasible opportunities to reduce or remove operational inefficiencies (bottlenecks), social costs, ecological footprints, and/or to increase economic, social, environmental, or resilience benefits.

The following three concepts lie at the core of the analytical approach and need to be identified: •

Root causes – the ultimate reason for observed underperformances.

- **Binding constraints** – constraints that need to be tackled first in the sequencing of the upgrading activities.
- **Leverage points** – nodes in the VC where many actors or large product volumes come together, and where a small change can lead to large impacts.

To do so, the VC elements are analysed across four layers

- Layer 1: Actors in the core VC;
- Layer 2: Input suppliers & service providers in the extended VC;
- Layer 3: The societal enabling environment; and
- Layer 4: The natural environment.

The analysis of the first two layers, the actors and support providers, focuses on examining their current business models and behaviours to determine, among others, why they are not already taking advantage of a known market or upgrading opportunities (what missing incentives or capacities constrain them). The analysis covers:

- (i) the current situation as well as the dynamics (trends and drivers);
- (ii) the differences between types of actors within a functional level;
- (iii) the importance of the VC in the overall net income; and (iv) all information needed to compile operating accounts, which are prepared for all actor types as part of the economic assessment.

The value chain actors

Layer 1 focuses on the VC actors, i.e., those who produce or procure from the upstream level, add value to the product and then sell it to the next level downstream. The analysis is organized by function and describes the current situation, how it is evolving and why. The analysis typically includes a qualitative analysis covering the following elements:

- Location (to allow for the development of a geo graphic mapping of the VC);
- Nature of the decision maker (age, education, ethnicity, gender, wealth, household size, etc.); Functions covered by the actor (e.g., aggregation and processing);
- Procurement practices (input quality, perceptions of suppliers of inputs, services, finance);
- Operational practices (activities, labour versus capital intensity, quality standards);
- Marketing practices (contracts, markets, pricing policies, transaction mechanisms);

- Infrastructure and equipment used (capacity, sophistication, state of repair, energy source);
- Functional performance (volumes, loss rates, conversion rates, labour productivity);
- Competitiveness (comparing functional performance to benchmarks);
- General business skills (e.g., accounting, pricing, planning, negotiating);
- Main challenges (operational, financial and market) and risks that the actor faces;
- Main successes (what worked well in the past and yielded results); and
- Main ambitions of the actor (how actors see the future of their businesses).

At this stage, five generic types of actors are distinguished – producers, aggregators, processors, distributors (wholesale and retail) and end-consumers. The end-market analysis covers end-consumers and the consumption function, including waste management (level, channel of disposal). In each of these actor categories, there may be distinct sub-groups (e.g., modern and artisanal processors), increasing the number of actor types to be depicted in the VC map.

Support providers and factor markets in the extended value chain

Layer 2 looks at the current performance of the extended VC, including the availability, accessibility, effectiveness and quality of inputs and services, the dynamics (what is changing) and drivers (why this status, why these changes). The objective of the analysis is to identify potential gaps in inputs and services provision as well as in factor markets that represent opportunities for upgrading. Three main types of support services are assessed at this stage:

- 1. The provision of physical** inputs (such as fish fries from hatcheries, tractors, hoes, outboard motors, boats, processing machinery, chemicals (e.g., salt, lime, fertilizer, fuel), drying racks, feed, ice, and packaging materials);
- 2. The provision of non-financial** services (such as training and extension services, transport and storage logistics, ICT, processing (if the processor does not take ownership of the product to be processed), repair services, market and price information)

2.4.3 The societal environment

This section provides an analysis of the social business enabling environment (BEE) that affects the performance of the value chain, how this environment is changing and how it can be upgraded to improve sustainability impacts. Societal elements are classified into four categories:

1. Formal institutional elements (such as national policies, regulations, laws and standards, official strategies and plans);
2. Informal socio-cultural elements (such as norms, unwritten codes of conduct, cultural preferences, social habits, and levels of corruption and crime);

3. Infrastructural elements (such as electricity grids, roads, ports, agroprocessing parks, and ICT networks); and
4. Organizational elements (such as ministries, public agencies, inter-professional associations, research and development facilities, and any relevant, ongoing projects and programmes).

2.4.4 The natural environment

This section analyses how the natural environment is favourable (or not) for the analysed value chain. It describes how the natural environment impacts the competitiveness of the value chain in the areas of extraction (catching, hunting, gathering) or farming. It identifies the key strengths, weaknesses, opportunities and threats that derive from the natural environment, which need to be taken into account when developing the upgrading strategy

2.4.5 Governance analysis

Value chain governance refers to the coordination of VC stages and the relationships and decision-making between VC actors, making it possible to bring a commodity from primary production to end-use. Information on governance is usually not available from reports or statistics, but requires interviewing key VC actors. In this section, the focus of the analysis shifts from assessing how well the individual elements function to assessing how well the VC functions as a whole, i.e. how well the elements are linked and if all necessary elements are present. Three kinds of linkages can be identified at this stage, which together form the governance structure of the chain:

1. **Vertical linkages** between actors at different stages of the chain, which refer to how producers, aggregators, processors, wholesalers and retailers engage in transactions, for example through contracts;
2. **Horizontal linkages** between actors at a particular stage of the chain, for example, producer cooperatives or trade associations; and
3. **External linkages** between actors and other stakeholders in the VC, which include links to suppliers, service providers, financial institutions and public organizations such as ministries, research centres and projects.

All vertical and many external linkages are in fact market systems (exchanges) where supply meets demand in an environment linked to institutions and support providers in the next layer. This is where this VC methodology takes on a market systems approach to understand these markets and what can be done to improve them

2.4.6 Sustainability assessment

The objective of the sustainability assessment is to analyse the VC performance in terms of its economic, social and environmental impacts, and to identify critical sustainability issues (hotspots). For this assessment, the focus of the analysis shifts from how the

environment impacts the VC (functional analysis) to how the VC impacts the environment. The sustainability analysis is constituted of five parts. The first three parts delve into the economic, social and environmental impacts specifically. Throughout these three sections, the analysis assesses not only direct impacts on the actors, support providers and workers in the VC, but also the externalities (unintended impacts) it generates beyond the structure. Part four of the sustainability assessment looks at resilience as a meta-dimension of sustainability – how vulnerable is the VC to external shocks such as an economic crises, social unrest or natural disasters? The fifth and final part of this section presents a heat map reflecting the overall sustainability performance of the VC.

Environmental assessment

The environmental sustainability analysis assesses the value chain's impacts on the natural environment by categorizing these impacts according to severity. The analysis identifies critical areas (hotspots) that may require more in-depth measurement and analysis at a later stage. Eight environmental domains are examined in detail. Each domain comprises several sub-domains and several indicators need to be measured and discussed to assess the environmental sustainability at each sub-domain level. The outcomes of the environmental sustainability analysis are an environmental sustainability heat map (visualizing environmental sustainability at sub-domain level) and an ecological footprint of the VC in the form of a spider diagram (see Figure 11). The information needed for the environmental analysis is collected based on secondary data, key informant interviews, firm and consumer level interviews and surveys. The analysis examines environmental impacts across the different stages of the value chain, from primary production to consumption, making a distinction between different groups of actors in order to get an over view of what specific parts of the value chain have the smallest or the largest impact on the natural environment.

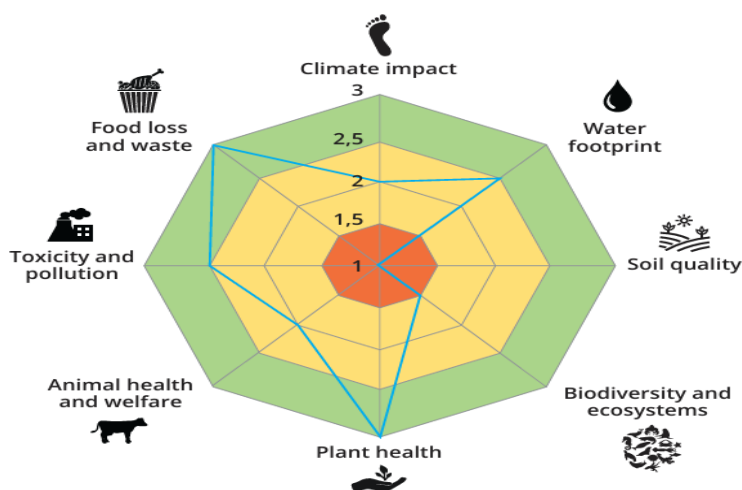


Figure 11. Example of an environmental sustainability spider diagram

2.4.7 Resilience assessment

Resilience is the capacity of an agri-food value chain to continue generating and delivering value (food products and services) in the face of abrupt or more gradual disturbances in supply or demand during recovery from unexpected shocks, the avoidance of tipping points, and adaptation to ongoing change. This includes anticipation, mitigation, preparation, absorption, adaptation and recovery. When resilience declines, a system moves closer to its critical thresholds and, consequently, disturbances have larger effects on the system (Figure 12) (Vroegindewey and Hodbod, 2018; IPCC, 2012).

Resilience is part of the analytical approach to assess whether or not a shock has recently happened or a stressor is still ongoing. It is a meta-dimension of sustainability – how are economic, social and environmental sustainability that relate to performance under normal circumstances, affected by shocks? The framing question for this section is the following – is the VC resilient (or rather vulnerable) to shocks and stressors? In other words, does it maintain its ability to generate and deliver value?

The analytical process for this section consists of three steps:

1. Step 1 – listing the most relevant shocks and stressors;
2. Step 2 – assessing how resilient the VC is to such (potential) shocks and stressors; and
3. Step 3 – gauging the sustainability impact path ways of such (potential) shocks and stressors.

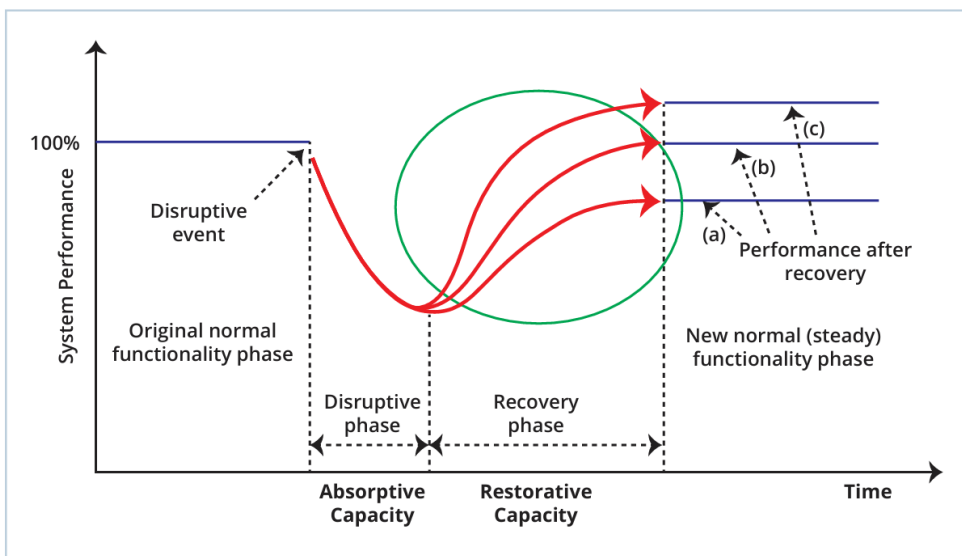


Figure 12: Illustration of VC Resilience

2.3. Supply chain management in agribusiness

2.3.1 Meaning of supply chain

Due to the perishable nature of farm products and the influence of seasons and markets, managing the agribusiness supply chain requires efficiency, flexibility, and innovation to reduce losses and add value at every stage (Figure 13).

- *Supply Chain* is the **sequence of organizations** (their facilities, functions, and activities) that are involved in **producing and delivering** a product or service.
- “A supply chain is the **system** of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer.”
- Supply chain activities transform natural resources, raw materials and components into a finished product that is delivered to the end customer

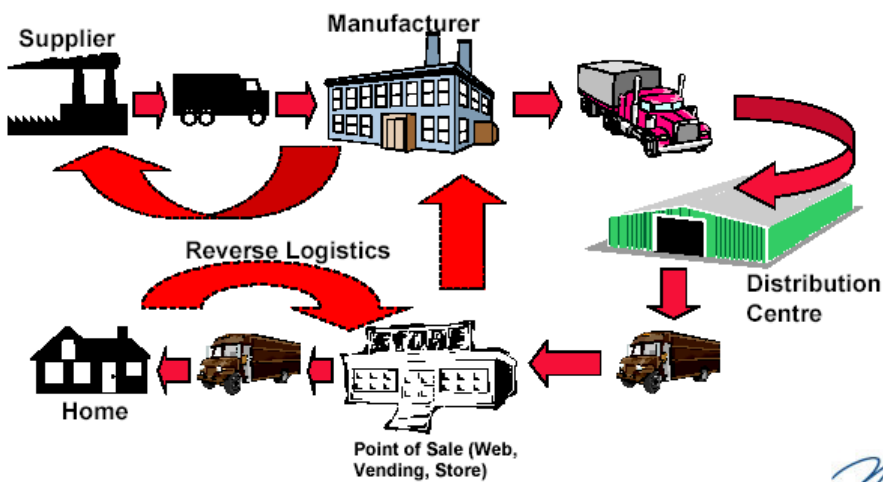


Figure 13: Supply chain activities

- 3 parties or more involved together, in the flow of: Materials/products/services, money, information (Figure 14).

2.3.2 Difference between a supply chain and a value chain

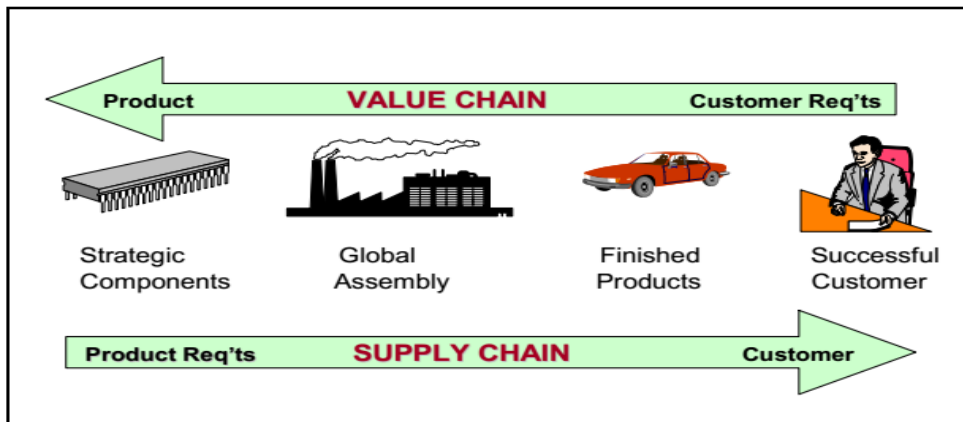


Figure 14: Difference between a supply chain and a value chain

Movements in the supply chain and value chains

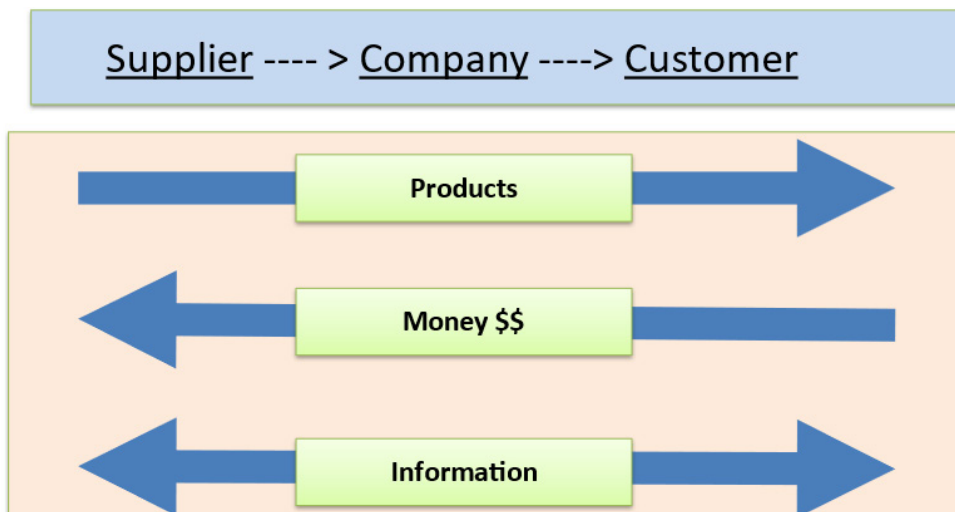


Figure 15: Movements in the supply chain and value chain

2.3.3 Facilities used in the Supply Chain

- Warehouses; Factories; Processing centers; Distribution centers; Retail outlets
- Offices; Haulage trucks; Etc.



Figure 16: Facilities used in the Supply Chain

2.3.4 SC Functions and Activities

Supply chain functions and activities in agribusiness refer to the key processes involved in moving agricultural goods from the point of production to the final consumer. These include:

- Forecasting
- Procurement/Purchasing
- Inventory management
- Information management
- Quality assurance
- Scheduling
- Production (operations) and delivery
- Customer service

Forecasting: Forecasting involves predicting future demand for agricultural products and inputs based on market trends, weather patterns, consumer preferences, and historical data. Accurate forecasting helps agribusinesses plan planting cycles, production volumes, and logistics, minimizing waste and meeting customer needs efficiently.

Procurement/Purchasing: Procurement refers to the process of sourcing and acquiring raw materials, farm inputs (like seeds, fertilizer, machinery), packaging, or services needed for production. Effective procurement ensures timely availability of quality inputs at optimal prices, which directly influences the productivity and profitability of agribusiness operations.

Inventory Management: Inventory management involves controlling the levels of raw materials, in-process items, and finished goods. In agribusiness, managing inventory is critical due to the perishable nature of agricultural products. Good inventory systems

prevent spoilage, reduce holding costs, and ensure that products are available to meet market demand (Figure 17).

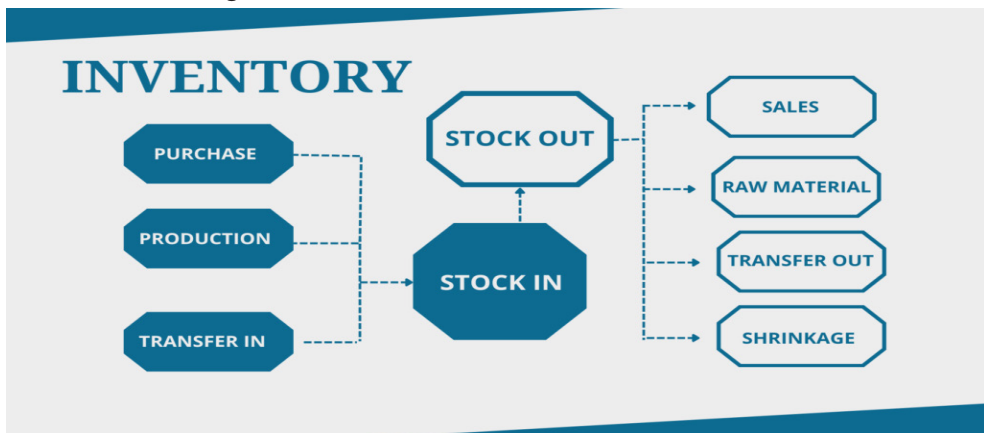


Figure 17: Components of Inventory Management

Information Management: This function involves collecting, processing, and sharing data across the supply chain. In agribusiness, information systems track weather data, market prices, stock levels, and logistics. Efficient information flow enables better decision-making, coordination among stakeholders, and transparency across the supply chain.

Quality Assurance: Quality assurance ensures that agricultural products meet safety, health, and consumer standards. It involves monitoring inputs, production processes, and final products to maintain consistent quality. In agribusiness, this is essential for food safety compliance, maintaining brand reputation, and accessing premium markets.

Scheduling: Scheduling is the planning of activities such as planting, harvesting, processing, and delivery. Effective scheduling in agribusiness ensures that operations are timely and synchronized, reducing delays and maximizing the use of labor, equipment, and facilities during critical periods like harvest.

Production (Operations) and Delivery: This refers to the actual transformation of raw agricultural inputs into finished products (e.g., tomatoes into puree). Operations must be efficient and adapted to seasonal cycles. Delivery ensures that products reach consumers or retailers on time and in good condition, often requiring cold chains and careful handling.

Customer Service: Customer service ensures that buyers of agricultural products are satisfied with the quality, availability, and delivery of products. In agribusiness, this includes responding to inquiries, managing complaints, ensuring timely communication, and maintaining relationships with retailers, wholesalers, and consumers.



Figure 18: A synopsis of customer service

2.3.5 Supply Chain Management

- Supply Chain Management (SCM) is the concept for handling the production procedures/processes in broad sense.
- Ross (1998) defined SCM as '*a continuously evolving management philosophy that seeks to unify the collective productive competencies and resources of the business functions found both within the enterprise and outside in the firm's allied business partners located along intersecting supply channels into a highly competitive, customer-enriching supply system focused on developing innovative solutions and synchronizing the flow of marketplace products, services, and information to create unique, individualized sources of customer value.*'

2.3.6 Benefits of Supply Chain Management

- **Lower Inventories:** Effective SCM ensures that inputs and products flow smoothly through the supply chain, reducing the need to hold large amounts of stock. This minimizes storage costs and waste, especially important for perishable agribusiness products.
- **Higher Productivity:** By coordinating operations, automating processes, and reducing delays, SCM boosts overall productivity. Farmers, processors, and distributors can focus more on value-adding activities rather than handling inefficiencies.
- **Greater Agility/Flexibility:** A well-managed supply chain allows agribusinesses to quickly respond to market changes, weather conditions, or consumer demands. Flexibility helps businesses adapt without major disruptions.
- **Shorter Lead Times:** SCM reduces the time taken to move products from farm to market. This is crucial in agribusiness where freshness and timeliness affect product quality and pricing.

- **Higher Profits:** Reduced costs, better efficiency, and value addition across the chain lead to increased profit margins. Profits are also improved by reaching markets faster and reducing post-harvest losses.
- **Greater Customer Loyalty:** When products are delivered on time, in good condition, and at fair prices, customers are more likely to stay loyal. SCM ensures a consistent and reliable supply, building trust in the brand or business.
- **Long-Term Survival of the Firm:** SCM helps businesses remain competitive in the long run by improving efficiency, reducing waste, and adapting to changing environments. This ensures sustainability and growth in a competitive agribusiness sector.

