

CHAPTER 19 AGRICULTURE IN AFRICA

Objectives

After studying this chapter, students should be able to:

- describe bush fallowing in West Africa.
- define plantation agriculture, compare between West and East African plantation.
- Describe fruit farming in Mediterranean region and state their importance, problems and solutions.
- define irrigation agriculture, outline the major methods of irrigation and economic importance of irrigation.
- define pastoral farming, mention its types and economic importance.
- define lumbering, list its methods, economic values, problems and solutions in Equatorial Africa.

Agriculture plays an important role in Africa's development. Agriculture provides about 70 percent of employment and 30 percent of sub-Saharan Africa's gross domestic product.

African governments, international donors, and other partners are helping Africa's farmers grow more food and increase their incomes. In 2003, the Africa Union adopted the comprehensive Africa Agriculture Development Program (CAADP), calling on African governments to dedicate 10 percent of their national budgets to agriculture and to seek 6 percent annual agricultural growth.

Agriculture in Africa will be discussed under the following headings:

19.0 Types of Agricultural Practices in Africa

19.1 Bush Fallowing in West Africa

Bush fallowing is the cultivation of a piece of land for some years and leaving it for some years to regain fertility of the soil. During this fallow period, the farmer shifts to another piece of land to cultivate. Later, the farmer returns to that piece of land and places it under cultivation again. Bush fallowing is quite different from shifting cultivation. Shifting cultivation involves a periodic relocation of farms and settlement. The farmer, his family and farms have to keep on moving from place to place.

Rotational bush fallow is the predominant system of agriculture in West Africa, especially in the forest and guinea savanna zone. Under rotational bush fallow, the settlement is fixed. The farmers live in permanent villages and own several farms. The farmer farms one or some at a time while the rest lie fallow.

The conditions that favour bush fallowing in West Africa include low population, abundance of large area for farming, use of crude implements, low level of technology and low level of education. The farm tools used are hoes, cutlasses axes, spade and shovels, millet, maize, tomato, groundnut, etc are commonly grown.

Characteristics of bush fallowing

Features of bush fallowing include:

1. The farmers live in permanent village units.
2. Farming is done on subsistence level i.e. farming to feed the families.
3. It is common in rural areas with abundant farmlands.

4. Farms are usually small.
5. There is usually no crop specialization.
6. Farm lands are left to fallow after one or two years of cultivation.
7. There is division of labour between the sexes.
8. It does not involve the cultivation of cash crops like cocoa, rubber, etc.
9. It uses slash and burn method for land preparations.
10. Produce is usually very low.

Advantages of bush fallowing

1. Rotational bush fallowing helps to check some plant diseases.
2. The system is relatively cheap because there is no expenditure on fertilizers and tractors.
3. It provides excellent pastoral grounds in areas where livestock are reared.
4. The system checks weed growth.
5. It uses cheap labour.
6. Bush fallowing aids the natural restoration of soil nutrients during the fallow period.

Disadvantages of bush fallowing

1. Permanent crops cannot be produced since the land is left to fallow for some years.
2. The system may lead to soil erosion if the soil gets exhausted.
3. A lot of time, energy and money is usually spent on preparing the land for farming.
4. Large areas of land which could be put to productive use are left to fallow.
5. It destroys valuable forest resources like timber.

6. It leads to land fragmentation as population.

19.2 Plantation Agriculture in East and West Africa

Plantation agriculture is an extensive commercial form of agriculture. It involves mass production of a single crop through a uniform system of cultivation under a central management. Some extend over several kilometres e.g. firestone Rubber plantation in Liberia, oil palm plantation in calabar, Sisal in Tanzania and Tea estates in Kenya and Malawi. Plantation of agriculture was first introduced into Africa by the European colonialists. The French and Belgians encouraged the setting up of these farms in their colonies such as Cote D'ivoire, Togo, Zaire and Guinea. Plantation agriculture requires huge capital to set up and manage. Nowadays, plantations are owned by government or large companies that employ paid labour.

Comparison between West and East African Plantations

In comparing plantation agriculture in West and East Africa, the following points are observable:

- (i) In East Africa, the colonial masters encouraged the development of plantation agriculture whereas, the colonial masters did not encourage it in West Africa. In Kenya, the climate was very favourable for European settlement and a large expanse of land was acquired for plantations. In Ghana, Sierra Leone and Nigeria, Cocoa cultivation has almost entirely been on peasant lands.
- (ii) In East Africa, most of European farms were very large covering several hectares whereas in West Africa European farms were extremely few.
- (iii) In West Africa, climate and relief favour a few plantation crops (e.g. cocoa, rubber and coffee) and that of East Africa favour a wide

- range of plantation crops (e.g. cloves coffee, tea, coconut and pyrethrum).
- (iv) Plantation agriculture contributes to national revenue in East Africa but as for West Africa, it is only in Ghana that plantation cash crops contribute to export earnings.
 - (v) In East Africa, plantations are found mainly at high altitudes but in West Africa, they are located on lowlands.
 - (vi) More Europeans were involved in East African plantations than in West Africa.
 - (vii) In West Africa, plantation agriculture is a feature of the francophone countries while all the countries involved in East Africa are Anglophone.