FARM BUSINESS PLANNING AND MANAGEMENT

Developing a business plan is a fundamental step in establishing and managing a successful agribusiness. It provides a structured framework that outlines the goals of the business, the strategy for achieving them, and the resources required. In the context of farm business planning and management, a business plan guides production decisions, financial planning, marketing, and risk management.

3.1 Business plan development for agribusiness

A business plan is a detailed document that provides information on all aspects of a business's past and current operations, including the company's goals, projections, strategies, and operational details. It serves as a roadmap for entrepreneurs to make informed decisions, secure funding, and ensure business sustainability.

For both new and existing companies, it is an essential tool that helps them maintain focus, adjust to changes in the market, and efficiently manage resources.

Outline for a typical business plan include:

- Executive summary
- Market/Industry analysis
- Description of venture
- Production plan
- Marketing plan
- Organizational/Human resource plan
- Financial plan
- Sensitivity analysis/Risk assessment
- Environmental management plan
- Appendix

Executive summary

The executive summary introduces the company and highlights the company's goals, mission, objectives, strategies and so on. The executive summary should be able to stimulate the interest of a potential investor. The executive summary must briefly describe the following:

a. Mission statement of the company

A mission statement is a statement of the purpose of a company or organization. It defines what the company does, who it serves, and how it serves its clients. A good mission statement is precise in identifying the following intents of a company:

- i. Philosophy (what ideology will be followed?)
- ii. Customers (who will be served?)
- iii. Products /services (what will be produced and/or sold?)
- iv. Location (where the products/ services will be produced?)

Examples of mission statements of a company;

- a. To empower our customers to achieve financial independence by promoting financial literacy and offering a diverse range of investment products and services (Databank Group).
- b. To process cocoa and delight our customers with the full health benefits of world class cocoa/chocolate products (Cocoa Processing Company).
- c. To create a safe, large and efficient market place for millions of people to make deals..... (Tonaton.com)

Vision statement

It is an aspirational description of what an organization would like to achieve or accomplish in the future. It is an informed and forward – looking statement of purpose that defines the long-term destiny of the firm.

Examples of vision statements:

1. To be the dominant financial services firm in Liberia and Africa (Databank Group).
2. To become the premiere and leading fortified food manufacturer that brings nutrition, affordability and convenience to cereals and other staple foods in Liberia.
3. To be a first-class food factory of international repute (Cocoa Processing Company)

Core Values of a business

Values are qualities that are considered worthwhile; they represent the organisation's highest priorities and deeply held driving forces. Value statements are declarations

about how the organization wants to value its customers, suppliers and be valued within their own internal community

Examples of core values of Databank Group

- Leadership
- Humility
- Excellence
- Integrity

A goal: is the overall target the firm aspires to achieve– It describes a future end-state desired outcome that supports the mission and vision– it is a measurable end result with one or more objectives to be achieved within a fixed timeframe.

Organize the firm for better responsiveness to customers. Example a firm's goal

- i) To improve quality and accuracy of service support information to our internal customers
- ii) Improve fiscal responsibility and efficiency in resource use.

Objectives

Objectives of firms are the strategies through which one a firm can achieve its goals.

Example of objectives of firms

1. Launch at least two new products in our first year of operation
2. Establish at least one distribution center in each of the 15 counties in Liberia in the next three years
3. To procure one rice milling equipment with de-stoners at the end of year on

b. Market/Industry analysis

For effective business planning, the firm need to identify and understand these important factors in the firm's external and internal environment. This will enable the firm to forecast properly and make realistic projections of production volumes, sales volumes, costs, profits and business growth.

Three key issues are considered under this section:

- I. A brief description of the political, economic, social, technological, environmental and legal issues/factors that have the potential to affect your business either negatively or positively (PESTEL Analysis).
- II. Analysis of Strengths, Weaknesses, Opportunities & Threats (SWOT Analysis).
- III. Analysis of competitive structure of the industry.

External environment: this comprise the environment which are outside the agribusiness entity. It includes the political, economic, ethical, social, technological, environmental and Legal factors or environment that affects the operation (*see Figure 19*).

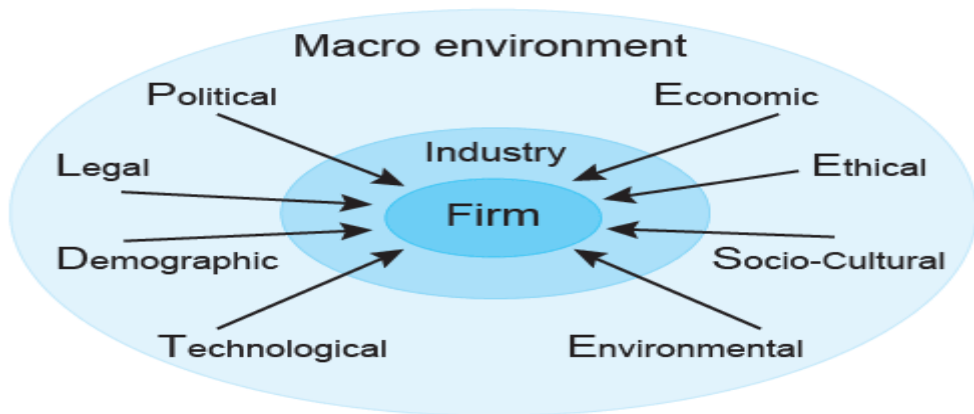


Figure 19: External environment

1. PESTEL Analysis

A. Political Environment

Identify international, regional, national and local governance processes, rules, and regulations that affect how business is done (especially, your type of business). The national one includes government policies, programmes and interventions that create opportunities for your business or serve as threat to your business.

Example Pro-poor Agenda for prosperity and Development (PAPD)

B. Economic environment

This analysis looks at how economic factors such as GDP (national income), unemployment, inflation, interest rate, exchange rate, exports/imports, etc. would affect your proposed business.

C. Social Environment

This analysis looks at how your proposed business will be affected by socio-cultural patterns (values, norms, beliefs/taboo, trends in demographic factors, preferences, fashion styles and trends, etc.) that form the reference system of people's behaviour. For example, how are demographic factors (such as gender, age, marital patterns, birthrates (population), educational and religious patterns, etc.) likely to influence the fortunes of your proposed business?

D. Technological factors

This analysis identifies the existing technologies available in your industry and the trends, and how they are likely to affect your operations. For example: what production technologies are existing firms adopting? (Traditional or improved methods, manual or automation? etc.).

- How do these technologies affect production speed, product quality, and shelf life, etc.?
- What are the costs associated with different production technologies?
- What technologies are people adopting to market and promote their products? (radio/TV ads, social media, ordering via internet, etc.)

E. Environmental factors

This analysis covers issues such as location of the business and the impact of the business on the local environment. For example, what is the state of resource availability in your present or proposed business location?

- What is the nature of land (topography) in the area selected for the business,
- Will the soils there support the enterprise?
- Are raw materials readily availability?
- What is the labour supply and demand situation in the area?
- What is the nature of roads and transport system in the area?
- Availability of electricity, water, internet connectivity, etc.?
- Is the business location close to major road, major markets, etc.

F. Legal factors

This analysis entails the pattern of laws, rules and regulations/standards governing how business is done and how litigation can affect the fortunes of your enterprise.

Issues such as intellectual property rights (patents, trademarks, copyrights, etc.), contract terms, national and local labour laws, rights of employees, must be considered to avoid needless legal battles with can ultimately affect business reputation and success.

SWOT Analysis

1. Strengths: These refer to the internal factors, that give you advantage over your competitors? in include questions like “what are you good at?” “what do you have that you can capitalize on to outperform your competitors?”

2. Weaknesses: This involves the factors which are internal but the enterprise is not good at. It includes asking questions such as “what internal factors are you not good at or lack?” what do you need to work at to improve your performance?”

3. Opportunities: What favourable external factors can you take advantage of or can be exploited to strengthen the competitive position, performance and growth of the firm?

4. Threats: What unfavourable external factors can be inimical to your competitive position, performance and growth.

Group Assignment

1. Identify one agribusiness firm in Liberia and Perform a simple SWOT analysis for the firm.
 2. Perform a simple SWOT analysis for a newly business yet to be established.
-

C. The Production Plan.

This section provides information on:

- Amount of land (acres/hectares) to be used or type of equipment to be employed and its production capacity
- Number of production cycles per year
- Quantities of different types of Products to be produced and planned expansion throughout the life of the project
- Production methods to be adopted.

This section provides details of how products will be produced, and/or describes how purchasing of merchandize, inventory control system and storage needs should be carried out.

D. Marketing and Promotion Plan

This section describes the market conditions and strategies related to how products and services will be priced, promoted and distributed. Specific forecasts for products are indicated in order to project profitability of the venture. The objective of the marketing plan is to optimize the income of the company by defining, forecasting, satisfying and creating demands for existing and new products. It should be comprehensive and detailed as possible so that investors can be clear as to what the goals of the venture are, and what strategies are to be implemented to effectively achieve these goals.

Examples of promotional strategies

- a. Aggressive advertisement via the mass media by using popular local and national radio and TV stations. This aspect of advertisement will be aimed at promoting our dressed birds to the larger hospitality industry in Ghana.
- b. Maintaining an active website and very strong social media presence to leverage on our strong network of young business partners and stakeholders who are ICT savvy. The business will be brought closer to consumers by making it possible for orders to be made through web-based applications, phone calls and social media platforms.

- c. Deployment of special marketing/sales agents to visit, physically distribute flyers/brochures and seek opportunity to make presentations to institutional buyers like hotels, restaurants, airlines, supermarkets, as well as wholesalers and distributors of chicken meat in major cities and towns in Ghana through the cold storage chain.

E) Financial analysis

Financial analysis helps us to answer the 3rd question we asked in during the overview (how sure are we that the proposed business idea/venture will viable?) be profitable/financially.

This analysis helps us to decide whether to proceed with the business idea or not. When the benefits are more than the costs, then we can proceed with the project idea. However, when the benefits are less than the costs, we have to stop and look for other business ideas along the agricultural value chain

Framework for Financial Analysis: The main questions that will guide us when performing the financial analysis include:

- What are the costs to be incurred (fixed cost and recurrent/operating costs) in the initial year of the project?
- How much revenues would be generated in the first year/cycle of production and from which sources?
- What is the estimated life of the proposed investment?
- How will future costs and revenues be projected?
- At what interest rate (cost of capital) should future costs and benefit streams be discounted.

Assignment 4.

1. UNIDO Mango processing firm is a small start-up firm in Montserrado County. The firm processes mangoes into mango juice. In groups of two, list all the fixed cost and variable cost item of the firm.
2. Develop the fixed cost schedule (i.e. simple table) by determining the quantities of each fixed cost item of UNIDO Mango processing firm, the unit cost and the total cost.

Fixed cost schedule

Item	Quantity	Unit cost	Total quantity

3.2 Budgeting and financial planning

Budgeting and financial planning are essential aspects of agribusiness management. They help agribusiness owners allocate resources effectively, make informed decisions, and achieve profitability.

1. **Budgeting:** A budget is a formal quantitative expression of plans on production inputs and output. Budgets indicate the type, quality, and quantity of production resources or inputs needed, and the type, quality, and quantity of output or product obtained.
2. **Financial Planning:** A comprehensive evaluation of an individual's or business's financial situation and setting short-term and long-term financial goals.

3.2.1 Importance of budgeting and financial planning

- I. It ensures that resources are effectively allocated to all departments of the business.
- II. Helps in cost control and financial discipline
- III. Facilitates better decision-making
- IV. Enhances financial stability and growth
- V. Enables preparation for risks and uncertainties

3.2.3 Types of budgets in agribusiness

1. Partial Budget

A partial budget shows the effect of change(s) in farm operations. For example, farmers know that manure application will likely increase rice yield, and thus the gross income/revenue. The use of fertilizer also results in additional costs. To decide whether to use fertilizer for rice production or not requires a partial budget analysis. A partial budget could be prepared to ascertain the effect on net benefit of the application of fertilizer on rice cultivation.

Item	Weed control	
	Hand weeding	Boom spraying
Revenue		
Average yield	5 bags per acre = GH¢ 5,000	12bag =GH¢ 12,000
Variable cost		
Labour	GH¢1, 500	GH¢ 5,00
Herbicides	GH¢ 0	GH¢ 2,000
Irrigation	GH¢ 1, 000	GH¢ 1, 000
Machinery	GH¢ 0	GH¢ 1,000
Harvesting	GH¢1, 000	GH¢ 1, 000
Total cost	GH¢ 3,500	GH¢ 4,500
Net income	Ghc. 1,500	Ghc. 6,500

The aim of a partial budget in rice production is to recommend the weed control method that is agronomically effective and generate huge profit margin. Example of a partial budget comparing the margins associated with the use of *hand weeding* and *Boom sprayer* is presented in the table below.

2. Enterprise Budget

An enterprise is a single crop or livestock type produced on a farm. An enterprise budget lists all income and costs associated to a specific enterprise to provide an estimate of its profits. Each enterprise budget is developed on a single common unit, for instance acres for crops or head for livestock. An enterprise budget allows comparison of profits of profitability among different enterprises on the same farm. An example of enterprise budget for a Cattle Enterprise is presented in the table below.

Example of Cattle Enterprise budget

Description	Income	Expense
Revenue:		
Sold 10 calves at GH¢10,000	GH¢100,000	
Sold 2 cows at GH¢60,000	GH¢ 120,000	
Variable cost :		
Labourer cost		GH¢15,000
Medicine/ drugs		GH¢ 5,000
Water		GH¢ 1,000
Purchase feed		GH¢ 30,000
Veterinary visits		GH¢ 5,000

Description	Income	Expense
Total	GH¢ 220,000	GH¢ 56,000
Profit		GH¢ 164,000

3. Whole-Farm Budget

Whole-farm budget. A whole-farm budget is a quantitative expression of the total farm plan summarizing the revenue, costs, and profit. The revenue is what a farmer realizes from farming activities, costs are what the farmer puts into production, and profit is the difference between revenue and costs. In a whole-farm budget, the unit of analysis is the entire farm. A whole-farm budget may consist of several enterprises. For instance, cattle enterprise, maize enterprise, cassava enterprise and so on.

Example of a whole budget (Cattle and Maize farm)

Description	Cattle Enterprise		Maize Enterprise	
	Income	Expense	Income	Expense
Revenue:				
Sold 10 calves at 10,000	GH¢100,000			
Sold 40 bags of Maize			GH¢40,000	
Variable cost:				
Cost of inputs (weedicide, fertilizer etc)				GH¢ 5,000
Labour		GH¢ 16,000		GH¢ 6,000
Veterinary visit		GH¢ 3,000		
Harvesting				GH¢ 5,000
Feed		GH¢ 40,000		
Irrigation				GH¢ 5,000
Transportation		GH¢ 10,000		GH¢ 5,000
Total	GH¢100,000	GH¢69,000	GH¢40,000	GH¢26,000
Net income	GH¢31,000		GH¢14,000	

Assignment 5

1. Differentiate between enterprise budget and whole farm budget.
2. Discuss the pros and cons of partial budgeting in the context of agriculture.

3.3 Financial Planning in Agribusiness

Key Components of Financial Planning

- I. Income Projection** – Estimating future revenue from different farm activities. For instance, income from maize production cattle rearing and so on
- II. Expense Forecasting** – Anticipating costs related to production and operations. The expense include; labour cost, harvesting cost, feed cost, cost of farm inputs, cost of transporting produce and so on
- III. Investment Planning** – This is where you scan through the opportunities available and you assess the profitable opportunities for reinvesting profits.
- IV. Risk Management** – Risk is part of life and there is a need to adopt strategies to minimize their impact should they occur. Preparing for financial risks such as price fluctuations, climate change, and pest outbreaks.
- V. Savings and Credit Planning** – There is a need to save some part of the profit margins generated in the order to cater to unforeseen circumstances. Ensuring availability of funds through savings or loans.

AGRIBUSINESS FINANCE AND INVESTMENT

Agribusiness finance and investment are critical components for the growth, profitability, and sustainability of agricultural enterprises. In today's dynamic and capital-intensive agricultural environment, farmers and agribusiness entrepreneurs require sound financial planning, access to credit, and effective investment strategies to improve productivity and compete in the market. This unit introduces the principles of agribusiness finance, explores sources of agricultural funding, and examines how investment decisions are made within the agribusiness context. Learners will also understand how to assess financial performance, manage financial risks, and develop strategies to attract and utilize investment for agribusiness development.

4.1 Importance of financing in Agriculture/ Agribusiness

1. To generate satisfactory income to the agribusiness sector through proper use of financial resource in combination with productive assets such as land, machinery, labour, livestock and managerial expertise.
2. To ensure increase in production and productivity through the use of modern and technologically advanced methods of production. For example, Technological advancement enabled the US to increase agric. production by over 40% between 1950 and 1970.
3. It facilitates the expansion programmes of farm owners/managers. Greater investment in mechanical power and machinery does not only facilitate handling more land but it also helps the farmer to acquire a large acreage of land to spread his fixed costs in machinery and equipment.

4. Finance enables farmers/agribusiness owners/managers to hire skilled labour
There are various sources of finance available for agribusinesses, which can be classified into:

1. **Internal Sources** (from within the business)
2. **External Sources** (from outside the business)

4.2 Sources of Finance for Agribusinesses

a) Personal Savings

Saving is delayed consumption/spending (i.e. putting aside present income for future use). Savings can mean buying many inexpensive items or not buying unproductive items or equipment now, so that one can eventually purchase expensive and productive equipment in the future.

- Savings may come from two (2) main sources: – farm earnings, and– non-farm earnings.
- Saving takes place when present consumption is less than present income.
- Saving does not only provide capital, but also indicates risk bearing ability and demonstrated capacity to earn and save is essential to strong credit rating.
- It is believed that few people who are unable to save will succeed in commercial farming.
- It must be noted that, the farmer will also need money to pay medical and utility bills, settle other family concerns, etc., so savings must be accumulated in the successful farming period to provide a financial base for all purposes. Savings take time to grow.
- For some farmers, as income increases, their spending and standard of living are upgraded, with little or no change in previous amount of savings. But small regular savings can produce a large sum in a fairly short time.

Some of the problems/difficulties associated with savings and retained earnings as a strategy for financing the farm business include:

- It provides limited amount of capital (in the face of increasing technological change which continue to push up capital investment in agriculture)
- Inflation may erode the value of savings when interest on savings is far below the inflation rate in the economy.
- New entrants find it difficult to retain substantial earnings due to: Increasing farm operating expenses, increasing family living expenses, Debt repayments and high interest charges and new investments necessary for expansion and growth of the farm business.

b) Retained Earnings

Retained earnings are profits that are not shared among owners of a farm business but are ploughed back and invested in the business.

Some of the problems/difficulties associated with savings and retained earnings as a strategy for financing the farm business include:

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- Inflation may erode the value of savings when interest on savings is far below the inflation rate in the economy.
- New entrants find it difficult to retain substantial earnings due to: Increasing farm operating expenses, increasing family living expenses, Debt repayments and high interest charges and new investments necessary for expansion and growth of the farm business

3. Gifts and Inheritances

Gifts and inheritance from previous generation of farmers represent most of today's owner equity capital in agriculture. The important aspect of this strategy is the capital gains on land. The recent increases in the value of land, especially in the urban areas, is as a result of keen competition for land for residential buildings, farming, and other investment activities. Gifts and inheritances have provided many farm families with the equity base needed to finance a successful farm business.

Problems/difficulties associated with Gifts and Inheritance

- a. Such benefits are often not received when needed most: That is, the life expectancy of a parent or relative (over 70 years) may not make it possible for the prospective farmer(s) or young farmers to receive substantial amounts of capital through inheritance in the early stages of their careers when they need it most as a base for expansion. They have to wait until their benefactors are aged (very old) or dead.
- b. Some of such benefits come with strings attached – Some farmers transfer property to heirs subject to a life interest on behalf of the surviving spouse. Such benefits made with either implicit or explicit restrictions on managerial control can sometimes seriously impair the progress of the young farmer.

4. Pooling Equity Capital

This involves combining the equity capital from two or more individuals or sources. There are several methods of combining this equity capital in the farm business. In many cases, older farmers may provide capital to younger family members through partnership, incorporation, or some other type of formal or informal arrangements. Such arrangements are usually made among members of the same family, but two

or more unrelated individuals can also pool their equity in a farm business. When a farmer departs from the sole proprietorship form of business organization to bring in additional capital, s/he should recognize that, managerial responsibilities as well as profits must be shared.

Generally, the partners in the business should share profits proportionately according to their respective contributions of labour, management and capital.

The primary advantages of this strategy are:

1. Risks/liabilities are shared among two or more partners
2. Expansion of capital base
3. Diversity in managerial skills to improve the farm business.

The problems associated with this strategy are usually connected to the sharing of proceeds or profit, where possible misunderstanding and disagreement usually arise. To prevent any problem, certain essential elements are required for a successful business organization under such arrangements.

5. Partnership

In forming partnership, the participants should know and understand what is involved and give proper attention to legal aspects. Each person entering into a partnership assumes considerable responsibility for actions of the other partners. So, in the case of general partnership, any one partner may sell property of the partnership, make contracts for the business, and create partnership debts without the consent of the others. Moreover, each partner has unlimited liability for suits against the partnership.

A special form of partnership called *limited partnership* enables one or more partners to invest in the business without assuming managerial responsibilities. The liability of limited partners is restricted to the size of their capital investment. An important feature of this partnership is that, the *partners may not participate in the management of the business*. At least, one member of the partners in a limited partnership must be a general partner with unlimited liability, and the partnership must be written in compliance with local law. The death or voluntary withdrawal of a limited partner from the business does not result in dissolution of the partnership as in the case of general partnership.

6. Incorporation

Another method of acquiring capital for farming is to form a corporation. A corporation is a legal entity organized by state law to do business, make contracts, borrow money, and to carry out any business just like an individual proprietor.

A corporation provides a means by which a group of individuals may pool their funds to operate a business. In forming a corporation, legal advice should be sought. It is a legal entity which can sue and be sued.

The following issues under corporation are important:

- Individuals who form a corporation are its owners and are issued certificates which represent the shares of stock to show the fractional interest each holds in the corporate assets.
- The shareholders elect directors to represent them in business policy and management decisions. The directors in turn employ officers who operate the business according to policy established by the directors.
- A corporation formed to operate a farm business takes the place of the individual who own and operate it.
- The individual may manage and operate the farm similar to any other farmer but does so as an employee of the corporation, not as an individual entrepreneur.

Advantages of incorporation

- i. Members of a family may take advantage of this to organize a corporation to operate the farm and it provides an easy means for children and others to buy into the farm business, which facilitates estate planning by permitting parents to divide and transfer estates without reorganizing the business.
- ii. Ability to raise large amounts of money. Other individuals with inadequate capital to farm efficiently may use their assets advantageously by pooling them in a farm corporation.
- iii. Apart from capital provision, incorporation of the farm business may hold the unit together and permit continuity of operation from one generation to the next.
- iv. Unlimited life of the business (shares can be sold). Should one shareholder of an incorporated business die or decide to sell out, there is no need to break up the business as in general partnership. The stock may merely be transferred to a new owner. Such procedures of transferring ownership of individual's interest provide an easy means for children and others to buy into the farm business.
- v. The owners or shareholders have limited liability. They cannot be held liable for debt obligations or other responsibilities of the corporation.

Disadvantages associated with incorporation

- a. Unless proper safeguards are included in the legal framework, the business may not be managed in the best interest of minority shareholders.
- b. Some expenses are involved in incorporation, and a corporation may pay certain annual fees and taxes not required of other types of business organizations, e.g. double taxation.
- c. Some time and expense are involved in maintaining records of the corporation and in filing the corporate tax returns. Annual meetings must be held, directors and officers elected and an annual report filed with the state/government

- d. In practice, the limited liability feature of the corporation does not hold for most family farm corporations because, most lenders require that corporate officers, usually the owners in the farm corporation, personally endorse all loans – thereby making them liable for the debt. Lenders tend to look more closely at loan applications from farming corporations because of the limited liability aspect; thus, the corporate form of organization may in fact be a disadvantage as far as capital acquisition is concerned.

7. Government Grants & Subsidies

In some countries, governments provide funding for agribusinesses through grants or subsidies. These grants and subsidies enable the businesses to grow and expand. For instance, in Ghana, government offers various grants and subsidies for agribusinesses, primarily through programs like the Interest Rate Subsidy Initiative (IRS) and the Ghana CARES program. These seeks to provide financial support and incentives for agribusinesses to grow and improve their operations.

- **Advantages:** The various grants and subsidies help expand the agricultural sector thereby making a great contribution to the GPD at large.
- **Disadvantages:** However, most of these grants are competitive and are limited in number.

8. Venture Capital & Angel Investors

Angel investors are individuals who invest their personal money into early-stage startups, usually in exchange for convertible debt or ownership equity. Venture Capital are professional groups or firms that manage pooled funds from multiple investors, investing in high-growth startups with the potential for substantial returns

Advantages:

- Large funding amounts: venture capital & angel investors provide large funding for businesses. This capital can be used to expand the farm businesses.
- Expertise and guidance: Most angel investors have diverse experience in most fields and can offer valuable guidance and mentorship for various businesses. They provide technical advice to start-ups and oversee the activities of the various businesses.

Disadvantages:

Sometimes these investor exercise full control in most aspect of the business with regards to decision making and so on. Some of these interferences impede the progress of the business.

9. Contract Farming & Supplier Credit

It is an arrangement between a producer and a buyer; under which the farmer receives support to produce commodities for the buyer under specified terms and conditions.

Three (3) types of **forward** contracts:

1. **Market specification** contract
2. **Production-management** contract
3. **Resource-providing** contract

1. Market specification contract

It is an agreement under which farm commodities are exchanged at some specified future date at an agreed-upon price.

Such contracts are commonly used for crops grown for special markets (e.g. the processing companies, supermarket, etc.)

- e.g. a tomato grower may enter into contract with a processor before the growing season begins.
- Maize grower can enter into contract with a poultry farmer

2. Production management Contract

The contract specifies the acreage to be grown (or quantity to be supplied), the quality of produce, the price to be paid, and delivering time for the produce.

Production-management Contract – provides the same features as market specification contract, but in addition, the farmer receives technical advice and management services from the buyer/contractor.

In many cases the buyer/contractor may specify seed varieties, fertilizer application rates, and other cultural practices such as plant spacing, planting date, and harvesting date. Some buyers even provide extension services to guide the farmer to produce the commodities to meet specifications.

NB: Both market specification and production-management contracts usually do not provide any financing per se.

3. Resource-providing Contract

Under this system, the farmer receives financing from the buyer/contractor as well as guaranteed market outlet and production-management assistance in some cases.

Examples:

- Unity farms could contract a farmer to produce yellow maize for its broiler farm by providing maize seed, fertilizer, etc.

- Guinness Ghana Brewery Ltd. (GGBL) has contract with some FBOs in Northern Ghana to produce sorghum for malt production. They supply seeds, fertilizer and some cash credit for farm operations.

Advantages of contract farming

- i. Guaranteed market is provided for the farmer's produce
- ii. Financial resources are sometimes provided by the buyer/contractor to support farm operations
- iii. Besides financial assistance, the farmer may also receive managerial advice and technical assistance from the buyer/contractor at no extra cost
- iv. Risk of production is shared between the farmer and the buyer/contractor
- v. Better quality farm produce are sold since specifications are given before production begins

Disadvantages of contract farming

- i. The farmer loses the opportunity to benefit from higher commodity prices when contract price is lower than market price at the time of harvest.
- ii. The farmer may have to accept lower price to compensate the buyer/contractor for providing financing and sharing production and marketing risks.
- iii. In some cases, the farmer loses managerial control over his own farm.

Whatever is done on the farm is dictated by the buyer (especially under production management contract). Here, the farmer is almost reduced to the status of a hired hand.

10. Leasing as a financing option

Leasing is a common way for farmers to obtain control over additional assets for their businesses. A lease is a capital transfer agreement that gives the user control over assets owned by another person over a specified period of time for an agreed form of payment.

Three (3) major types of lease arrangements recognized in farm business are:

1. Real-estate leasing (*for land and warehouse*)
2. Machinery leasing (*for farm equipment*)
3. Livestock leasing

1. Real-estate leasing

This covers the use of another person's land or warehouse

Real-estate leases are usually classified into two (2) general types:

- I. Share lease: This is where part of the produce is given to the owner as payment for the use of the asset.
- II. Cash lease: with this type of lease cash is paid to the owner for the use of the asset.

I. **Share Lease**

a. Crop share lease

In Ghana, the traditional crop-share lease methods are:

I. Abunu

II. Abusa

III. Nkotokuoano

I. **Abunu**

It is a system where the produce or the income from a farming enterprise is shared in two (2) equal parts (i.e. 50:50) between the landlord/landowner and the tenant/caretaker. Traditionally, the caretaker should have been a participant in the initial establishment of the farm.

In plantation crops like cocoa, rubber, etc., it is the farm that is divided into two.

II. **Abusa**

It is a system where the produce or income from a farming enterprise is divided into three (3) equal parts, with one-third going to the caretaker and two-thirds going to the landowner. With Abusa, the farm itself is not divided, because the caretaker takes the responsibility only after the farm has been established and his or her role becomes just as a maintenance agent/farm manager.

III. **Nkotokuoano system**

Under this system, benefits/rewards are apportioned according to the number of bags (of farm produce) obtained during a particular season. Division of the produce is based on the contribution of either party. So, the proportion could be 40:60; 70:30; etc.

Advantages of real-estate leasing

1. The possibility of operating a larger farm size with a relatively small capital outlay
2. Benefits from economies of scale (expansion of farm reduces average cost of production)
3. Reduction in risk/spreading risk
4. Possible benefits from landlord's managerial assistance (if he is an experienced farmer).

Disadvantages of real estate leasing

1. Uncertainty of tenure of the arrangement (land lord can take over his land or farm at short notice)
2. Only the landlord benefits from appreciation in land value; Not the tenant
3. Sometimes, the possible problems/disturbances posed by landlord and his/her relatives to the user of land can be counter productive

2. Machinery/equipment Leasing

Under this arrangement, a farm owner uses farm machinery/equipment which he does not own and pays an agreed fee/rent for a specified period of time.

Two main types of machinery lease:

- I. Operating lease
- II. Financial lease

I. Operating Lease

An operating lease is a short or intermediate term contract ranging anywhere from a few hours to several months or seasons.

- The farm operator leases the equipment by the hour, day, week, month, etc.
- Normally, the owner is responsible for insurance, taxes, and major repairs
- The user pays for expenses such as fuel, lubricants, and routine maintenance.
- It is a cancellable contract with proper notice.

II. Financial lease

This is when an individual or organization (like bank) finance the purchase of a farm equipment/machine to be used by the farmer.

- Financial lease contract covers a relatively longer term/period (3 years and above...) compared to operating lease
- This lease agreement allows only the farmer to use the leased asset exclusively.
- The user of the asset (farmer) makes mutually agreed lease rental payments over a specified non-cancelable period of time.
- The user/farmer is responsible for all repairs and maintenance.
- Under a true financial lease, title to the equipment remains with the individual or the organization that financed the purchase upon expiration of the contract.
- However, the user/farmer may exercise an option to buy the asset outright after the expiry of the lease period at a mutually agreed price.

Advantages of Machinery leasing

1. The farmer does not make outright payment for the asset. This allows the farmer to use his limited funds for other farm operations.
2. The farmer does not bear the risk when the asset becomes old and obsolete.
3. Many lease contracts can be terminated by the farmer on relatively short notice, thus providing flexibility for the farmer to change the equipment if it does not perform to his satisfaction.
4. The farmer does not pay for fixed costs such as insurance, taxes, storage, and cost of major repairs.

5. If the equipment comes with an operator, the farmer does not bear the cost of the operator.

Disadvantages of Machinery leasing

1. The farmer does not have full control over leased asset/equipment and this can affect efficiency of use.
2. The machine may not be available when needed, hence there is the possibility of crop losses from delayed harvesting.
3. Ownership of equipment is often less expensive than leasing. If the machine is used to full capacity and has a high residual value, ownership may cost much less than leasing.
4. If the equipment comes with an operator, the quality of work done by the operator might be inferior since the farmer does not have full control over him.

Sources of loans for Agribusiness.

- a. Commercial Banks and Rural/Community Banks
- b. Savings and Loans Companies & Microfinance Institutions
- c. Credit Unions (church-based, work-based, community-based, etc.)
- d. Susu schemes/Village Savings and Loans Associations (VSLA)
- e. Traders
- f. Friends and relatives
- g. Government credit schemes (e.g. MASLOC--*Microfinance and Small Loans scheme*, EXIM Bank/EDAIF---*Export Development and Agric Investment Fund*)
- h. NGOs
- i. Private money lenders
- j. Etc.

Some problems with loans/credit

- I. Interest on loan can be very high and this is likely to reduce your profit from the farm business
- II. In some cases, the loan repayment period may be too short.
- III. Borrowing involves high risk of losing own capital/asset used as collateral security for the loan.
- IV. Sometimes, it is difficult for farmers to provide the collateral security required to be granted a loan
- V. Failure to repay your loan will lead to sleepless night

Choosing the right source of finance

When selecting a source of finance, consider:

- I. Business size and financial needs
- II. Repayment ability and risks involved
- III. Interest rates and cost of financing
- IV. Availability and accessibility of funds

4.2 Financial record-keeping

Financial record-keeping and management are essential for agribusiness success. Proper financial management helps agripreneurs track income, expenses, and profitability, ensuring sustainability and growth.

Importance of Financial Record-Keeping in Agribusiness

- I. Helps in tracking business performance.
- II. Facilitates budgeting and financial planning.
- III. Ensures compliance with tax regulations.
- IV. Aids in decision-making and investment planning.
- V. Enables access to loans and credit facilities.

Types of Financial Records in Agribusiness

1. **Cash Book** – Keeps a daily record of money coming in and money going out of your business.

It is important to record all the money that comes in or goes out of the business.

Decisions are easily made and profits tracked when cash books are well kept.

Structure of cash book

Name of Enterprise: Nicholas vegetable farm/ enterprise					
Cash book					
Income Expenditure					
Date	Source of income	Amount received (Ghs)	Date	What was money spent on	Amount paid (Ghs)

Example of cashbook scenario

Name of Enterprise: Nicholas Vegetable farm/enterprise					
Cash book					
Income Expenditure					
Date	Source of income	Amount received (Ghs)	Date	What was money spent on	Amount paid (Ghs)
1/19/2024	Cash-in	8,000			
1/19/2024	Sale of tomato	1000	1/19/2019	2 baskets of tomatoes	4000
1/19/2024	Sale of onion	600	1/19/2019	1 bag onion	2500
	Sale of okra	400	1/19/2019	1 basket okra	1200
			1/19/2019	Food for household	600
	Cash balance				XXXXX

2. Sales and Revenue Records:

Sales and Revenue Records summarize the total profit a business gains from all sources, including sales. This includes not only sales revenue but also income from other sources like interest, royalties, or dividends.

3. Inventory Records

Information all physical items (levels of inputs and produce) available at any point in time in the business is recorded in the inventory records. Effective inventory record-keeping helps organizations optimize inventory management, reduce costs, and improve customer satisfaction

It comprises:

- what you had at the beginning of the year
- what has been added to those items through purchases and production and
- how much has left your business through sales, consumption, planned use or losses.

Inventory Record Sheet

Date	Item Description	Beginning Inventory		Production	Purchases	Sales	Used	Losses	Ending Inventory	
		Qty	Value						Qty	Value

Inventory Record Sheet :

Calculation of Ending Inventory:

+ _____ Value of Beginning Inventory
 + _____ Value of Production
 + _____ Value of Product purchased for resale
 - _____ Value of Product sold
 - _____ Value of Product used in business/personal
 - _____ Value of Product lost by theft or spoilage
 _____ **Total equals ending inventory**

Debtors and Creditors Ledger – Debtors and creditors ledgers are subsidiary ledgers utilized in accounting to monitor individual transactions with consumers (debtors) and suppliers (creditors). Debtors and creditors ledger provide detailed records of credit sales, payments, and returns for each debtor and creditor, allowing for a clear view of the amounts owed.

Profit and Loss Statement – A profit and loss (P&L) statement is a financial document that encapsulates a company's total revenue and expenditures for a designate period

In statement format:

Income Statement Format	
GROSS REVENUE	
Cash Receipts	A
Non-Cash Transfers-Out	B
Inventory & Accounts Receivable Change	C
Gross Revenue	A + B + C = D

EXPENSES	
Inventory Change (Expenses)	E
Repairs & Maintenance	F
Labor	G
Feed	H
Depreciation	I
Total Expense	$E + F + G + H + I = J$
Interest Expense	K
Net Income from Operations	$D - (J + K) = L$
Capital Gains (Losses)	M
Taxes	N
NET INCOME	$L + M - N = O$

Balance Sheet

The balance sheet is a financial statement that provides information about the agri-food venture's assets, liabilities, and equity and their relationships with each other at a specific point in time. It shows the business's financial position. It is divided into current and non-current categories and is prepared for both the beginning and ending dates of the business fiscal year. Before illustrating the format of a balance sheet, it is important to understand the basic accounting and balance sheet equations.

Structure of balance Sheet:

Balance Sheet/ Statement of Financial Position Format	
ASSETS	
Cash	A
Accounts Receivable	B
Inventory	C
Prepaid Expenses	D
Current Assets	$A + B + C + D = E$
Non-Current Assets	
Buildings	F
Accumulated Depreciation	G

Land	H
Net Non-Current Assets	(F - G) + H = I
Total Assets	E + I = J
LIABILITIES	
Accounts Payable	K
Accrued Expenses	L
Current Portion of Debt	M
Income Taxes Payable	N
Current Liabilities	K + L + M + N = O
Non-Current Liabilities	P
Land Debt	Q
Total Liabilities	O + P + Q = R
EQUITY	
Owner's Equity	J - R = S
Total Liabilities & Equity	R + S = T

Assets

Assets are everything you have: cash in the bank, inventory, machines and buildings, animals, processing plants, land, etc.

Assets are *valuable*, value, which must be *quantifiable* for an asset to be listed on the balance sheet.

I. Current Assets

By definition, **current assets** are cash or expected to be converted into cash in less than 12 months: eg cash, accounts receivable, inventory for sale, feeder, Livestock for sale, broilers, goats, Crops for sale, sales of eggs etc.

II. Non-Current Assets

Non-current assets are productive assets not intended for sale. They will be used over and over again to produce the product e.g commonly include breeding stock, trucks, automobiles, furniture, equipment, machinery, buildings, land etc.

III. Liabilities

Liabilities are financial obligation of the business, such as money owed to lenders, suppliers, employees, etc.

- a. **Current Liabilities** are bills that must be paid within *one year* of the balance sheet date, e.g *accounts payable* owed to suppliers, *accrued expenses* owed to

employees and others for services, *current debt* owed to lenders, and *taxes* owed to the government etc.

- b. **Non-current liabilities** are bills that must be paid after *one year* of the balance sheet date.

Practical Session:

Akate Farms is a renowned poultry farm in Ghana. The firm owns 32 acres of land, 4 vans, 2 incubators, 1 processing plant. There are currently 100,000 birds on the farm. Additionally, the farm has accounts receivable of Ghc—40, 000 including payment due from customers. The farm also has a considerable amount of debt, including Ghc 5,000 long-term loans and payable, including payment owing suppliers (Ghc 1,000), vendors (Ghc 1,000), and wages (Ghc 6,000).

1. List all the current assets listed in the question.
2. List all the non-current assets listed in the question.
3. Give all the current liabilities stated in the question.
4. Prepare a statement of financial position from the information above.

Balance sheet / Statement of financial position	
Asset	Amount
Current Asset	
1.	
2	
Non-current Asset	
1.	
2.	
Total Asset	
Liabilities	
Current liability	
1.	
2.	
Non-current Liability	
1.	
2.	
Total Liability	
1.	
2.	

Equity	
1.	
2.	
Total Liability & Equity	

NB: Total Asset = Total Liability + Equity

- 4. Labour records:** The labour records keep particulars of each all labourers hired/employed. The records include his name, date of commencement of work, wages, period of leave and period of notice required for termination of contract. If an employee gets into the habit of keeping employment recor

Importance of labour records

- Information from record of employees to calculate labour costs of the farm.
 - Labour costs are needed to write financial statements of the business.
 - Labour record helps you improve allocation of jobs and accountability of your employees
- 5. Customer records:** The customer record is used in keeping records about regular customers. The names of regular customers, the items they mostly purchase, the quantity they purchase are all recorded in the customer records.

Benefits of customer records

- It will guide your production plans in terms of when you have estimates of demand of your product, you are able to decide what quantities to produce in the future.
- It will guide your marketing strategy with regards to when you have a record of which groups of customers buy more and which groups buy less, you

Customer records structure.

Name of customer	Products buy they	Their quantities usual	How often do they buy?

- 6. Asset records:** Keep records of all assets (eg. land, machine, knapsack, etc.) It shows information such as the value of the assets. For instance, prices of cutlass, wheel barrow, feeder etc.

Benefits of asset register

- It will provide you with a clear picture of the value of your asset.

- ii. Information from asset register will be needed when writing financial statements at the end of the season or year.

Structure of asset register.

Name of asset	Quantity	Value of assets	Expected loss of value in the current year	Value at the end of the year

Principles of Effective Financial Record-Keeping

- I. Maintain accuracy and consistency in recording.
- II. Keep records updated regularly.
- III. Ensure records are clear and easy to understand.
- IV. Store financial documents securely for reference.

Use digital tools (e.g., spreadsheets, accounting software) where possible

MARKETING AND SALES IN AGRIBUSINESS

5.1 Market: Meaning

The word market comes from the latin word "*marcatus*" which means merchandise or trade or a place where business is conducted. Word "*market*:" has been widely and variedly used to mean (a), a place or a building where commodities are bought and sold, e.g., super market;

(b) potential buyers and sellers of a product, e.g., wheat market and cotton market;

Some of the definitions of market are given as follows:

1. A market is the sphere within which price determining forces operate.
2. A market is area within which the forces of demand and supply converge to establish a single price.
3. The term market means not a particular market place in which things are bought and sold but the whole of any region in which buyers and sellers are in such a free intercourse with one another that the prices of the same goods tend to equality, easily and quickly.
4. Market means a social institution which performs activities and provides facilities for exchanging commodities between buyers and sellers.
5. Economically interpreted, the term market refers, not to a place but to a commodity or commodities and buyers and sellers who are in free intercourse with one another.

5.2 Market structure

The term structure refers to something that has organization and dimension – shape, size and design; and which is evolved for the purpose of performing a function. A function modifies the structure, and the nature of the existing structure limits the performance of functions. By the term market structure, we refer to the size and design of the market.

1. Market structure refers to those organizational characteristics of a market which influence the nature of competition and pricing, and affect the conduct of business firms; 2. Market structure refers to those characteristics of the market which affect the trader's behaviour and their performances;
2. Market structure is the formal organization of the functional activity of a marketing institution.
3. An understanding and knowledge of the market structure is essential for identifying the imperfections in the performance of a market.

5.2.1 Components of Market Structure:

The components of the market structure, which together determine the conduct and performance of the market, are:

1. Concentration of market power:
2. Degree of product differentiation:
3. Conditions for entry of firms in the market:
4. Flow of market information:
5. Degree of integration:

5.2.2 Dynamics of Market Structure – Conduct and performance:

The market structure determines the market conduct and performance. The term market conduct refers to the patterns of behaviour of firms, especially in relation to pricing and their practices in adapting and adjusting to the market in which they function.

Specifically, market conduct includes:

- (a) Market sharing and price setting policies;
- (b) Policies aimed at coercing rivals; and
- (c) Policies towards setting the quality of products.

The term market performance refers to the economic results that flow from the industry as each firm pursues its particular line of conduct. Society has to decide the criteria for satisfactory market performance. Some of the criteria for measuring market performance and of the efficiency of the market structure

For a satisfactory market performance, the market structure should keep pace with the following changes:

1. Production pattern:
2. Demand pattern:
3. Costs and patterns of marketing functions:
4. Technological change in Industry:

5.2.3 Agricultural Marketing.

The term agricultural marketing is composed of two words-agriculture and marketing. Agriculture, in the broadest sense, means activities aimed at the use of natural resources for human welfare, i.e., it includes all the primary activities of production. However, generally, it is used to mean growing and/or raising crops and livestock. Marketing connotes a series of activities involved in moving the goods from the point of production to the point of consumption. It includes all the activities involved in the creation of time, place, form and possession utility. According to Thomsen, the study of agricultural marketing, comprises all the operations, and the agencies conducting them, involved in the movement of farm-produced foods, raw materials and their derivatives.

5.2.4 Scope and Subject Matter of Agricultural Marketing:

Agricultural marketing in a broader sense is concerned with:

- The marketing of farm products produced by farmers
- The marketing of farm inputs required by farmers in the production of farm products

Subject of agricultural marketing

This includes product marketing as well as input marketing. The subject of output marketing is as old as civilization itself. The importance of output marketing has become more conspicuous in the recent past with the increased marketable surplus of the crops following the technological breakthrough. The farmers produce their products for the markets. Input marketing is a comparatively new subject. Farmers in the past used such farm sector inputs as local seeds and farmyard manure. These inputs were available with them; the purchase of inputs for production of crops from the market by the farmers was almost negligible. The new agricultural technology is input-responsive. Thus, the scope of agricultural marketing must include both **product marketing and input marketing**.

5.2.5 Difference in Marketing of Agricultural and Manufactured Goods:

The marketing of agricultural commodities is different from the marketing of manufactured commodities because of the special characteristics. The special characteristics which the agricultural sector possesses, and which are different from those of the manufactured sector, are:

1. Perish ability of the Product:

Most farm products are perishable in nature; but the period of their perishability varies from a few hours to a few months.

2. Seasonality of Production:

Farm products are produced in a particular season; they cannot be produced throughout the year. In the harvest season, prices fall. But the supply of manufactured products can be adjusted or made uniform throughout the year. Their prices therefore remain almost the same throughout the year.

3. Bulkiness of Products:

The characteristic of bulkiness of most farm products makes their transportation and storage difficult and expensive. This fact also restricts the location of production to somewhere near the place of consumption or processing. The price spread in bulky products is higher because of the higher costs of transportation and storage.

4. Variation in Quality of Products:

There is a large variation in the quality of agricultural products, which makes their grading and standardization somewhat difficult. There is no such problem in manufactured goods, for they are products of uniform quality.

5. Irregular Supply of Agricultural Products:

The supply of agricultural products is uncertain and irregular because of the dependence of agricultural production on natural conditions. With the varying supply, the demand remaining almost constant, the prices of agricultural products fluctuate substantially.

6. Small Size of Holdings and Scattered Production:

Farm products are produced throughout the length and breadth of the country and most of the producers are of small size. This makes the estimation of supply difficult and creates problems in marketing.

7. Processing:

Most of the farm products have to be processed before their consumption by the ultimate consumers. This processing function increases the price spread of agricultural commodities.

5.2.6 Importance of Agricultural Marketing

Agricultural marketing plays an important role not only in stimulating production and consumption, but in accelerating the pace of economic development. Its dynamic functions are of primary importance in promoting economic development.

Optimization of Resource use and Output Management: An efficient agricultural marketing system leads to the optimization of resource use and output management. An efficient marketing system can also contribute to an increase in the marketable surplus by scaling down the losses arising out of inefficient processing, storage and transportation.

Increase in Farm Income: An efficient marketing system ensures higher levels of income for the farmers by reducing the number of middlemen or by restricting the commission on marketing services and the malpractices adopted by them in the marketing of farm products. An efficient system guarantees the farmers better prices for farm products and induces them to invest their surpluses in the purchase of modern inputs so that productivity and production may increase.

Widening of Markets: A well-knit marketing system widens the market for the products by taking them to remote corners both within and outside the country, i.e., to areas far away from the production points. The widening of the market helps in increasing the demand on a continuous basis, and thereby guarantees a higher income to the producer.

Growth of Agro-based Industries: An improved and efficient system of agricultural marketing helps in the growth of agro-based industries and stimulates the overall development process of the economy.

Price Signals: An efficient marketing system helps the farmers in planning their production in accordance with the needs of the economy.

Adoption and Spread of New Technology: The marketing system helps the farmers in the adoption of new scientific and technical knowledge. New technology requires higher investment and farmers would invest only if they are assured of market clearance.

Employment: The marketing system provides employment to millions of persons engaged in various activities, such as packaging, transportation, storage and processing, etc.

Addition to National Income: Marketing activities add value to the product thereby increasing the nation's gross national product and net national product.

Creation of Utility: Marketing adds cost to the product; but, at the same time, it adds utilities to the product. The following four types of utilities of the product are created by marketing:

- (a) **Form Utility:** The processing function adds form utility to the product by changing the raw material into a finished form. With this change, the product becomes more useful than it is in the form in which it is produced by the farmer.
- (b) **Place Utility:** The transportation function adds place utility to products by shifting them to a place of need from the place of plenty. Products command

higher prices at the place of need than at the place of production because of the increased utility of the product.

- (c) **Time Utility:** The storage function adds time utility to the products by making them available at the time when they are needed.
- (d) **Possession Utility:** The marketing function of buying and selling helps in the transfer of ownership from one person to another. Products are transferred through marketing to persons having a higher utility from persons having a low utility.

5.2.7 Classification of Markets:

Markets may be classified on the basis of each of the twelve dimensions mentioned below.

1. On the basis of Location:

On the basis of the place of location or operation, markets are of the following types:

- a) **Village Markets:** A market which is located in a small village, where major transactions take place among the buyers and sellers of a village is called a village market.



Figure 20: Village Markets

- b) **Primary wholesale Markets:** These markets are located in big towns near the centers of production of agricultural commodities. In these markets, a major part of the produce is brought for sale by the producer-farmers themselves.

- c) **Secondary wholesale Markets:** These markets are located generally in district headquarters or important trade centers or near railway junctions. The major transactions in commodities take place between the village traders and wholesalers. The bulk of the arrivals in these markets is from other markets.
- d) **Terminal Markets:** A terminal market is one where the produce is either finally disposed of to the consumers or processors, or assembled for export. Merchants are well organized and use modern methods of marketing. Commodity exchanges exist in these markets, which provide facilities, for forward trading in specific commodities. Such markets are located either in metropolitan cities or in sea-ports – in Bombay, Madras, Calcutta and Delhi.
- e) **Seaboard Markets:** Markets which are located near the seashore and are meant mainly for the import and/or export of goods are known as seaboard markets. Examples of these markets in Ghana is Tema Main Harbour Markets (Tema).

2. On the Basis of Area/Coverage:

On the basis of the area from which buyers and sellers usually come for transactions, markets may be classified into the following four classes:

- a) **Local or Village Markets:** A market in which the buying and selling activities are confined among the buyers and sellers drawn from the same village or nearby villages. The village markets exist mostly for perishable commodities in small lots.
- b) **Regional Markets:** A market in which buyers and sellers for a commodity are drawn from a larger area than the local markets. Regional markets in Ghana usually exist for food grains.
- c) **National Markets:** A market in which buyers and sellers are at the national level. National markets are found for durable goods like jute and tea.
- d) **World Market:** A market in which the buyers and sellers are drawn from the whole world. These are the biggest markets from the area point of view. These markets exist in the commodities which have a world-wide demand and/or supply.

3. On the Basis of Time Span:

On this basis, markets are of the following types:

- a) **Short-period Markets:** The markets which are held only for a few hours are called short-period markets. The products sold within these markets are of highly perishable nature, such as fish, fresh vegetables, and liquid milk.
- b) **Long-period Markets:** These markets are held for a long period than the short-period markets. The commodities traded in these markets are less perishable and can be stored for some time; these are food grains and oilseeds. The prices are governed both by the supply and demand forces.

c) **Secular Markets:** These are markets of permanent nature. The commodities traded in these markets are durable in nature and can be stored for many years. Examples are markets for machinery and manufactured goods.

4. On the Basis of Volume of Transactions:

There are two types of markets on the basis of volume of transactions.

- a) **Wholesale Markets:** A wholesale market is one in which commodities are bought and sold in large lots or in bulk. Transactions in these markets take place mainly between traders.
- b) **Retail Markets:** A retail market is one in which commodities are bought by and sold to the consumers as per their requirements. Transactions in these markets take place between retailers and consumers. The retailers purchase in wholesale market and sell in small lots to the consumers. These markets are very near to the consumers.

5. On the Basis of Nature of Transactions:

The markets which are based on the types of transactions in which people are engaged are of two types:

- a) **Spot or Cash Markets:** A market in which goods are exchanged for money immediately after the sale is called the spot or cash market.
- b) **Forward Markets:** A market in which the purchase and sale of a commodity takes place at time, t but the exchange of the commodity takes place on some specified date in future i.e., time $t + 1$. Sometimes even on the specified date in the future ($t+1$), there may not be any exchange of the commodity. Instead, the differences in the purchase and sale prices are paid or taken.

6. On the Basis of Number of Commodities in which Transaction Takes place:

A market may be general or specialized on the basis of the number of commodities in which transactions are completed:

- a) **General Markets:** A market in which all types of commodities, such as food grains, oilseeds, fiber crops, gur, etc., are bought and sold is known as general market. These markets deal in a large number of commodities.
- b) **Specialized Markets:** A market in which transactions take place only in one or two commodities is known as a specialized market. For every group of commodities, separate markets exist. The examples are food grain markets, vegetable markets, wool market and cotton market.

7. On the Basis of Degree of Competition:

Each market can be placed on a continuous scale, starting from a perfectly competitive point to a pure monopoly or monopsony situation. Extreme forms are almost non-existent. Nevertheless, it is useful to know their characteristics. In addition to these two extremes, various midpoints of this continuum have been identified. On the basis of competition, markets may be classified into the following categories:

Perfect Markets: A perfect market is one in which the following conditions hold good:

There is a large number of buyers and sellers;

- a) All the buyers and sellers in the market have perfect knowledge of demand, supply and prices;
- b) Prices at any one time are uniform over a geographical area, plus or minus the cost of getting supplies from surplus to deficit areas;
- c) The prices are uniform at any one place over periods of time, plus or minus the cost of storage from one period to another;
- d) The prices of different forms of a product are uniform, plus or minus the cost of converting the product from one form to another.

Imperfect Markets: The markets in which the conditions of perfect competition are lacking are characterized as imperfect markets. The following situations, each based on the degree of imperfection, may be identified:

- a) **Monopoly Market:** Monopoly is a market situation in which there is only one seller of a commodity. He exercises sole control over the quantity or price of the commodity. In this market, the price of commodity is generally higher than in other markets. Ghanaian farmers operate in a monopoly market when purchasing electricity for irrigation. When there is only one buyer of a product the market is termed as a monopsony market.
- b) **Duopoly Market:** A duopoly market is one which has only two sellers of a commodity. They may mutually agree to charge a common price which is higher than the hypothetical price in a common market. The market situation in which there are only two buyers of a commodity is known as the duopsony market.
- c) **Oligopoly Market:** A market in which there are more than two but still a few sellers of a commodity is termed as an oligopoly market. A market having a few (more than two) buyers is known as oligopsony market.
- d) **Monopolistic competition:** When a large number of sellers deal in heterogeneous and differentiated form of a commodity, the situation is called monopolistic competition. The difference is made conspicuous by different trade marks on the product. Different prices prevail for the same basic product. Examples of monopolistic competition faced by farmers may be drawn from the input markets.

For example, they have to choose between various makes of insecticides, pumpsets, fertilizers and equipments.

8. On the Basis of Nature of Commodities:

On the basis of the type of goods dealt in, markets may be classified into the following categories:

- a) **Commodity Markets:** A market which deals in goods and raw materials, such as wheat, barley, cotton, fertilizer, seed, etc., are termed as commodity markets.
- b) **Capital Markets:** The market in which bonds, shares and securities are bought and sold are called capital markets; for example, money markets and share markets.

9. On the Basis of Stage of Marketing:

On the basis of the stage of marketing, markets may be classified into two categories:

- a) **Producing Markets:** Those markets which mainly assemble the commodity for further distribution to other markets are termed as producing markets. Such markets are located in producing areas.
- b) **Consuming Markets:** Markets which collect the produce for final disposal to the consuming population are called consumer markets. Such markets are generally located in areas where production is inadequate, or in thickly populated urban centres.

10. On the Basis of Extent of Public Intervention:

Based on the extent of public intervention, markets may be placed in any one of the following two classes:

- a) **Regulated Markets:** Markets in which business is done in accordance with the rules and regulations framed by the statutory market organization representing different sections involved in markets. The marketing costs in such markets are standardized and practices are regulated.
- b) **Unregulated Markets:** These are the markets in which business is conducted without any set rules and regulations. Traders frame the rules for the conduct of the business and run the market. These markets suffer from many ills, ranging from unstandardised charges for marketing functions to imperfections in the determination of prices.

11. On the Basis of Type of Population Served:

On the basis of population served by a market, it can be classified as either urban or rural market:

- a) **Urban Market:** A market which serves mainly the population residing in an urban area is called an urban market. The nature and quantum of demand for agricultural products arising from the urban population is characterized as urban market for farm products.



Figure 21: Urban Market

- b) **Rural Market:** The word rural market usually refers to the demand originating from the rural population. There is considerable difference in the nature of embedded services required with a farm product between urban and rural demands.

5.2.8 Marketing Functions

Any single activity performed in carrying a product from the point of its production to the ultimate consumer may be termed as a marketing function. A marketing function may have anyone or combination of three dimensions, viz., time, space and form. The marketing functions may be classified in various ways. Thomsen has classified the marketing functions into three broad groups. These are:

Primary Functions: Assembling or procurement; Processing; Dispersion or Distribution

Secondary Functions: Packing or Packaging; Transportation; Grading, Standardization and Quality Control Storage and Warehousing Price Determination or Discovery Risk Taking Financing; Buying and Selling Demand Creation; Dissemination of Market Information

Tertiary Functions: Banking; Insurance Communications – posts & Telegraphs ; Supply of Energy – Electricity

Transportation: Transportation or the movement of products between places is one of the most important marketing functions at every stage, i.e., right from the threshing floor to the point of consumption.

Factors affecting the cost of transportation

Other things remaining the same, the transportation cost of a commodity depends on the following factors:

1. Distance
2. Quantity of the Product
3. Mode of Transportation
4. Condition of Road
5. Nature of Products:
 - a) *Perishability (e.g., Vegetables);*
 - b) *Bulkiness (e.g., straw);*
6. Availability of Return Journey consignment
7. Risk Associated: Problems in Transportation of Agricultural Commodities

Problems: The important problems arising out of the transportation of agricultural commodities are:

1. The means of transportation used are slow moving;
2. There are more losses/damages in transportation because of the use of poor packaging material.
3. The transportation cost of the farm produce is higher than that for other goods.
4. There is lack of co-ordination between different transportation agencies, e.g., the railways and truck companies.

Grading and standardization

Grading and standardization is a marketing function which facilitates the movement of produce. Grade standards for commodities are laid down first and then the commodities are sorted out according to the accepted standards.

Standardization means the determination of the standards to be established for different commodities. Pyle has defined standardization as the determination of the basic limits on grades or the establishment of model processes and methods of producing, handling and selling goods and services. Standards are established on the basis of certain characteristics-such as weight, size, colour, appearance, texture, moisture content, staple length, amount of foreign matter, ripeness, sweetness, taste, chemical content, etc. These characteristics, on the basis of which products are standardized, are termed

grade standards. Thus, standardization means making the quality specifications of the grades uniform among buyers and sellers over space and over time.

Grading means the sorting of the unlike lots of the produce into different lots according to the quality specifications laid down. Each lot has substantially the same characteristics in so far as quality is concerned. It is a method of dividing products into certain groups or lots in accordance with predetermined standards. Grading follows standardization. It is a sub-function of standardization.

Types of Grading

Grading may be done on the basis of fixed standards or variable standards.

1. **Fixed Grading / Mandatory Grading:** This means sorting out of goods according to the size, quality and other characteristics which are of fixed standards. These do not vary over time and space.
2. **Centralized / Decentralized Grading:** Based on the degree of supervision exercised by the government agencies on grading of various farm products, the programme can be categorized into centralized and decentralized grading. Under the centralized grading system, an authorized packer either sets up his own laboratory manned by qualified chemists or seeks access to an approved grading laboratory set up for the purpose by the state authorities / co-operatives / associations / private agencies. Grading in respect of commodities such as ghee, butter and vegetable oils where elaborate testing facilities are needed for checking purity and assessing quality has been placed under centralized grading system. The decentralized grading system is implemented by State Marketing Authorities under the overall supervision and guidance of the Directorate of Marketing and Inspection.

Advantages of Grading

Grading offers the following advantages to different groups of persons:

1. Grading before sale enables farmers to get a higher price for their produce. Grading also serves as an incentive to producers to market the product of better quality.
2. Grading facilitates marketing, for the size, color, qualities and other grade designations of the product are well known to both the parties, and there is no need on the part of the seller to give any assurance about the quality of the product.
3. Grading widens the market for the product, for buying can take place between the parties located at distant places on the telephone without any inspection of the quality of the product.
4. Grading reduces the cost of marketing by minimizing the expenses on the physical inspection of the produce, minimizing storage losses.

- 5 Grading minimizing advertisement expenses and eliminating the cost of handling and weighing at every stage.
6. Grading makes it possible for the farmer –
 - a) To get easy finance when commodities are stored;
 - b) To get the claims settled by the railways and insurance companies;
 - c) To get storage place for the produce;
 - d) To get market information;
 - e) To pool the produce of different farmers;
 - f) To facilitate futures trading in a commodity.
7. Grading helps consumers to get standard quality products at fair prices. 8Grading contributes to market competition and pricing efficiency

STORAGE

The storage function adds the time utility to products. Agriculture is characterized by relatively large and irregular seasonal and year – to – year fluctuations in production. The consumption of most farm products, on the other hand, is relatively stable. These conflicting behaviours of demand and supply make it necessary that large quantities of farm produce should be held for a considerable period of time.

The storage of agricultural products is necessary for the following reasons:

1. The storage of goods, therefore, from the time of production to the time of consumption, ensures a continuous flow of goods in the market;
2. Storage protects the quality of perishable and semi – perishable products from deterioration;
3. To cope with this demand, production on a continuous basis and storage become necessary;
4. It helps in the stabilization of prices by adjusting demand and supply;
5. Storage is necessary for some period for the performance of other marketing functions. 6. The storage of some farm commodities is necessary either for their ripening (e.g. banana, mango, etc.) or for improvement in their quality (e.g., rice, pickles, cheese, etc.);

Processing

Processing is an important marketing function in the present-day marketing of agricultural commodities. A large proportion of farm products was sold in an unprocessed form. At present, consumers are dependent upon processing for most of their requirements.



Figure 22: Local processing of tomatoes to tomato paste

Meaning: The processing activity involves a change in the form of the commodity. Processing converts the raw material and brings the products nearer to human consumption. It is concerned with the addition of value to the product by changing its form.

Advantages

The specific advantages of the processing function are:

1. It changes raw food and other farm products into edible, usable and palatable forms. The value added by processing to the total value produced at the farm level varies from product to product.
2. The processing function makes it possible for us to store perishable and semi – perishable agricultural commodities which otherwise would be wasted and facilitates the use of the surplus produce of one season in another season or year.
3. The processing activity generates employment.
4. Processing satisfies the needs of consumers at a lower cost.
5. Processing serves as an adjunct to other marketing functions, such as transportation, storage and merchandising.
6. Processing widens the market. Processed products can be taken to distant and overseas markets at a lower cost.

Agricultural product branding and packaging

Brands have been defined variously as ‘the public image of a business, product or individual’; ‘a reason to choose’ the ‘intersection of promise and expectation’ and even ‘love marks’. Similarly, definitions of commodities range from the very simple, ‘a raw material that can be bought and sold’ to the ideological, ‘capital is commodities’, to

the more complex, 'a good for which there is demand, but which is supplied without qualitative difference across a market'.

Brand: Intellectual property that distinguishes one product from another.

5.3.1 How branding works

Branding is not just glossy advertising. A brand comprises all that distinguishes one product or service from similar competitors — from advertising and packaging to provenance and ethics. For basic commodity products, it may seem unlikely that consumers will recognize such distinctions, but the task is little different from branding many other consumer products. There is no more physical variation between brands of mineral water, for example, than types of sugar or beef. To distinguish one commodity product from another, branding efforts must combine marketing expertise, an efficient supply chain, financial resources and effective organization. Brands should be seen as an integral part of making supply chains sustainable and profitable. This means abandoning a classic mindset about commodities: upon successful branding, commodities' core value lies not in the physical products but in the brand — intellectual property owned in the country of origin. The case of mineral water is the most obvious example of the potential for adding value to basic commodity products in the developing world.

Engage consumers Mature export markets are characterized by intense competition, few buyers, complex supply chains and sophisticated consumers for whom commodities represent a low interest purchase. Producers need to develop innovative, engaging commodity brands built on inherent strengths or points of difference and leveraging the marketing expertise of third parties where necessary.

Develop distinctive products The use of outsourcing by producers from developing countries may be fairly new, but is commonplace in mature markets as a means of circumventing both shortages of expertise and limits on physical capacity. Producers need to develop products around the core strengths of their country or company and ensure competitive advantage by using outsourcing to circumvent internal weaknesses such as marketing or product development expertise and external constraints such as quality or export standards.

Target diverse markets Although it is possible to brand almost any product, success depends on understanding that not all customers will be interested in, or prepared to pay more for a commodity brand. It is therefore critical that high value, but high cost, export markets are balanced by domestic and regional opportunities and that high margin, but low volume, premium brands are balanced by high volume mass-market products.

Leverage limited resources In developing countries where funding, infrastructure and expertise can be scarce, a focused branding strategy is crucial for complex commercial enterprises. Producers invest in branding that fits their resources and appetite for risk. This ranges from high-risk/ high-reward producer brands to low-risk/ low-reward

certification brands. Seed funding from the public sector may also be required in order to attract private sector investment and expertise.

This illustrates the main different types of brand with relevant commodity examples.

Producer brands: Allow consumers to distinguish between, often very similar, products. Chiquita bananas are a good example of how this has been done for a basic agricultural commodity.

Varietal brands: Allow consumers to distinguish new varieties of product from existing varieties. A good example of this is the Pink Lady brand (Cripps Pink).

Geographical brands: Allows consumers to distinguish products based on their specific origin. Darjeeling tea is a good example of a brand registered as a 'Geographical Indicator' (GI). *Certification brands:* Allow producers to distinguish between products based on generic ethical, social or environmental standards. Fairtrade is a good example of a certification brand.

Packaging in branding

Packaging could be categorized into primary, secondary and tertiary packaging

1. **Primary Packaging:** this is the material that firsts envelopes the material that firsts envelopes the product and holds it. It is the package that is in direct contact with the contents example is a Maggi cube
2. **Secondary Packaging:** this is the outside packaging which packaging which encloses the primary packing. Examples is the sachet of Maggi that contain 100 pieces
3. **Tertiary Packaging:** this is used for bulk handling, ware house storage, transport and shipping. Example is the carton of Maggi

Importance of packaging

Physical Protection: Packaged products require protection from mechanical shock, vibration, compression, electronic discharge and temperature

Barrier Protection: This is keeping the contents clean, fresh, sterile and safe for the intended shelf life, water vapour, dust and oxygen e.t.c.

Information Transmission: Packaged and labels tells the buyers about the packaged food, medical and chemical products, the serial and expiring or manufacturing dates

Marketing: Packaging and labes may be needed by marketers to encourage potential buyers to purchase the product

Security: Packaging plays and important role in reducing the security risks of shipment.

Anti-Counterfeiting: Package can be used to help reduce the risk of theft or resale of products.

Portion Control: Bulk commodities such as salt can be divided into smaller packages that are more suitable for individual households.

Criteria for selecting packaging materials for agricultural produce

Packaging criteria are what influence the choice of material to use in packaging farm produce for sales, storage or transportation. Packaging materials, especially for edible foods used as a tool to prolong products like packaging choice must reflect the item. The following factors must be done when selecting materials for packaging agricultural produce: –

1. **Nature of the Product (Solid or Liquid):** The nature of the product directly informs the choice of packaging materials to use e.g. Liquid products need materials that will prevent wastage from leakage as well as be able to withstand refrigerating and freezing.
2. **The Shape of the Produce:** the shape of the produce is directly proportional to the shape of the container and this relates to the amount of material required
3. **Bulkiness (Size):** for a given package, shape, quantity, size to be packed will be equal to the materials which will be the volume required of the products to be enclosed
4. **Distance to the Market:** the choice of materials used for packaging produce sometimes depends on the means of transport and distance to the market. Packaging materials for product for shipping is different from one to be transported by truck or on land.
5. **Live or frozen (livestock):** packaging materials for stock should not be permeable to water (moisture) so also is material for packaging frozen product, should be rigid to withstand freezing.

5.3 Pricing strategies for farm produce

Pricing strategies for farm produce are essential in determining how agricultural products are valued and sold in the market. Because farm products are often seasonal, perishable, and influenced by fluctuating demand and supply, selecting the right pricing strategy helps farmers and agribusinesses maximize returns, remain competitive, and ensure market access. This section explores key pricing methods and how they apply to the unique characteristics of agricultural commodities.

Cost-based Pricing: Cost-based pricing refers to a pricing method in which some percentage of desired profit margins is added to the cost of the product to obtain the final price. In other words, cost-based pricing can be defined as a pricing method in which a certain percentage of the total cost of production is added to the cost of the product to determine its selling price. Cost-based pricing can be of two types, namely, cost plus pricing and markup pricing.

Demand-based Pricing: Demand-based pricing refers to a pricing method in which the price of a product is finalized according to its demand. If the demand of a product

is more, an organization prefers to set high prices for products to gain profit; whereas, if the demand of a product is less, the low prices are charged to attract the customers.

Competition-based Pricing: Competition-based pricing refers to a method in which an organization considers the prices of competitors' products to set the prices of its own products. The organization may charge higher, lower, or equal prices as compared to the prices of its competitors.

Product Bundle Pricing: To encourage purchases, producers may group items together to sell for a single price that is lower than the total of the individual product prices. The items may be complementary, such as a gift basket of assorted cheeses, crackers and summer sausage. Alternatively, bundles may include items in excess inventory or include a popular item with a slow-moving product. Bundles may encourage customers to purchase items they would not have otherwise purchased because of the perceived discount.

Loss Leader Pricing: A loss leader is a product priced below total cost to attract new customers to the product, generate greater sales volume of the product and/or encourage sales of other products offered by the business. Some production costs are recovered in the price, but not all. Grocery stores often advertise loss leader items such as low prices on staples like bread or milk to encourage customers to come to the store for that product. Of course, management is hoping that customers will purchase other grocery items while they are there

Other Pricing Methods

Value Pricing: Implies a method in which an organization tries to win loyal customers by charging low prices for their high – quality products. The organization aims to become a low cost producer without sacrificing the quality. It can deliver high – quality products at low prices by improving its and development process. Value pricing is also called value-optimized pricing.

ii. Target Return Pricing: • Helps in achieving the required rate of return on investment done for a product. In other words, the price of a product is fixed on the basis of expected profit. 110

iii. Going Rate Pricing: Implies a method in which an organization sets the price of a product according to the prevailing price trends in the market. Thus, the pricing strategy adopted by the organization can be same or similar to other organizations. However, in this type of pricing, the prices set by the market leaders are followed by all the organizations in the industry.

iv. Transfer Pricing: Involves selling of goods and services within the departments of the organization. It is done to manage the profit and loss ratios of different departments within the organization. One department of an organization can sell its products to other departments at low prices. Sometimes, transfer pricing is used to show higher profits in the organization by showing fake sales of products within depart

Considerations Involved in Formulating the Pricing Policy:

1. Pricing policy is to be set in the light of competitive situation in the market.
2. Goal of Profit and Sales:
3. Long Range Welfare of the Firm:
4. Flexibility:
5. Government Policy:
6. Overall Goals of Business:
7. Price Sensitivity:
8. Routinisation of Pricing:

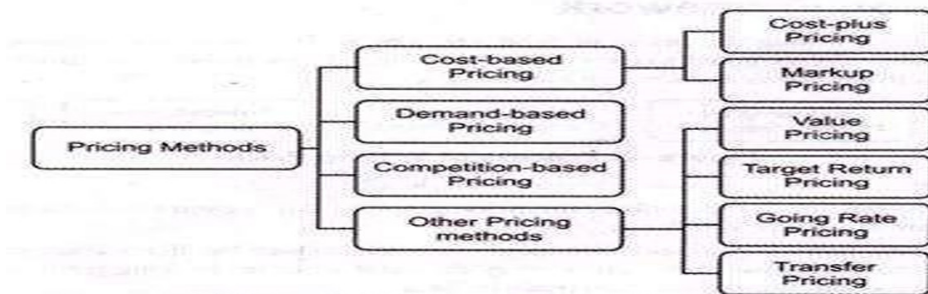


Figure 23: Pricing methods

Pricing strategies at the Life Cycle of Product

A product processes through a number of stages, such as from introduction to growth, maturity, and decline. This sequence of stages is called Product Life Cycle (PLC). The PLC influences the marketing strategy and marketing mix of an organization

Introduction: Refers to the initial stage where an organization creates awareness among customers about the availability of a product and develops a market for the new product. The sales of the organization during this period are constant. In this stage, the pricing policy depends upon the availability of dose substitutes. Moreover, in this stage, the prices are either fixed higher to cover the production cost or low to attract customers. The two types of pricing strategies in the introduction stage (as shown in Figure-12) are explained as follows:

ii. Price Skimming: Refers to a pricing strategy in which a producer sets high prices initially when the product is newly introduced in the market. After that, there is a gradual reduction in the prices of a product. This strategy is used to capture maximum consumer surplus and spread profits over a period of time.

iii. Penetration Pricing: Refers to charging minimum price for a product for gaining large market share. In this strategy, it is expected that customers switch to the product because of lower price.

The second stage

In this stage, sales take off, the market knows of the product; other companies are attracted, profits begin to come in and market shares stabilize. The third stage is maturity, where sales grow at slowing rates and finally stabilize. In this stage, products get differentiated, price wars and sales promotion become common and a few weaker players exit. The fourth stage is decline. Here, sales drop, as consumers may have changed, the product is no longer relevant or useful. Price wars continue, several products are withdrawn and cost control becomes the way out for most products in this stage.

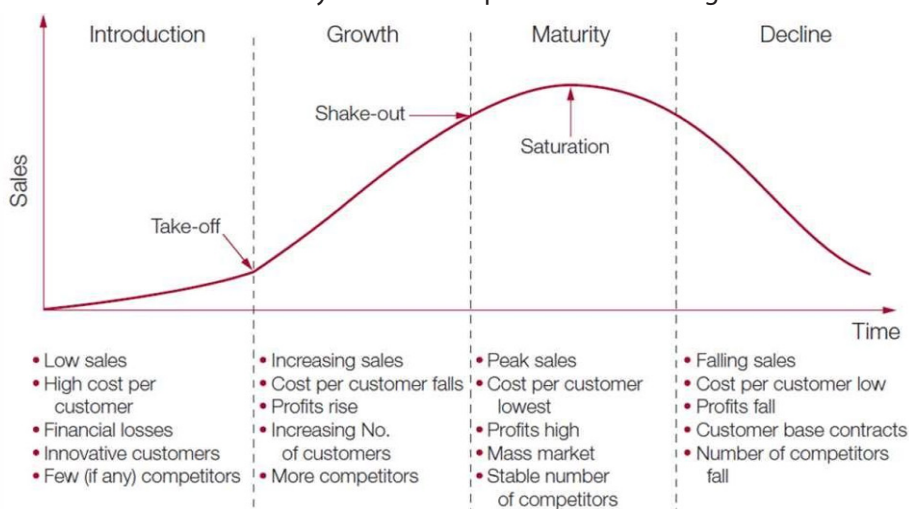


Figure 24: Stages new of product sales

5.3 Digital marketing and e-commerce for agribusiness

5.3.1 Social media platforms and agricultural value chains

Agricultural value chains are complex networks that encompass the entire process of producing, processing, and distributing agricultural products from producers to end consumers. These chains represent a series of interdependent stages, each adding value to the final product and involving a range of actors, resources, and activities.



Figure 25: Common social media platforms for digital marketing of agribusiness produce

The growing use of social media platforms in agricultural value chains affects both their characteristics and their key actors. Further, the features of social media platforms enable actor interactions that create some benefits for the actors within the value chain. This section discusses these relationships further to build a framework to analyze. These include WhatsApp and Facebook

5.3.2 Platform features engaged to enable actor interactions

Various features of social media platforms are leveraged to facilitate interactions within agricultural value chains. These include discussion forums, live chats, video conferencing, knowledge-sharing groups, and online marketplaces. Through these tools, actors can share real-time information, collaborate on projects, and collectively address challenges, contributing to enhanced efficiency and sustainability in the value chain.

Specific case studies.

Today's digital platforms include payment systems, credit scoring, individual data profiles, content services such as farming advice, weather information, market linkages and social media links. Focused on rural and agricultural needs, agri-service platforms have three service pillars:

- 1) e-commerce that enables farmers and businesses to trade directly,
- 2) Digital payments, savings, credit.
- 3) Social media platform-enabled interactions in the value Chain Social media platforms facilitate interactions among various actors in the agricultural value chain that were previously limited by geographical constraints. Farmers can share insights on best practices, weather conditions, and pest management, while agribusinesses can directly connect with consumers to understand preferences and demand patterns.

SUSTAINABLE AGRICULTURE AND AGRIBUSINESS PRACTICES

6.1 Climate-smart agriculture

Climate-smart agricultural practices are techniques, approaches, technologies and practices that increases farm productivity by minimizing the impact of climate change on agriculture. These practices focus on maximizing food production while minimizing environmental impacts and building long-term sustainability.

Example of climate-smart Agricultural practices include:

1. Enhancing Productivity

a. Climate-Resilient Crops



Figure 26: Improved seeds (high yielding and drought resistance seeds)

b. Improved Livestock Management



Figure 27: High nutritious cattle feed

c. Digital Agriculture



Figure 28: The use of drones, tractors and remote sensing

D. Integrated Production Systems



Figure 29: Integrated crop-livestock system

E. Soil health improvement



Figure 30: Soil health improvement

Water Management System:



Figure 31: Irrigation systems

Significances of Climate-smart Agriculture

a. *Improved Food Security and Productivity*

Climate-smart agriculture (CSA) enables farmers to produce more food of greater quality while reducing the demand on natural resources. For rural areas who mostly depend on agriculture, this increased production can boost earnings and food security.

b. *Increased Climate Change Resilience*

Climate-smart agriculture (CSA) assists farmers in adjusting to the rising temperatures, unpredictable weather, and droughts that are part of the changing climate patterns. Resilience may be increased by techniques including water management, drought-tolerant crops, and crop and animal diversity. CSA may help farms endure severe weather events and sustain yield by enhancing soil health and water retention.

c. *Reduces Greenhouse Gas Emissions*

In the agriculture sector, CSA can aid in lowering greenhouse gas emissions from fertilizer and animal use. Methods such as better manure management, soil carbon sequestration, and fertilizer efficiency can lower greenhouse gas emissions. CSA helps reduce climate change and create a more resilient food system by encouraging sustainable agriculture methods.

d. *Increase in income and rural development*

Climate-smart agriculture can also contribute to rural development and economic growth by increasing farmer incomes and creating new jobs.

Organic Farming and Certification

The process of certifying organic farming makes ensuring that a farm's production practices adhere to a set of standards. Usually established by regulatory or certifying organizations, this standard describes the acceptable inputs, methods, and processes for organic farming.



Figure 31: certificate of organic farming

In organic farming, synthetic fertilizers, pesticides, and genetically modified organisms are avoided in favor of natural processes such as crop rotation, soil health, and natural disease and insect management.

Advantages of Organic certification

1. Customer Trust

The organic label gives customers assurance about the uniqueness of the product and its manufacturing methods. This motivates consumers to purchase the organic foods.

2. Market Access

A producer's access to premium and specialized markets is greatly improved by obtaining certifications such as organic, fair trade, or non-GMO. By serving as evidence of adherence to particular standards, these certifications reassure customers those goods fulfill desired ethical, health, or environmental norms.

3. Value Addition

By providing chances for farmers and processors to promote their goods and services, certification may help them make more money. In the perspective of customers, organic food is considered more healthier than the inorganic. This therefore helps to increase the profit margin of actors in the organic food chain.

4. Environmental Stewardship:

A certification shows a dedication to eco-friendly. The organic label gives customers assurance about the uniqueness of the product and its manufacturing method thereby encouraging customers to purchase the product since accepted strategies were used

6.2 Sustainable resource management

The goal of sustainable resource management is to use natural resources to satisfy present demands without endangering the capacity of future generations to satisfy their own. To ensure the long-term availability and well-being of both people and the environment, it is important to strike a balance between resource usage and conservation.

SUSTAINABLE RESOURCE MANAGEMENT

1. Addressing Present Needs

The management of resources must enable people to maintain a respectable standard of living while meeting their fundamental necessities, which include food, water, energy, and shelter. In order to promote well-being without placing an undue strain on ecosystems, this calls for fair distribution and effective utilization.

2. Preserving the Future

The ability of future generations to fulfill their own requirements must not be compromised in order to be considered really sustainable. To prevent permanent harm like soil erosion, deforestation, or water shortages, resource usage must be strictly regulated.

3. Keeping Conservation and use in Balance

Conservation and resource extraction need to be carefully balanced. While underuse might impede growth, overuse causes depletion. Long-term gains are ensured by a balanced strategy that promotes both environmental preservation and economic progress.

4. Taking Economic, Social, and Ecological Aspects into Account

At the nexus of ecological health (preserving biodiversity and natural systems), sustainable resource management. Economic viability (supporting livelihoods and development) and social equity (ensuring equitable access and benefits)

5. Encouragement of Sustainable and Eco-Friendly Resources.

There is less strain on finite resources as we move toward renewable resources (such solar, wind, and sustainable forestry). Adopting eco-friendly methods, such as green infrastructure or organic farming, also reduces damage to the environment.

6. Minimizing waste

Reducing waste at all stages of production and consumption is a fundamental tenet of sustainability. This consists of: cutting back on resource inputs, recycling waste goods, reusing resources wherever feasible, and establishing circular economies—where products are used as inputs for new processes.

AGRIBUSINESS LAW AND POLICIES

Land tenure systems and property rights

7.1.1 Introduction to Land Tenure and Property Rights in Ghana

Land is one of the most valuable and contentious natural resources in Ghana. For agribusiness practitioners, land determines the capacity to produce, expand, attract investment, and sustain long-term operations. However, accessing land in Ghana is complex due to the dual nature of land ownership—customary and statutory—and the variety of property rights recognized under both legal systems. The Land Act, 2020 (Act 1036) was enacted to harmonize land laws, provide clarity, reduce land disputes, and ensure transparency in land administration.

Land tenure refers to the legal or customary arrangements under which individuals, groups, or institutions hold, use, and transfer rights in land. Property rights, on the other hand, are enforceable claims to use, control, and benefit from land, natural resources, or any tangible or intangible asset. In the agricultural context, land tenure and property rights define who can use land, for how long, under what conditions, and how land can be transferred, mortgaged, or inherited.

7.1.2 Property Rights of Agribusiness Practitioners

For agribusiness practitioners, land property rights are vital for operations. The ability to access land, invest in infrastructure, obtain loans using land as collateral, and enter into contracts with third parties all depend on the nature and security of one's property rights.

Secure land rights:

- Encourage long-term investment in soil fertility, irrigation, and buildings.
- Enable access to formal credit by using leases as collateral.
- Foster partnerships through contract farming and joint ventures.
- Allow enterprises to enter legally binding land-use or development agreements.

However, weak or undocumented rights, especially under customary arrangements, expose agribusinesses to risks such as land disputes, eviction, and litigation. Therefore, practitioners must ensure their land rights are clearly defined, properly documented, and registered with the Lands Commission.

7.1.3 Nature of Property Rights in Ghana

Property rights in Ghana are rooted in both **customary law** and **statutory law**. The 1992 Constitution of Ghana recognizes and protects property rights as fundamental human rights under Article 18, which guarantees the right to own property either individually or in association with others. Article 20 further protects individuals from arbitrary deprivation of property and ensures compensation where land is compulsorily acquired by the state.

There are two broad categories of property rights in land in Ghana: **private property rights** and **communal property rights**. Private property rights allow individuals or legal entities to own and control land subject to law. Communal property rights are held by stools, skins, clans, or families on behalf of their members, especially under customary law.

Under both systems, the right to own land encompasses several rights, including the right to use (usufruct), exclude others, lease, sell, mortgage, inherit, and develop the land. However, the ability to exercise these rights may be limited by law, contract, environmental regulations, or customary restrictions.

7.1.4 Forms of Land Interests under the Land Act, 2020

The Land Act, 2020 outlines several interests in land that define the type and extent of land tenure available to individuals and businesses. These interests determine the nature of property rights that agribusiness entrepreneurs can hold.

Allodial Title is the highest form of land ownership in Ghana. It is held by the state, stools, skins, clans, or families. Although it represents absolute ownership, agribusiness practitioners rarely acquire allodial title because it cannot be transferred except through a grant of a subordinate interest such as a lease.

Customary Law Freehold is an interest held by members of a customary community who have been granted land by a stool, skin, or family, often through inheritance or sale. This interest gives perpetual rights and can be transferred or used as security. It is recognized as a property right protected under the Constitution but cannot be acquired by non-citizens.

Common Law Freehold arises from express grant or sale of land under statutory law. It is perpetual and alienable, offering full property rights. However, as with the customary law freehold, foreigners are prohibited from acquiring this interest in stool or skin land.

Usufructuary Interest or customary freehold is granted to individuals who occupy and use land belonging to a stool or family. It is inheritable and transferable, giving substantial property rights, but it cannot be sold to outsiders without the consent of the allodial title holder.

Leasehold Interest is the most relevant and practical interest for agribusiness. It provides time-bound rights to use land for agriculture or agribusiness purposes under agreed terms. A leaseholder can use, mortgage, or develop the land subject to conditions in the lease agreement. Non-citizens can only acquire leasehold interests for a maximum of 50 years, after which the lease may be renewed, subject to terms.

Customary Tenancy arises where land is granted to a tenant by a landholding family or stool under customary terms. These may involve payment in kind, sharecropping, or labour. Although this arrangement allows land use, it offers weak property rights without formal documentation and often leads to disputes.

Legal Restrictions on Land Ownership by Non-Citizens

Under the Land Act, 2020, non-citizens are barred from acquiring freehold interests in land. This restriction also applies to companies with more than 40% foreign ownership. Foreign agribusiness investors can only access land through leaseholds not exceeding 50 years, and such leases must be registered. Any purported grant of freehold to a non-citizen is void. This provision ensures that land ownership remains in the hands of Ghanaians while still allowing foreign participation in agribusiness through time-bound lease agreements.

Customary Land Administration and Role of Customary Land Secretariats

Most agricultural lands in Ghana are under customary ownership. The Land Act, 2020 mandates all stools, skins, clans, and families to establish Customary Land Secretariats (CLSs). These secretariats maintain records of land allocations, transfers, and disputes. They play a crucial role in ensuring transparency, reducing fraud, and facilitating legal transactions between traditional authorities and agribusinesses.

Agribusiness practitioners seeking land under customary systems must deal with the CLS to validate land availability, execute agreements, and document transactions. The CLS provides a local avenue for verifying ownership, avoiding overlapping claims, and resolving conflicts. This enhances the enforceability of land rights and reduces the risk of litigation.

Land Registration, Documentation, and Conveyancing

Under the Land Act, 2020, all land transactions must be documented and registered with the Lands Commission. Conveyancing documents must be prepared by a qualified lawyer, and every lease or sale must be in writing and signed by the parties. Oral grants under customary law are no longer sufficient without proper documentation.

Agribusinesses must ensure that all land leases or transfers are legally executed and registered. Registration is not merely procedural—it confers legal title, makes the rights enforceable, and ensures public notice. Furthermore, the Land Act allows for digital land transactions, paving the way for electronic registration and search systems that enhance transparency.

Legal Protections and Offences

The Land Act criminalizes activities that threaten land security. These include landguard operations, extortion, illegal sale of land, and interference with lawful land users. Offenders face penalties ranging from five to fifteen years in prison. Agribusinesses are protected under this law and may seek legal remedies if their developments are obstructed or threatened.

Accountability of Customary Authorities and Fiduciary Obligations

Traditional authorities who manage customary lands act as fiduciaries for their communities. The Land Act mandates that they act transparently, equitably, and in the best interest of their people. They are required to consult with community members and disclose land revenues. Agribusinesses must ensure that land transactions with chiefs or family heads comply with these legal expectations to avoid future challenges.

Compulsory Acquisition and Compensation

The Constitution and the Land Act provide that land may be compulsorily acquired by the State for public purposes, such as infrastructure or national development. However, this must be done lawfully and with prompt, fair, and adequate compensation. Agribusiness practitioners must ensure that their rights are properly registered to be eligible for compensation in the event of compulsory acquisition.

Strategic Implications for Agribusiness

For agribusiness entrepreneurs, land tenure and property rights are central to business planning and sustainability. Secure and documented property rights:

- Enable capital investment in agriculture and infrastructure
- Support credit access and long-term planning
- Provide legal protection and reduce disputes
- Facilitate contractual relations in value chains

Entrepreneurs must conduct due diligence, use professional services, engage Customary Land Secretariats, and ensure all land dealings are documented and registered. Awareness

of property rights is not only a legal necessity but also a business imperative for agricultural transformation

7.2 Agricultural policies and regulations

7.2.1 Introduction to Agricultural Policy

Agricultural policy refers to a comprehensive set of decisions, rules, and strategies adopted by a government to guide the development and regulation of the agricultural sector. In Ghana, agricultural policy plays a crucial role in shaping the direction of farming practices, agribusiness investment, land use, market access, pricing, and rural development. For entrepreneurs, these policies define the environment within which they operate, influencing access to resources, business opportunities, legal compliance, and incentives such as subsidies or tax reliefs. Understanding these policies is essential for agribusiness entrepreneurs seeking to align their operations with national development goals and navigate the legal landscape effectively.

7.2.2 Objectives of Agricultural Policy in Ghana

The overarching goal of Ghana's agricultural policies is to transform the sector from a largely subsistence-driven activity into a commercially viable and modernized one. One key objective is to ensure food and nutrition security by increasing domestic food production, improving distribution systems, and promoting access to healthy and affordable food for all segments of the population. Another major aim is to promote inclusive rural development. This is pursued by supporting smallholder farmers, empowering youth and women, and creating sustainable livelihoods to reduce poverty in rural communities.

7.2.3 Key Agricultural Policies and Programs in Ghana

The **Ghana Shared Growth and Development Agenda (GSGDA I & II)** was a strategic policy framework implemented between 2010 and 2017. Its primary objective was to lay the foundation for transforming Ghana's agricultural sector into a modern, high-productivity system. This agenda emphasized improving irrigation infrastructure, strengthening farmer-based organizations, and expanding access to agricultural credit. It encouraged private sector participation in areas such as input supply and mechanization services. This policy framework played a key role in directing investment and resources to boost production and rural incomes.

The **Food and Agriculture Sector Development Policy (FASDEP II)** is the main agricultural policy document guiding the sector's development. It emphasizes sustainable agricultural growth that is led by the private sector but facilitated by the government. FASDEP II promotes the use of improved technologies, supports research and extension services, and introduces risk-mitigation tools such as crop insurance. The policy underscores the

importance of legal and institutional reforms to enhance land security and promote investments in agribusiness.

The **Medium-Term Agriculture Sector Investment Plan (METASIP)**, structured in phases (I, II, and III), serves as the implementation plan for FASDEP II. METASIP outlines specific investment strategies and budget allocations to achieve national policy objectives. Its focus includes improving market access through road and storage infrastructure, promoting livelihood and nutritional programs, and strengthening institutions. For entrepreneurs, METASIP provides clarity on government priorities and offers opportunities to collaborate on funded projects and public-private partnerships.

The **Planting for Food and Jobs (PFJ)** program, launched in 2017, is one of the most transformative recent agricultural initiatives. It was designed to boost food production and create employment, especially among youth. Under this program, farmers receive subsidized seeds and fertilizers, access to improved extension services, and support in linking their produce to ready markets. PFJ has also incorporated digital tools for monitoring and input distribution. Entrepreneurs have benefited through roles as input suppliers, aggregators, transporters, and service providers. The legal dimension includes contracts with the Ministry of Food and Agriculture (MoFA), compliance with subsidy regulations, and quality control enforcement.

The **Planting for Export and Rural Development (PERD)** program was introduced to diversify Ghana's agricultural exports beyond cocoa. The program supports the cultivation of tree crops such as cashew, mango, coconut, oil palm, and rubber. Farmers receive technical assistance, improved planting materials, and market linkage support. This program encourages outgrower schemes, public-private partnerships, and long-term investment in plantation agriculture. From a legal standpoint, it requires clear land tenure arrangements, often through lease agreements with customary landowners, and adherence to national and international standards for export commodities.

The **Ghana Commercial Agriculture Project (GCAP)**, funded by the World Bank and USAID, sought to attract private investment into agriculture through structured land access, irrigation development, and risk-sharing mechanisms. GCAP provided a framework for structured leases with landowners, facilitated investment in large-scale farming, and supported smallholder outgrower schemes. Legal implications of this program include formalization of land rights, environmental compliance obligations, and the establishment of binding agreements between investors and communities.

7.2.4 Legal and Regulatory Framework for Agricultural Policy

The **1992 Constitution of Ghana** provides the legal foundation for agricultural development. Article 36(2) requires the state to modernize agriculture and protect rural production systems, while Article 20 ensures protection of private property rights, including land and other resources necessary for agribusiness investment. These constitutional provisions underpin all agricultural policies and laws.

The **Lands Commission Act, 2008 (Act 767)** created the institutional structure to manage land administration. It mandates the registration of interests in land and promotes transparency in land transactions. This Act is particularly relevant to entrepreneurs who need secure land tenure for farming, processing, or agro-industrial ventures.

The **Land Act, 2020 (Act 1036)** consolidates all existing land laws and provides a clear and coherent framework for land acquisition, registration, and conflict resolution. It recognizes both statutory and customary landholding systems and introduces the requirement for written agreements for all land leases, the establishment of Customary Land Secretariats, and dispute resolution mechanisms. Agribusiness entrepreneurs must ensure that their land agreements are legally registered and conform to the new provisions to avoid future disputes.

The **Ghana Investment Promotion Centre (GIPC) Act, 2013 (Act 865)** governs investment activities, including those in the agricultural sector. It outlines procedures for business registration, eligibility for incentives, and foreign investor equity requirements. Agribusiness entrepreneurs benefit from investment incentives such as tax holidays, duty exemptions for imported agricultural equipment, and access to promotional support. However, compliance with the Act is essential to avoid sanctions and to secure full legal protection.

The **Environmental Protection Agency Act, 1994 (Act 490)** mandates all agricultural and agro-industrial projects that may impact the environment to undergo Environmental Impact Assessments (EIA). Entrepreneurs developing processing plants, large-scale farms, or irrigation schemes are required to obtain environmental permits. Non-compliance may result in closure of operations, fines, or revocation of licenses.

The **Plant Protection Act, 2020 (Act 803)** aligns Ghana's phytosanitary and biosecurity regulations with international standards. It regulates the import and use of agrochemicals, pest control measures, and plant quarantine procedures. For entrepreneurs involved in production for export, adherence to this Act ensures that products meet international market standards and are not rejected at border points.

The **Ghana Standards Authority (GSA) Act, 2022 (Act 1074)** empowers the Ghana Standards Authority to enforce quality and safety standards for products and services. Agribusiness operators engaged in food processing, packaging, and marketing must ensure that their products meet the specified standards on labelling, weights, hygiene, and shelf life. Compliance is essential for accessing both domestic and international markets.

7.2.5 Key Institutions in Agricultural Policy Implementation

Several institutions are tasked with implementing Ghana's agricultural policies. The Ministry of Food and Agriculture (MoFA) sets national priorities and coordinates programs such as PFJ and PERD. The Ghana Cocoa Board (COCOBOD) manages cocoa production, pricing, and farmer support services. The Ghana Irrigation Development Authority (GIDA) develops and manages irrigation schemes to support year-round farming. The National

Food Buffer Stock Company (NAFCO) purchases and stores surplus food to stabilize prices and ensure food security. The Ghana Commodity Exchange (GCX) facilitates the formal trade of agricultural produce, while the Ghana Investment Promotion Centre (GIPC) and Environmental Protection Agency (EPA) offer investment facilitation and environmental oversight, respectively.

7.2.6 Opportunities for Agribusiness Entrepreneurs

Ghana's agricultural policies present numerous opportunities for entrepreneurs. The PFJ program allows private individuals and companies to participate as input suppliers or produce aggregators. PERD creates avenues for investment in tree crop plantations and value chains, supported by government infrastructure and subsidies. Export-oriented entrepreneurs benefit from support under the GSA and Plant Protection Act to meet quality standards and access premium markets. Legal structures such as land leasing frameworks and investment protection laws also create a secure environment for entrepreneurs to thrive.

Case Studies and Legal Analysis

In a typical PFJ contract farming arrangement, a farmer may enter into an agreement with an input dealer for the supply of subsidized fertilizer. If either party defaults, the legal enforceability of the contract determines the remedies available. Another example involves an entrepreneur leasing land for mango cultivation under PERD. The legal security of the lease, the registration with the Lands Commission, and the presence of dispute resolution clauses all impact the success of the project. For export-bound produce such as fresh pineapples, compliance with standards under the Plant Protection Act and certification from the Ghana Standards Authority ensures that products meet the requirements of importing countries and avoid rejection at the point of entry.

7.3 Food safety standards and compliance

The quality and safety of food have become topical issues due to the direct relationship between food and human health. Should standards concerning food quality and safety be seen by developing countries as 'foreign imposition' or a matter of public concern and consumer protection? Shouldn't the health of consumers be the primary focus regardless of the origin of these standards?

7.3.1 Food quality and safety framework-policies, standards, and institutions

Standards are documents, established by consensus and approved by a recognised body, that provide, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods. Standards are normative documents, which are broadly used in industry and trade as a self-regulatory mechanism

and as a description of the state-of-the-art of the area of interest. Based on the body setting the standards and the extent of enforcement/liability, standards can be grouped into mandatory and voluntary standards.

7.3.2 Types of standards

Mandatory standards: These are set by governments in the form of regulations specifying for example technical requirements such as: testing, certification, level of contamination, level of residues, quality and labelling and are enforced by liability rules in case of non-compliance.

Voluntary standards: They are set either by multilateral organisations (e.g. World Trade Organization – WTO) or supranational organisations (e.g. EU) with the objective to harmonise/benchmark national food safety regulations of member states within the framework of trade liberalisation,

OR by private stakeholders through formal coordinated approaches of key stakeholders in the food chain (e.g. EurepGAP, ecological or fair-trade labelling)

OR are developed and monitored by individual companies with the objective to meet specific attributes required by customers such as product quality, organic quality, worker safety and environmental protection etc.

Product standards: these include *performance, quality, safety, design and labelling*; production/process standards: these are concerned with how goods should be produced; generic management standards: these deal with systematic approaches to product safety and quality applied to any company/organisation irrespective of the product/service produced (e.g. ISO 9000); ethical standards: these deal with the issues of environmentally sound production (e.g. ISO 14000 or agriculture), working conditions (e.g. Fair Trade), etc.

7.3.3 Food Policy

Food policy is a plan or course of action intended to influence and determine decisions, actions, behaviour, and perceptions to enable people access to enough food for an active and healthy life. It consists of the setting of goals for food production, processing, marketing, availability, access, utilization and consumption, as well as the processes for achieving these goals on a local, national, regional and global level. Food policy comprises the mechanisms by which food-related matters are addressed or administered by governments, by international bodies or networks, or by any public institution or private organization.

Ghana's food policy; responsible Ministries

Five Ministries are responsible for the formulation of policies and the implementation of support schemes for food safety and quality

1. Ministry of Food and Agriculture (MoFA),
2. Ministry of Trade and Industries (MoTI),
3. Ministry of Health, and (MoH)

4. Ministry of Environment, Science & Technology (MEST)
5. Ministry of Local Government, Rural Development and Environment.

7.3.4 The HACCP system for food safety

HACCP is a management system based on logical, scientific approach to controlling safety problems in food processing in a timely manner. By using HACCP, control is transferred from end product testing (i.e. testing for failure) to the design and manufacturing of foods (i.e. preventing failures).

HACCP is product specific and plant specific, and therefore, a unique plan has to be chalked out for each product and/or process. Recognized in 1985 by the National Academy of Sciences as a preventive approach for ensuring the microbiological safety of foods. Endorsement by WHO in 1987 gave HACCP an international recognition. CAC's adoption of HACCP is the basis for an internationally recognized approach for addressing food safety

Implementation of HACCP System

The HACCP system is based on a universally recognized set of **seven principles** that are used for the development of an HACCP plan for food. There are also **five preliminary steps** that need to be taken prior to the implementation of the seven principles. Together they constitute the **twelve steps** in the Codex Alimentarius Logic Sequence for the Application of HACCP.

Preliminary Steps

Step 1: Assemble an HACCP team, which should be made up of different stakeholders and experts.

Step 2: Describe the food product that the HACCP plan will address (name, raw materials, packaging, shelf-life, etc).

Step 3: Identify the intended use of the food product (where and by whom the product will be used).

Step 4: Construct a flow diagram of the process that is used to produce the food product.

Step 5: Conduct an on-site verification of the process flow diagram.

Step 1: Hazard analysis

Hazard identification: The first stage of hazard analysis is the identification of known potential hazards that are likely to be associated with the product.

b. Hazard evaluation: Determine which of the hazards that have been identified in the first stage of the hazard analysis are significant, and therefore need be addressed in the HACCP plan for the product: The identified hazards must be considered for their *likely occurrence*, and the *severity* of the risk.

Step 2: determine the critical control points (CCP)

CCP is defined as a point, step or procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to acceptable levels. A CCP decision tree is used to assess each step in the process to determine whether it is a critical control point.

Step 3: establish critical limits for each CCP

The critical limits are the maximum and minimum values within which a physical, biological or chemical hazard must be controlled at a CCP to prevent, eliminate or reduce the occurrence of an identified safety hazard to an acceptable level. The critical limits will be based on parameters such as: time/temperature, salt concentration, pH levels, chlorine levels, humidity.

Step 4: establish monitoring procedures for each

Monitoring is a sequence of measurements to assess whether a CCP is under control and to produce an accurate record for future use and verification. Monitoring can give signals as to whether or not system is losing control. The monitoring mechanism can either be manual or automated. Someone should be assigned to the monitoring process.

Step 5: establish corrective action procedures for each CCP

Corrective actions are the procedures to be followed when a deviation occurs, where deviation is a failure to meet the critical limits. HACCP is a pro-active system, in that the team should determine in advance what it will do when the critical limits are not met at a CCP. The employees must be trained to take timely corrective actions, and they must sign the corrective action documentation.

Step 6: establish record-keeping and documentation procedures

Records must be kept in an orderly manner which will include information on title and date of record, product identification, critical limits, time of observation. The records must be signed by the monitoring employee and the reviewer to maintain accountability.

Record Keeping in HACCP: records serve as a documentation of a firm's compliance with HACCP plan. Well-maintained records are good source of evidence against potential lawsuits against the firm.

Step 7: Verification and Validation of the System

After the HACCP plan is put in place, the team should verify if it is working the way it was expected to. The HACCP team should check for calibration of process monitoring instruments, and make sure that employees are keeping specific, accurate and timely records. Internal auditing must be conducted once every six months.

A HACCP plan developed in this manner, has to be audited by a certifying agency before and after its completion. Agribusiness firm will receive HACCP certification only upon successful completion of the audit. Thereafter, the certifiers will do auditing of the HACCP plan every six months.

7.3.5 Statutory and Regulatory Bodies for Standard Setting and Control in Ghana.

We will look in detail at the special roles of these two statutory bodies (and various divisions under them); as well as constraints to effective delivery of their mandates, such as duplicity of roles and functions. I hope you will find this session equally interesting.

A) The Ghana Standards Board

- As a subordinate structure under the Ministry of Trade and Industry, the Ghana Standards Board (GSB) is tasked with responsibility for setting standards on general food quality, including organic agriculture etc.
- The GSB is also in charge of the publication and inspection, registration and testing of chemical residues in food and other products.
- The Board has oversight responsibilities for management of the nation's quality infrastructure.

This comprises some major roles played by the Ghana Standards Board are in the areas of:

- Development of national standards, the Ghana Standards (GS) including food products, in line with relevant international standards,
- Assistance in the development of company standards, which are harmonised with target markets,

Another key area of operation of the Ghana Standards Board is in the area of testing, which includes chemical analysis of food and drinks and agricultural products for quality evaluation and certification purposes.

As a subordinate body under the Ministry of Health, the Food and Drugs Board (FDB) is charged with regulating the manufacture, importation, exportation, distribution, use and advertisement of food, drugs, cosmetics, household chemical substances and medical devices.

The Food and Drugs Board (FDB)

- With special reference to food quality and safety, the FDB is responsible for the:
- Registration of food, human and animal drugs, herbal medicines, homeopathic drugs, cosmetics, medical devices and household chemical substances, and
- Publication of codes of practice in connection with matters provided for under the Food and Drugs Law for the purpose of giving guidance (examples: guidelines for the export of palm oil, advertisement of alcoholic beverages).

The FDB has got two main divisions; one deals with drugs, the other with standard setting and enforcement related to food. The other departments/units of the FDB provide cross-cutting services to these two divisions such as legal, laboratory and administration services.

- The **Food Division** of the FDB contributes to the attainment of the functions of the Board for safeguarding public health and safety by ensuring that all food products meet the appropriate standards of safety and quality.

The Food Safety and Nutrition Department is made up of the following operational units:

Food Product Evaluation and Registration Unit,

Food Safety and Management Unit, and

Food Standards Unit.

- The major functions of the Food Product Evaluation and Registration Unit are:
- Registering food products,
- Evaluating of food product labels to ensure conformance to the labelling law, and
- Conducting evaluation meetings for food product approval.
- The principal functions of the Food Safety and Management Unit of the FDB include:
- Assisting local food manufacturers/processors in the implementation of food safety management system such as the HACCP system,
- Conducting Food Safety Audits,
- Conducting training programmes for manufacturers or processors, staff of the hospitality sector, catering schools etc.,

The principal function of the Food Standards Unit is to make available the appropriate food standards as contained in the Food and Drugs Law (PNDCL 305B). The Unit has these responsibilities:

The Food Inspectorate Department is mandated to undertake inspection of food or systems for control of food, raw materials, processing and distribution, including in-process and finished product testing, in order to verify that they conform to current Good Manufacturing Practices (GMP).

- The Department undertakes the following types of inspections:
- Food premises inspections, and
- Food destination inspections.

The functions of the Food Inspectorate Department are carried out by the following operational Units: Veterinary Unit, Food premises inspection unit, and Post market Surveillance unit.

7.3.4 Certification and accreditation

Accreditation refers to the formal recognition by a body (accreditation body authorised by the standard owner) that a certification body (or person) is competent to carry out certification using a given standard in specified business sectors.

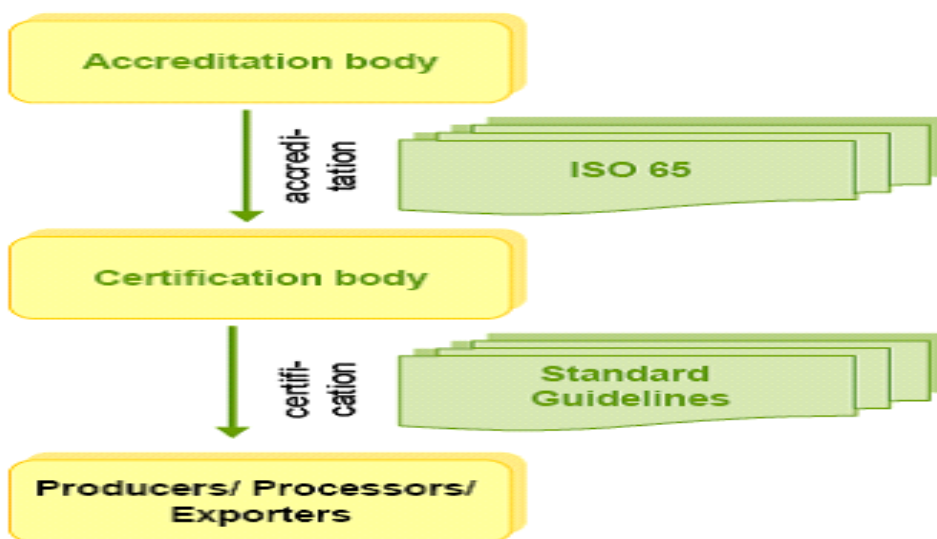


Figure 33: Relationship between Certification and accreditation bodies

Certification Bodies

Standards have to be developed establishing rules that every producer has to comply with **Certification systems** need to be in place to provide for checks by a person from outside (auditor) who inspects whether the organic rules are being followed and issues or withdraws the certificate depending on compliance or otherwise.

The Fairtrade Labelling Organizations International (FLO), was established in 1997, and is an association of 20 labelling initiatives to promote and market the Fairtrade Certification Mark.

Benefits of compliance

Have Competitive Prices for Products: Compliance ensures that products meet regulatory standards, which enhances their perceived value. This allows agribusinesses to command fair and competitive prices, especially in formal and export markets.

Gain Better Market Access: Meeting food safety and quality standards opens doors to high-value markets, including supermarkets, hotels, and international buyers, who demand certified and safe products.

Enjoy Trustful Supplier-Customer Relations: When businesses consistently meet safety and quality laws, they build trust with buyers and suppliers. This fosters long-term business relationships based on reliability and consistency.

Generate Improved Customer Satisfaction: Consumers are more satisfied and loyal when they are assured of safe, high-quality food. Compliance helps meet customer expectations and builds a strong brand reputation.

Have Less Rejects of Products: Products that meet established standards are less likely to be rejected by buyers or regulatory bodies. This reduces losses and waste, especially in export and high-end domestic markets.

Trust Reposed in the Industry: By complying with laws, businesses demonstrate responsibility and professionalism. This not only sustains the trust of stakeholders but also protects the industry's overall image and credibility.

ENTREPRENEURSHIP IN AGRIBUSINESS

Entrepreneurship in agribusiness is a driving force behind innovation, value addition, and economic transformation in the agricultural sector. As global demand for food, raw materials, and sustainable farming practices grows, individuals who combine agricultural knowledge with entrepreneurial skills are increasingly needed. This unit introduces learners to the fundamentals of agribusiness entrepreneurship, emphasizing how creative thinking, risk-taking, and opportunity recognition can turn agricultural challenges into profitable ventures.

8.1 Identifying agribusiness opportunities

This module focuses on specific sectors within agribusiness where opportunities abound in Ghana. Understanding the market dynamics and aligning them with national priorities and consumer needs is essential for success.

A. Crop Production

Opportunities in High-Demand Crops: Given the growing population and urbanization, there is an increasing demand for food crops such as maize, rice, tomatoes, and leafy vegetables. *Example:* Starting a greenhouse vegetable farming venture to meet the demand for fresh produce in urban centers.

Export Markets: Crops like cocoa, oil palm, and cashew nuts offer significant export potential. *Example:* Investing in organic cocoa production for export to European and American markets.

B. Livestock and Poultry

Increasing Meat and Dairy Consumption: As urban areas grow, there is an increasing demand for meat, eggs, and dairy products. *For example*, establishing poultry farms to supply eggs and broiler chickens to supermarkets and local retailers.

Sustainability and Feed Production: Integrating sustainable farming practices and producing animal feed locally can help reduce costs. *For example*, starting a business that manufactures animal feed using locally sourced ingredients like maize and cassava.

C. Agro-Processing

Value Addition to Raw Products: Processing raw agricultural products into more valuable items creates higher profit margins. Ghana's agro-processing sector is underdeveloped, presenting opportunities for growth. *For example*, setting up a fruit processing plant for making juices and jams from locally grown mangoes and pineapples.

Exporting Processed Products: The global demand for processed food is rising, and Ghana can tap into this market by processing products such as palm oil, cocoa, and spices. *For instance*, exporting processed palm oil to cosmetics and food companies abroad.

D. Agribusiness Services and Technology

Farm Input Supply: Farmers need quality seeds, fertilizers, machinery, and other tools to boost production. Establishing businesses that supply these inputs presents a major opportunity. *Example:* Starting a farm input supply shop that provides seeds, fertilizers, and equipment to smallholder farmers.

Agritech Solutions: Technologies that improve farming productivity, such as smart irrigation systems, drones for monitoring crops, and apps for weather forecasting, are in high demand. *Example:* Launching a mobile app that provides real-time weather forecasts and farming tips to help farmers make informed decisions.

8.2 Market Research and Feasibility Studies

A key part of identifying viable agribusiness opportunities is conducting thorough market research. Understanding the demand, competition, and trends is vital.

1. Market Demand Analysis

Assessing Consumer Needs: Understanding what consumers need and the gaps in the market can help you focus on the right agribusiness opportunities. *Example:* Identifying a high demand for organic vegetables in urban markets and focusing your farming efforts on that niche.

2. Competitor Analysis

Analyzing the Competition: Identify other businesses in the same sector and learn from their successes or failures. This can guide you in shaping your business model. *Example:* Studying other palm oil processors and determining how you can differentiate by offering chemical-free, high-quality oil.

3. Financial Feasibility and Scaling

Estimating Capital and Operating Costs: Before diving into any agribusiness, you must determine how much capital is required for starting the business and its operating costs. *Example:* Creating a detailed budget for setting up a poultry farm, including land, infrastructure, and operational costs.

Scaling Up: Consider how your business can grow. Do you have plans to expand to other regions, or can you add complementary products or services? *Example:* Scaling up a small-scale fish farming business by adding a processing facility to produce value-added fish products.

8.3 Funding and Investment for Agribusiness Ventures

Securing funding is often a major challenge for agribusiness startups. This module provides insights into financing options available in Ghana.

1. Government and NGO Support

Grants and Subsidies: The Ghanaian government, through organizations like the Ministry of Food and Agriculture (MoFA), offers grants and subsidies for agribusiness development. *Example:* Applying for funds under the Youth in Agriculture Program to support the establishment of a farm.

Partnerships with NGOs: Many NGOs also support agricultural ventures with grants and technical support. *Example:* Collaborating with USAID to fund a project aimed at improving cocoa farming practices.

2. Private Investment

Venture Capital and Angel Investors: Many investors are looking for opportunities in Ghana's agriculture sector, particularly in value-added processing. *Example:* Seeking investment from a local venture capital firm to start an agro-processing business for shea butter products.

Crowdfunding and Online Platforms: Online platforms like Kiva or GoFundMe can help raise initial capital from a global pool of small investors. *Example:* Using crowdfunding to finance the launch of an organic farming cooperative.

8.4 Turning Agribusiness Opportunities into Reality

Identifying agribusiness opportunities in Ghana involves understanding market demands, assessing resources, and leveraging technology. By following a systematic approach of research, planning, and seeking the right partnerships and funding, aspiring entrepreneurs can successfully navigate the agribusiness landscape.

8.5 Innovation and technology in agribusiness

Innovation and technology play a pivotal role in transforming the agribusiness sector, improving efficiency, productivity, and sustainability. In Ghana, these advancements are key drivers for the growth of the agricultural sector, enabling farmers and agribusinesses to adapt to changing market demands, reduce costs, and meet global standards. This section highlights the various innovations and technologies in agribusiness, particularly in the context of Ghana.

8.5.1 Precision Agriculture and Smart Farming

Precision agriculture refers to the use of technology to monitor and manage agricultural practices in a more efficient and targeted way. This includes the use of sensors, GPS, drones, and data analytics to optimize crop yields, reduce waste, and minimize environmental impact.

Key Innovations:

- **GPS and GIS Technologies:** These tools help farmers in Ghana map their fields, monitor soil health, and apply fertilizers or pesticides more accurately, reducing costs and environmental impact.
- **Drones for Crop Monitoring:** Drones equipped with high-resolution cameras and sensors allow farmers to monitor crop health, assess irrigation needs, and detect early signs of disease or pests.
- **Soil and Weather Sensors:** Smart sensors in the field collect real-time data on soil moisture, temperature, and nutrient levels. These insights enable farmers to make informed decisions about irrigation, fertilization, and crop rotation.

Example: Companies like *FarmDrive* in Kenya and *AgriTech* solutions are providing farmers in Ghana with access to real-time data via mobile apps, helping them increase crop yields and optimize resource use.

8.5.2. Agro-Processing Technologies

Agro-processing is a critical part of the agricultural value chain, where raw agricultural products are transformed into finished or semi-finished goods. Innovation in agro-processing technologies enhances product quality, extends shelf life, and enables the diversification of products for both local and international markets.

Key Innovations:

- **Cold Chain Technology:** Cold storage and transportation systems are essential for preserving perishable goods like fruits, vegetables, and dairy products. Investments in refrigerated transport and storage facilities are improving the shelf life and marketability of these products in Ghana.
- **Food Processing Equipment:** Modern food processing technologies like automated juicers, fruit drying machines, and mills enable the efficient processing of locally grown crops like cassava, maize, and cocoa into value-added products like flour, snacks, and beverages.

Example: *Kempinski Ghana* has pioneered the use of state-of-the-art cold storage facilities to ensure that fresh produce from local farmers can reach supermarkets without losing quality.

8.5.3. Irrigation and Water Management

Water scarcity is one of the key challenges in agriculture, especially in regions where rainfall is irregular. Innovations in irrigation and water management technologies help farmers maximize water use and increase agricultural productivity.

Key Innovations:

- **Drip Irrigation:** This water-efficient system delivers water directly to the plant roots, reducing water wastage and increasing crop yield. It is especially useful in areas with limited water supply.

- **Sprinkler irrigation**



Figure: Sprinkler irrigation

- **Smart Irrigation Systems:** These systems use sensors to monitor soil moisture levels and automatically adjust water flow to meet the needs of crops, improving efficiency and conserving water resources.

Example: *AGRIC Smart* offers solar-powered irrigation solutions to farmers in Ghana, helping them grow crops throughout the year, even in regions with unreliable rainfall.

8.5.4. Mobile Technology and E-Agriculture

Mobile technology has revolutionized how farmers access information, services, and markets. In Ghana, mobile apps and platforms are increasingly being used to bridge the information gap and improve access to resources such as seeds, inputs, and extension services.

Key Innovations:

- **Mobile Apps for Farm Management:** Apps like *Farmerline* and *mFarming* provide farmers with essential information such as weather forecasts, market prices, and farming techniques, enabling them to make better decisions.
- **E-Marketplaces:** Platforms that connect farmers directly with buyers, such as *Agrihouse* and *Susu Market*, allow producers to sell their products online, reducing reliance on middlemen and ensuring fair prices.

Example: *Farmerline* has partnered with mobile network providers to offer farmers in rural areas easy access to agricultural information through SMS services, helping them improve productivity and profitability.

8.5.5. Sustainable Agricultural Practices

As global environmental challenges such as climate change and soil degradation intensify, sustainability in agriculture has become increasingly important. Technological innovations in sustainable practices are helping Ghanaian farmers reduce their environmental footprint while improving productivity.

Key Innovations:

- **Organic Farming Techniques:** The use of organic fertilizers, crop rotation, and natural pest control methods to promote healthy soils and sustainable farming practices.
- **Waste-to-Energy Technologies:** Some agribusinesses in Ghana are implementing biogas systems that convert agricultural waste into energy, helping to reduce dependence on non-renewable energy sources.

Example: *EcoSmart* in Ghana has developed a sustainable farm-to-market model that uses biogas for energy and organic waste for composting, promoting sustainability in both farming and food processing.

8.5.6. Financial Technologies in Agribusiness

Access to finance is a major barrier for many farmers and agribusiness startups in Ghana. Innovations in financial technology (FinTech) are helping to address this challenge by offering alternative financing solutions and improving access to capital for smallholder farmers and agribusinesses.

Key Innovations:

- **Mobile Money Platforms:** Services like *MTN Mobile Money* and *AirtelTigo Money* provide farmers with an easy way to receive payments, transfer funds, and pay for services, enhancing financial inclusion in rural areas.
- **Agricultural Credit Platforms:** Digital platforms like *FarmDrive* offer microloans to farmers based on their farming activities and credit history, enabling them to access the capital needed for inputs, equipment, and expansion.

Example: *AgriTech* has developed a digital credit scoring system for farmers, allowing them to receive loans based on data-driven insights, without traditional collateral.

Innovation and technology are critical to unlocking the potential of Ghana's agribusiness sector. By embracing these advancements, farmers and agribusinesses can increase productivity, reduce costs, and open up new markets, both locally and internationally.

As the adoption of these technologies grows, they will continue to play a key role in transforming Ghana's agricultural landscape, contributing to economic development and food security.

8.6 Case studies of successful agribusiness entrepreneurs

Ghana's agribusiness sector has witnessed the emergence of innovative companies that are reshaping how food is produced, processed, and distributed. These firms are leveraging technology, value chain integration, and strategic partnerships to improve productivity, reduce post-harvest losses, and enhance market access for farmers. Below are three standout examples of successful agribusiness startups—each representing a key stage of the agricultural value chain: production, processing, and supply chain.

1. Agri-Impact Consult (Agri-Impact Group)

Stage: Commercial production (Horticulture, greenhouse farming)



Description: Agri-Impact is one of the leading agribusiness firms driving modern production systems in Ghana. Through its greenhouse villages and irrigation-supported production hubs, it focuses on the cultivation of high-value horticultural crops such as tomatoes, bell peppers, and cucumbers for local and export markets.

Key Success Factors:

- **Greenhouse villages** established across Ghana (e.g., Dawhenya and Berekusu), improving year-round vegetable production.
- Offers **technical training** for youth and women in climate-smart agriculture.
- Integrated with **export and processing partners**, improving market access.

Impact: Over 3,000 jobs created. Agri-Impact's model has enhanced Ghana's competitiveness in vegetable exports to ECOWAS and the EU.

2. Maphlix Trust Ghana Ltd.

Stage: Agro-processing (Cassava, sweet potato, yam)

Description: Maphlix Trust is one of Ghana's top food processing companies specializing in the production and export of root and



tuber crops. They produce high-quality yam and sweet potato chunks, cassava flour, and other processed products for both local consumption and export.

Key Success Factors:

- Owns **Ghana's largest root crop processing facility**, with exports to the UK, EU, and US.
- Works with **over 1,500 out-grower farmers**, supplying raw materials under guaranteed contracts.
- Complies with **international food safety standards**, including HACCP and GlobalGAP.

Impact: Maphlix has positioned Ghana as a key player in root crop exports, while creating income opportunities for hundreds of smallholder farmers and supply chain workers.

4. Farmerline



Description: Farmerline connects thousands of smallholder farmers to inputs, finance, and markets through its digital platform and rural logistics network. The company distributes inputs (fertilizer, seed) on credit and uses mobile technology to deliver weather, market, and agronomic advice.

Key Success Factors:

- Operates a **"last-mile" logistics and input distribution system** across Ghana and other African countries.
- Offers **input loans** to farmers and tracks repayment through digital tools.
- Partners with global NGOs and agribusinesses to improve farmer data, traceability, and transparency.

Impact: Over 1.7 million farmers reached in 48 countries. In Ghana, Farmerline's model helps improve productivity and incomes for over 100,000 farmers annually.

COOPERATIVES AND AGRIBUSINESS NETWORKS

9.1 Farmer Cooperative

A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural need and aspirations through a jointly-owned and –democratically-controlled enterprise.

A farmer cooperative is a group of farmers who voluntarily come together to achieve common economic, social, and cultural benefits. These cooperatives help farmers gain better access to markets, inputs, credit, and technology while reducing risks and costs associated with farming.

9.1.2 Types of Farmer Cooperatives

- 1. Marketing Cooperatives:** A marketing cooperative is a business enterprise owned by farmers to collectively sell their products. It allows producers to accomplish collectively functions they could not achieve on their own. Marketing cooperatives assist members maximize the returns they receive for goods they produce. They are involved in market pools, where products from farms of many producers are combined for sale to various buyers. Marketing cooperatives also enable members to extend control of their products and realize additional margins through processing, distribution and sale.
- 2. Purchasing Supply Cooperatives:** These were first used by farmers to gain access to affordable and quality production supplies such as feed, fuel, fertilizer, seed, farm chemicals, farm equipment, animal health products, fencing, building supplies.

They are often affiliated with other such organizations through regional and national cooperatives. These efforts reduce members' cost and strengthen their purchasing power through direct ownership

- 3. Credit Cooperatives** – Offer financial services such as loans and savings. It is a voluntary self-help organisation of people united by a common bond who agreed to save their moneys and make loans to one another at a low rate of interest for both productive and provident purposes. It is managed, controlled and patronized by their members and open without discrimination to all persons willing to share the risks and benefits of the joint operations.

Its ultimate purpose is to improve the economy and social well-being of all members, their families and to improve the communities in which they live.

- 4. Processing Cooperatives** – The societies which undertake the activity of converting of raw agricultural produce into finished goods and works on co-operative principles are known as Processing co-operative societies. For e.g. manufacturing sugar from sugar cane, making spun yarn and cotton bundles out of cotton, producing edible oil from oil seeds etc. If the agricultural goods are processed and then sold, it yields more profit for the farmers and for this reason, formation of processing co-operative societies is very important. The function of processing agricultural produce and making it available for consumers, finding suitable market for processed goods and better price for the agricultural produce is carried out by Processing co-operative societies.

- 5. Multipurpose Cooperatives:** Multipurpose cooperatives are cooperative societies that offer a variety of services and activities to their members, often encompassing economic and social aspects. They are established to help members achieve common objectives more effectively than they could individually, such as marketing produce, purchasing supplies, or accessing credit. Multipurpose cooperatives engage in a broad range of activities, including providing credit, arranging for agricultural inputs, marketing produce, offering services like storage and transport, and even providing social services like sanitation and health.

9.1.3 Importance of farmer cooperatives

A. Economic Benefits

- i. **Improved Market Access** – Cooperatives help farmers negotiate better prices for their products. Most agricultural producers have relatively little power or influence with large agribusinesses or food companies that purchase their commodities. Joining with others in a cooperative can give them greater power in the market place
- ii. **Access to Credit and Financial Services** – Financial needs of the members are met through loan granting at reduced interest rates without the pledging of fixed and financial assets as collateral. The low interest rate on loans reduces

the likelihood of members patronizing money lenders and of possible loan defaults. The personal guarantor arrangement also enhances the inter-personal relationship among members enabling them to provide support to members in trouble thereby reducing their individual poverty level.

B. Social Benefits

- i. Skill Development and Training: Involvement of cooperative members in market process enables them to learn marketing skills necessary for meeting the needs of the market. Essential requirements like quantities, variety, timing and logistical component for effective marketing enable producers to meet the needs of the consumers techniques, agribusiness, and financial management.
- ii. Employment creation: Cooperatives helps to create, improve and protect the income and employment opportunities of their members. Participation in production, profit sharing or risk sharing activities. Economic added value of cooperative arising from efficiencies gained in obtaining inputs and services, in utilizing resources and in marketing products and services which would otherwise be difficult to obtain for individuals acting alone, especially when they are poor.
- iii. Contribution to social integration and cohesion: In many societies, social disintegration, racial and ethnic tension and civil conflicts have been attributed in part to increase poverty and deepening inequalities. Addressing these should be a crucial component of poverty reduction strategies. Cooperative, empower and give voice to the poor by entrusting them to organize to federation and alliances participation of the poor in Poverty Reduction Strategies due to the values and principles of cooperative stress social responsibility and concern for the community

9.1.4 Challenges Facing Farmer Cooperatives

- i. Poor Management and Governance – Expert and efficient management is important factor for running the business successfully. The society cannot afford to hire the services of superior abilities due to its limited resources .
- ii. Limited Capital – Some cooperatives struggle with financial constraints.
- iii. Market Fluctuations: the seasonality of some agricultural commodities brings contributes to the different prices of goods at period. The changes in price negative influence the performance of cooperative societies since their profit have to reduce the price of their commodities decline.
- iv. Member Commitment Issues: One major challenge of cooperatives is the display of passivity or even free-rider behaviour by the members. Cooperatives could be inversely linked to the commitment and loyalty of the members towards the cooperative. Members' commitment influences marginal benefits and costs for all members in the group. Some members fail to fulfill their obligations, thereby weakening the cooperative's strength.

9.2 Role of associations in agribusiness growth

Agribusiness involves all activities related to agricultural production, processing, distribution, and marketing. Associations play a critical role in supporting agribusiness growth by fostering collaboration, advocating for policies, and providing access to resources.

9.2.1 Associations in Agribusiness

An association is a group of individuals or organizations that come together to achieve common objectives. In agribusiness, associations consist of farmers, agribusiness owners, cooperatives, suppliers, and other stakeholders working collectively to improve the agricultural sector.

Types of Agribusiness Associations

- a) **Farmer Cooperatives** – Groups formed by farmers to market produce collectively, access inputs, and negotiate better prices.
- b) **Trade Associations** – Organizations that represent businesses in the agricultural sector, such as grain producers or livestock farmers.
- c) **Chambers of Commerce** – Business networks that provide agribusinesses with advocacy and networking opportunities.
- d) **Professional Associations** – Groups that support training, certification, and research for agricultural professionals.
- e) **Non-Governmental Organizations (NGOs)** – Associations that work on capacity-building and agricultural development projects.

Key Roles of Associations in Agribusiness Growth

- a) **Market Access and Price Stability:** Associations in Agribusiness help members collectively market their produce, ensuring better prices and reducing exploitation by middlemen. Some of the Associations in Agribusiness help to eliminate the undue profiteering by middlemen. As the agricultural industry has become more commercialized in recent years, the role of the farmers' associations in the marketing off-arm products has become more important in recent times
- b) **Providing supply and marketing services:** In the process of agricultural development, it is essential to provide farmers with adequate inputs of production and convenient outlets for their outputs. The farmers' associations in an active role in these respects. In the supply business, the distribution of chemical fertilizer has been most important. To meet the needs for crop and livestock production, the farmers' associations make considerable efforts to develop self-initiated purchasing and supply services.

- c) **Advocacy and Policy Influence:** Some Associations engage policymakers to create favorable policies for agribusinesses. They ensure farmers' voices are heard in decision-making processes affecting the agricultural sector.
- d) **Access to Financial Services:** Associations help members access credit, grants, and insurance through partnerships with financial institutions. They provide group lending schemes, reducing the risks for lenders and increasing financial inclusion for small-scale farmers.
- e) **Training and Capacity Building:** The associations in agribusiness frequently offer training programs on modern farming techniques, agribusiness management, and sustainable agricultural practices for farmer. They support skill development in agribusiness for increased efficiency and profitability.
- f) **Research and Innovation:** Some of the Associations fund and facilitate research on improved farming methods, climate adaptation, and disease control. Thereby bridging the gap between researchers and farmers, ensuring the adoption of new technologies.
- g) **Networking and Collaboration:** Members benefit from business networking, partnerships, and knowledge-sharing opportunities. Associations connect agribusinesses with input suppliers, buyers, and investors.

Challenges Faced by Agribusiness Associations

- a) **Limited funding** – Many associations struggle with financial sustainability.
- b) **Poor governance** – Ineffective leadership and mismanagement hinder their effectiveness.
- c) **Low membership participation** – Lack of engagement weakens collective bargaining power.
- d) **Policy and regulatory barriers** – Bureaucratic processes and unfavorable policies limit their impact.

9.3 Networking and partnerships in agribusiness

Networking and partnerships are essential for the growth and sustainability of agribusiness ventures. By connecting with individuals, organizations, and institutions, agripreneurs can access resources, markets, and knowledge that contribute to business success. An advantage of the business partnership and networking approach is that it helps small – and medium-scale farmers to participate in agrifood chains, enabling them to more effectively overcome the problems of market access, information, financing, infrastructure, technological innovation, and deficient institutional capacity generated by structural reforms and the globalization of economic

9.3.1 Importance of networking in agribusiness

- a) **Access to Markets:** In agriculture, networking has the benefit of assisting in the discovery of new markets and the extension of clientele. It is essential to establish connections with additional players in the agricultural value chain. Various parties in the agricultural value chain exchange market information at various locations. Therefore, actors can seize and capitalize on these chances.
- b) **Information and Knowledge Sharing:** Exchange of ideas, technologies, and best practices among industry players. By connecting with others through networking, agribusiness professionals may exchange best practices, ideas, and expertise, which can improve comprehension of industry trends and developments.
- c) **Financial Support:** Through networking, player in agricultural value get opportunities to connect with investors, donors, and officials from financial institutions. The interactions enable these players to get access to financial resources and so on.
- d) **Collaboration and Innovation:** Networking encourages the sharing of ideas leading to innovative solutions and collaborative efforts that can drive growth and development. Networking also facilitates joint ventures, research collaborations, and innovation in agricultural practices.

Key Networking Channels In Agribusiness

- i. **Agricultural Trade Fairs and Exhibitions:** Agricultural trade fairs and exhibits are events where enterprises and organizations display their products, services, and innovations pertinent to farming, agriculture, and food processing. These events provide a platform for networking, learning about new technologies, and conducting business deals
- ii. **Farmer Cooperatives and Associations:** Cooperatives and associations of farmers are groups where farmers combine their resources and work together to improve their farming operations, usually with an emphasis on input procurement, marketing, and output. These organizations, which might be officially recognized cooperatives or unofficial groupings, are crucial to farmer empowerment and rural development.
- iii. **Business Conferences and Seminars:** Business Conferences and Seminars present opportunities actors to learn from industry experts and interact with key stakeholders.
- iv. **Social Media and Online Platforms:** In recent times, social media remains one of the popular avenues for networking. Through social media platforms such as LinkedIn, Facebook groups, and agribusiness forums, player in the agricultural chain connect with a wider audience.
- v. **Academic and Research Institutions:** Collaborations for research, training, and access to innovation in agriculture also provide an avenue where different

actors of agricultural chain and major stakeholders meet. Links and partnership can therefore be built during such trainings and meets.

Types Of Partnerships:

1. Public-Private Partnerships
2. Joint Ventures
3. Contract Farming.
4. Supplier and Distributor Partnerships:
5. Financial Partnerships:

Steps To Building Strong Networks and Partnerships

- i. Identify Potential Partners and Networks:** Researching about important individuals whose interests coincide with your objectives is the first step in finding possible partners and networks. These could be vendors, purchasers, non-governmental organizations, banks, or governmental entities
- ii. Engage and Participate:** This entails participating in discussions, joining professional forums, and going to a lot of business conferences, trainings and so on. Regular participation contributes to increased reputation and visibility.
- iii. Build Relationships:** Developing connections based on mutual benefit and trust is important. Reliability, consistent communication and sustained involvement are necessary for strong collaborations. It's critical to foster these connections via cooperation and assistance.
- iv. Leverage Technology:** Utilizing technologies is also essential in the current digital world. Maintaining and expanding relationships across distances may be facilitated by using digital platforms like Zoom, WhatsApp, LinkedIn, and other collaboration technologies, which can lead to greater commercial chances.
- v. Develop Clear Agreements:** It is advisable to have explicit agreements before forming official partnerships. To prevent misconceptions, these should precisely outline roles, duties, contributions, deadlines, and dispute resolution procedures. Finally, frequent assessment is necessary for effective networking and collaborations.
- vi. Evaluate and Adapt:** Determining whether present networks are in line with current business objectives is therefore essential for evaluation and adaptation. Modifications should be made if they are no longer advantageous

ICT IN AGRIBUSINESS

10.1 Introduction

Information and Communication Technology (ICT) is transforming agribusiness by improving access to information, markets, finance, and farm management tools. In today's digital age, ICT solutions such as mobile apps, precision farming tools, digital platforms, and data analytics are helping farmers and agribusinesses make smarter decisions, increase productivity, reduce costs, and connect more efficiently with stakeholders. This unit explores the role of ICT in modern agribusiness, highlighting its impact on production, marketing, supply chain management, and overall competitiveness in the agricultural value chain.

10.2 Challenges in Ghana and sub-Saharan Africa

More than 400 digital agriculture solutions are in use, including applications in financial services, market linkages, supply-chain management, advisory and information services, and business intelligence.¹ Despite their abundance, many digital solutions struggle to scale and fail to improve the lives of farmers and other end users. For example, in sub-Saharan Africa, most applications have less than 30 percent active users.

The availability of a digital agriculture solution does not guarantee smallholder farmer uptake and adoption. To improve participation, three elements are necessary:

- Digital solutions must create value for end users so they have an incentive to adopt. In the case of farmers or growers, that means improving crop yields, boosting profits, or reducing input costs and crop loss.
- Farmers should receive some level of physical, in-person support. The most effective tools allow farmers to supplement access to agricultural knowledge from mobile phones with face-to-face interaction with extension

10.3 Digital tools for farm management

The digital agriculture space is quickly evolving. Gathering market intelligence is critical to improve solution designs, ensure farmers have sufficiently detailed data that are useful to them, and align the sector around a “single truth” on the final output from the digital product. For example, an e-incentives tool for farmer-inputs subsidies may require the integration of several data sources

Farm management in Ghana is being transformed through digital tools that support decision-making, record-keeping, and resource optimization. These tools help farmers plan and monitor activities such as planting, input use, harvesting, and labor management. They also aid in financial tracking, crop monitoring, and production forecasting.

- Tools like Syecomp Ghana Ltd’s mapping solutions help farmers assess accurate land size, monitor crop health, and manage farms efficiently using satellite and drone imagery.



Figure 33: Syecomp Ghana Ltd’s mapping solution in Ghana

- AgrolInnova’s AKOKA platform digitizes records and inventory management for poultry farmers, while Esoko and AgroCenta offer digital profiling and production monitoring.



Figure 34: AgrolInnova’s AKOKA platform digitizes records and inventory management

- These tools provide real-time data, assist in applying for loans, and enhance traceability for certification and market access. They are instrumental in improving productivity, profitability, and sustainability.

10.4 Use of Mobile Apps for Market Access

- Mobile apps are enhancing market access for Ghanaian farmers by providing real-time crop prices, buyer linkages, and logistics support. Apps like Esoko deliver daily market prices via SMS or app interface, enabling informed selling decisions. AgroCenta connects smallholder farmers directly to buyers, cutting off middlemen and ensuring better pricing.



Figure 35: Esoko's Extension service for farmers in Ghana

- Troto Tractor enables farmers to access mechanization services through mobile phones, improving land preparation efficiency. These apps reduce post-harvest losses, improve income, and support better market timing and negotiation.
- Market access through mobile apps empowers farmers with information, connects them to inputs and buyers, and increases participation in formal markets.

Precision Agriculture and Smart Farming

- Precision agriculture involves using digital tools to apply inputs like water, fertilizer, and pesticides at the right time and in the right amounts. In Ghana, precision technologies are improving productivity while reducing costs and environmental impact.

Examples of Precision Agriculture and Smart Farming Technologies Used in Ghana

Ghana has embraced several precision agriculture and smart farming technologies to improve productivity, reduce waste, and enhance the livelihoods of farmers. These tools are provided by local startups, international partners, and government-backed initiatives. Below are specific examples of technologies and the firms promoting their use in Ghana:

1. Soil Testing and Fertility Mapping

Soil testing and fertility mapping are essential technologies in precision agriculture, helping farmers understand the nutrient status and health of their soils to make informed input decisions. In Ghana, handheld soil scanners and mobile soil testing kits are increasingly being used to quickly analyze soil properties such as pH, nitrogen, phosphorus, and potassium levels on-site.



Figure 36: Soil tester produced by Sessi Technologies in Ghana.

Service Providers in Ghana

- **Sesi Technologies** – Known for their affordable and locally adaptable soil testing solutions.
- **AgroCares** – Offers digital soil testing services with fertility mapping and tailored fertilizer recommendations.

These technologies help farmers apply the right type and amount of fertilizer, reduce input costs, and boost crop productivity while promoting sustainable soil management.

2. Drone Technology for Crop Monitoring and Spraying

Drone technology is revolutionizing modern agribusiness by offering efficient, precise, and cost-effective solutions for crop monitoring and spraying. Drones equipped with high-resolution cameras and sensors can capture real-time data on crop health, soil conditions, pest infestations, and irrigation needs. This allows farmers to make informed decisions, detect problems early, and apply inputs like fertilizers and pesticides only where needed, reducing waste and environmental impact. Additionally, drones can spray large areas quickly and uniformly, especially in terrains where manual spraying is difficult.



Figure 37: Drone spraying on pineapple farms at Adeiso, Ghana

In Adeiso, Ghana, agricultural drones are being adopted on pineapple farms to enhance productivity and efficiency through aerial imaging and precision spraying. These drones use advanced sensors and GPS technology to monitor crop health and apply agrochemicals with high accuracy, minimizing wastage and environmental impact. The technology is particularly effective in addressing challenges such as uneven terrain and labor shortages.

Providers in Ghana include: Acquahmeyer Drone Tech, AgriDrone Ghana

EXPORT AND INTERNATIONAL AGRIBUSINESS OPPORTUNITIES

11.1 Export requirements

Exporting agricultural products is an essential part of agribusiness that enables farmers and agribusiness enterprises to access international markets. Understanding export requirements and procedures ensures compliance with regulations, reduces trade barriers, and enhances competitiveness.



Figure 38: Modes of freight shipping

11.2 Understanding export regulations

Before exporting agricultural products, it is important to understand the rules and regulations governing international trade.

These include:

1. National Export Laws:

- Export laws are rules and regulations that control the transfer of technology, products, and services from one nation to another.
- These regulations are intended to guarantee that exports adhere to international trade agreements, national security, and the nation's foreign policy.
- Aspects of international commerce that can be regulated by export laws include licensing, taxes, customs processes, sanctions, and limitations on the kinds of products and services that can be exported. To guarantee adherence to national and international laws, government organizations like trade commissions and customs officials enforce them.
- **For instance** : if European company wishes to export agricultural products to a country in Africa. The company must ensure that the export complies with both the European Union's export laws and the import regulations of the destination country. This may involve obtaining :
- **Certifications eg. Export certificates**
- **International Trade Agreements**: Such as regional trade) and World Trade Organization (WTO) rules.
- **Quality and Safety Standards**: Compliance with food safety, hygiene, and phytosanitary measures (e.g., HACCP, ISO, GLOBALG.A.P.)

Trade Barriers

A trade barrier is a general term that describes any government policy or regulation that restricts international trade.

Examples of trade barrier includes:

- | | |
|-------------------|--------------------------------|
| • Import duties | • Tariffs |
| • Import licenses | • Subsidies |
| • Export licenses | • Non-tariff barriers to trade |
| • Import quotas | • Voluntary Export Restraints |

NB: If two or more nations repeatedly use trade barriers against each other, then a trade war results!

Tariffs: It refers to any tax or fee collected by a government on internationally traded goods. Tariffs may be levied in two main ways:

- i. **A specific tariff** is levied as a fixed charge per unit of imports.
- ii. **Ad valorem** (in proportion to the value) tariff is levied as a fixed percentage of the value of the commodity imported



Figure 39: Cost-benefit Analysis of a Tariff

The way a tariff is operated can trigger the following:

- i. By virtue of raising prices in the importing country, it affects consumers negatively, as they need to pay the new, higher price.
- ii. Producers in the importing country on the other hand can charge a higher price than in the case of free trade.
- iii. The government of the country using protectionist measures will increase its revenue, by the value of the total tariff it charges

Consumer Surplus

The consumer surplus measures the amount a consumer gains from a purchase by the difference between the price he actually pays and the price he would have been willing to pay:

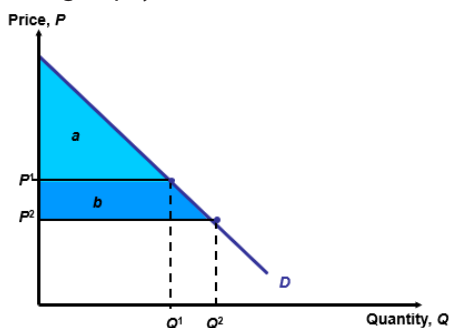


Figure 40: Consumer surplus

- If the price of this product is at a level P^1 , the consumer surplus is represented by the area below the demand curve, D , and above the price P^1 . That is the triangle **a**
- However, if the price of a product is to be lowered, from P^1 to P^2 , the consumer surplus will become greater, and will be the triangle given by area **a** plus **b**
- area **b** is the difference, or the increase in consumer welfare as a result of a drop in price. We can say that the lower price raised the consumer surplus

Producer Surplus

The amount a producer gains from a sale and is represented by the difference between the price actually received and the price at which the producer would have been willing to sell.

CONSUMER SURPLUS, PRODUCER SURPLUS

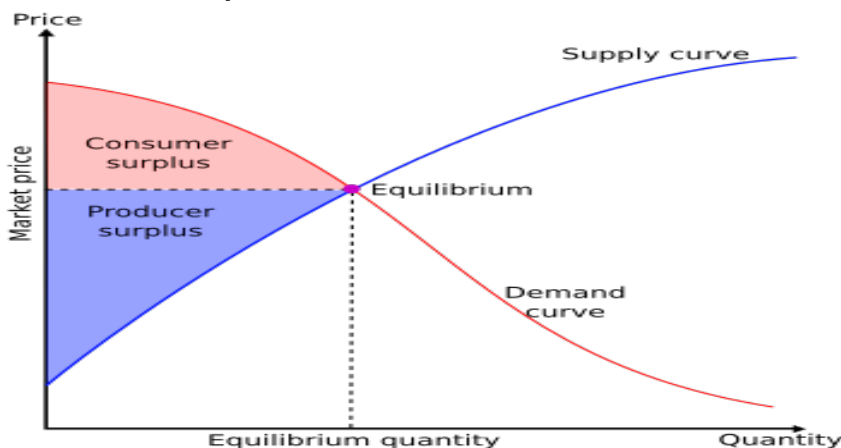


Figure 41: Consumer surplus, producer surplus

Trade Instruments: Export subsidies: It refers to incentives given to national industries for selling their goods abroad.

Import quotas: An import quota is a direct restriction on the quantity of a good that is imported. The restriction is usually enforced by issuing licenses to some group of individuals or firms. License holders are able to buy imports and resell them at a higher price in the domestic market.

Voluntary Export Restraints (VERs)

VERs are export quotas administered by the exporting country. They are however imposed at the request of the importer, and are then agreed to by the exporter. The

objective is to forestall other trade restrictions. A VER is exactly like an import quota, but the licenses are assigned in this case to foreign government.

Export Subsidies: Payments by the government to firms or individuals who sell goods abroad. With the export subsidy, shippers will export the good up to the point where the domestic price exceeds the foreign price by the amount of the subsidy.

It leads to a rise of prices in the exporting country, accompanied by lower prices in the importing country

Analysis of export subsidies: In this case, the exporting country enacts an export subsidy, raising the opportunity cost for an exporter of selling at home. Therefore, prices at home rise. If the country is “large”,

world prices fall (because of the effect on world supply and demand of the domestic output and consumption responses).

Import Quotas: The analysis of an import quota is nearly identical to that for an import tariff, except that, unless the government sells the quota rights to highest bidders, the areas representing revenue in the tariff analysis become quota rents.

EFFECTS OF DIFFERENT TRADE POLICIES

	Tariff	Export subsidy	Import quota	Voluntary export restraint
Producer surplus	Increases	Increases	Increases	Increases
Consumer surplus	Falls	Falls	Falls	Falls
Government revenue	Increases	Falls (government spending rises)	No change (rents to license holders)	No change (rents to foreigners)
Overall national welfare	Ambiguous (falls for small country)	Falls	Ambiguous (falls for small country)	Falls

Steps in the Export Process

The following are the key steps involved in exporting agricultural products:

1. Market Research and Selection

First of all, understanding your customers is crucial in the export business. For your business to thrive, there is need to critically assess the characteristic, needs and wants of your customer base. This could be based on their demographic characteristics dietary habits, or economic trends in the destination country. It also helps to give you gives an insight into packaging styles, taste preferences (e.g., organic vs. conventional), and acceptable price ranges. This ensures your product appeals to the target demographic

Understanding market saturation and identifying competitors in the country you want to export your products to helps in positioning your product effectively. Also, different countries have different trade barriers, tariffs, and import restrictions—knowing these in advance helps avoid legal and logistical issues.

2. Product Preparation and Quality Assurance

In global markets, agricultural goods must adhere to strict quality requirements. It is not only about complying with quality and safety standards (such as Global G.A.P. and HACCP); it also fosters confidence and expands business potential. Maintaining the product's condition throughout transportation and making sure it looks good for customers depend on sorting, grading, and packing. Geographical indication (GI) status, fair trade, organic, and other certifications raise the value of products and are frequently required in high-end markets.

3. Obtaining Export Permits and Documentation

Proper documentation is essential for legal compliance and smooth customs processing. Some of these legal compliances include.

- Export licenses are required to legally ship products abroad.
- Phytosanitary certificates ensure the products are pest-free and safe for the importing country's ecosystem.
- Certificates of origin confirm the product's source, which can impact duty rates under trade agreements.
- Other vital documents include: Insurance certificates (to cover damage or loss during transit).

4. Customs Clearance and Shipping



Figure 42: Customs and Clearance for Export of produce

Efficient handling of logistics and customs ensures timely delivery and reduces costs. This can be achieved by:

1. Submitting documents to customs authorities early helps avoid delays.
2. Payment of duties and taxes is required unless exemptions apply.
3. Logistics coordination involves choosing the right shipping methods, ensuring proper containerization (especially for perishables), and adhering to international transport laws and standards.

5. Payment and Risk Management

In international trade, using Incoterms, acquiring export credit insurance, and using secure payment channels are crucial risk management strategies. These solutions guarantee on-time payments, reduce monetary losses, and clearly outline the obligations of each participant to the transaction. Through the implementation of these best practices, exporters may safeguard their earnings, minimize disagreements, and establish more dependable and long-lasting connections with foreign customers.

11.2 Global agricultural trade trends

Developing nations are becoming more and more dependent on the global agricultural trade for both imports and exports, making it an important component of global commerce. Both the amount of agricultural exports worldwide and the sector's proportion of the overall merchandise trade have expanded significantly.



Figure 43: Agricultural trade trends

Food consumption demands are mostly met through trade, particularly in emerging countries, and the agricultural trade environment is changing as a result of shifting market dynamics and demographic shifts.

Importance of Global Agricultural Trade

a. Food Security:

Countries that are unable to grow certain foods locally because of climate, soil conditions, or other limitations might get these foods through agricultural trade. Through exports countries can therefore, diversify their food supply, lower their reliance on local harvests; address agricultural failures and seasonal shortages. This interdependence helps balance food availability globally and contributes to stability in food prices

b. Economic Growth

Agriculture is the backbone of several economies in the world. It contributes significantly to GDPs and has employed several people in the agricultural food chain. Agricultural trade also generates huge revenue for nations as foreign exchange through the exportation of agricultural products commodities. Further, trade incentivizes investment in infrastructure, such as roads, storage facilities, and ports, which further supports economic development.

c. Technology Transfer

International standards or rivalry competition are faced by farmers and agribusinesses when they participate in global trade. Improved agricultural techniques, such as improved fertilization application, irrigation, and pest management techniques, are frequently used as a result higher production and efficiency as a result of innovation and mechanization. This has positively impacted the food production globally.

d. Market Expansion:

Global trade enables producers to move beyond local or national markets to international market. Farmers gain access to larger customer bases, which can lead to higher income. Value-added products (like processed or organic foods) find niche markets abroad. Diversification of buyers reduces reliance on a single market, making farmers more resilient to local economic fluctuations.

Key Trends in Global Agricultural Trade

- a. Global agricultural trade has been expanding due to population growth, urbanization, and increasing incomes. Developing countries are becoming major players in exports, especially in tropical commodities like coffee, tea, and cocoa.
- b. The demand for organic and sustainable Products are on the rise. Consumers are demanding organic, non-GMO, and sustainably produced agricultural products.

Certification schemes such as Fair Trade, Rainforest Alliance, and USDA Organic are growing in importance.

Digitalization and E-Commerce in Agriculture



Figure 44: Digitalization and E-Commerce in Agriculture

E-commerce and digitization are revolutionizing agriculture by increasing market accessibility, empowering smallholder farmers, and improving efficiency. Digital technologies make it possible to make decisions based on data, enhance value chain communication and interaction, and make using financial services easier. E-commerce platforms facilitate direct communication between farmers and consumers, creating new markets and revenue-generating opportunities.

Trade Barriers and Disruptions

a. Tariffs and Subsidies

Governments often use import tariffs and agricultural subsidies to protect actors in the domestic agricultural chain. Tariffs and subsidies can distort global market prices, making imported goods less competitive. Subsidies in wealthier countries can lead to overproduction and dumping, harming producers in lower-income nations.

b. Geopolitical Conflicts

Agricultural exports may be seriously disrupted by trade wars and political tensions, like the US-China trade conflict. They may lead to retaliatory tariffs, which would lower demand for particular goods. Farmers may experience price declines and revenue losses if exporters are unable to access important markets. Prolonged instability may deter investment in trade infrastructure and agricultural development.

c. Pandemic and Supply Chain Disruptions

The COVID-19 pandemic exposed vulnerabilities in global food supply chains: lockdowns and border closures led to delays in shipments and spoilage of perishable goods, Labour shortages affected harvesting, processing, and transportation, uncertainty in markets caused price volatility and disrupted planning for both exporters and importers. Moreover, the post-pandemic ongoing supply chain challenges such as port congestion, container shortages, and rising freight costs continue to affect agricultural trade

11.3 Quality control for export markets

11.3.1 Quality Control in Agribusiness

Quality control is a crucial aspect of agribusiness, especially when targeting export markets. It ensures that agricultural products meet the required standards of safety, appearance, and nutritional value demanded by international buyers. Effective quality control enhances market access, increases profitability, and maintains consumer trust.

1. Quality control

Quality control is a critical component in ensuring that agricultural and food products meet safety, legal, and market standards, especially for export. A fundamental aspect of quality control is compliance with export standards, which ensures products are accepted in international markets. Producers and exporters must therefore align their practices with international standards such as HACCP, of which provide guidelines for food safety, hygiene, and traceability. In addition, country-specific standards such as the USDA (for the United States), EU regulations (for Europe), and JAS (for Japan) must be strictly followed depending on the target market.

11.3.2 Adherence to certifications

Adherence to certifying organizations and regulations, which confirm that goods have been manufactured, processed, and handled in accordance with recognized safety and quality standards, is another crucial element. Testing and product inspection are equally crucial and entail evaluating a number of factors. Physical characteristics like weight, size, and color are examples of this; chemical analysis is used to find pollutants or pesticide residues; and microbiological testing is used to make sure that items are free of dangerous bacteria, fungus, and other diseases.

Handling and storage

Handling and storage procedures after harvest are also included in quality control. In order to reduce damage and bruises, proper harvesting methods are essential. Produce has to be graded, sorted, and cleaned after harvesting in order to be stored. To preserve product quality and stop spoiling, storage conditions—such as controlling temperature and humidity—as well as efficient pest control are crucial.

Labelling and Packaging

Furthermore, labelling and package specifications are important. Food-grade, tamper-proof materials that maintain the integrity of the product must be used in packaging. The product name, background information, expiration date, barcodes, and any applicable certification markings must all be prominently shown on labels. Last but not least, efficient supply chain management and logistics guarantee that goods arrive at their destination in ideal shape. This entails keeping perishable items in a cold chain, setting up the appropriate transport paperwork, such as bills of lading and phytosanitary certifications, and reducing transit delays.



Figure 45: A well labelled package for export.