Importance of Plantation Agriculture

The benefits derived from plantation agriculture are the following:

- (i) The plantation agriculture creates employment opportunities in rural areas to reduce influx of rural people into cities.
- (ii) The products of plantations are sold to foreign countries to generate income for government.
- (iii) Plantation farms help in bringing about development in infrastructures.
- (iv) Plantation provides a chance for local people to learn new skills on the job.
- (v) Crops produced provide raw materials for industries.
- (vi) It brings about large-scale development of remote rural areas e.g. provision of houses for workers and a balanced infrastructure of electricity, medical services and schools.
- (vii) Plantation are centres of tourist attraction.
- (viii) They provide food and cash crops for the entire population.

Problems of Plantation Agriculture

These problems include:

1. Fluctuation in prices in the world market and problems of marketing. It cannot easily adjust to extreme price fluctuations and economic depression.
2. Problems of acquisition of land for expanding or initiating new plantations.
3. Transport problems hampering the evacuation of produce from plantations.
4. There is the problem of competition from small farms.
5. There is the problem of inadequate capital to run the plantation effectively.
6. Easy spread of diseases and pests since the same crops are cultivated permanently.
7. It leads to reduction of land for town development.

Solutions to problems of plantation agriculture

1. There should be proper management to prevent disease outbreak.
2. Government should participate fully in plantation agriculture.
3. Provision of loans or credit facilities to plantation farmers.
4. There should be adequate provision of roads and other infrastructure in rural areas where plantations are practiced.
5. Individuals should be encouraged to form co-operative societies and pull their resources together to acquire large area of land for plantation agriculture.
6. Provision of incentives to skilled personnel to take up jobs in plantain farms.

19.3 Fruit Farming in Mediterranean Region

Fruit is an edible part of a plant, generally sweet and juicy especially a part that contains the seed. The two major areas where Mediterranean type of climate is experienced and fruits grown are South Africa (e.g. Cape region Port Elizabeth and the Transvaal Bush reld) and Atlas region of North West Africa which comprises Tunisia, Morocco and Algeria.

Conditions favouring fruit farming

These features include:

1. The bright and sunny weather gives the Mediterranean region a very pleasant climate.
2. The mild and wet winters.
3. There is opportunity for irrigation where the level of water supply is low.
4. Continued government encouragement of fruit farmers by providing incentives.
5. Large foreign markets such as France, Britain and Germany.
6. Adequate transportation network accounts for successful cultivation of fruits in this region.
7. Research covers all aspects of production and processing for local and export markets.
8. Fruit growing has given rise to several industries e.g. the wine industry, dried fruit industry and the brandy industry.
9. The use of advanced methods of cultivation e.g. terracing.

Importance of Fruit Farming

The economic importance of fruit farming are listed below:

1. Fruit farming serves as a source of earning for individual farmers who engage in it.

2. It provides raw materials for fruit canning and processing industries.
3. It provides foreign exchange earnings to the government.
4. Fruit farming serves as sources of food for many houses e.g. oranges, banana and pineapples.
5. Industries engaging in the processing of fruits develop their areas of production infrastructurally e.g. tarring of roads and provision of pipe borne water.
6. Fruit farming is a catalyst of industrial development.
7. The local people learn new farming techniques from fruit farming.

Problems of Fruit Farming

The cultivation of fruits in Africa faces the following problems:

1. The major problem facing fruit farming is unreliable or unpredictable climate.
2. Labour shortage especially during the peak and harvest period.
3. Soil erosion due to deep hill – steep cultivation, poor soils as well as inadequate storage facilities for the perishable fruits.
4. Limited domestic and international market. Many of the former vineyards have been destroyed in recent years because of smaller sales of wine abroad.
5. The original inhabitants of the plantation areas are often displaced and dispossessed of their lands.
6. Since it requires labour, the young farmers leave their villages and thereby depopulate the rural areas of the active population.
7. Improper storage and processing of fruits can lead to poor quality of fruit products.

Solutions to Problems

1. Extensive development of irrigation schemes as a precaution against the effect of drought.
2. Further improvements in the technology of fruit preservation to prevent fruits decay.

19.4 Irrigation Agriculture in the Nile and Niger Basin

Irrigation is a procedure of supplying water to water deficient areas to neutralize the effect of evaporation. It enables crops to grow where there is inadequate rainfall for agriculture. The water is obtained from well, lakes, canals and rivers.

River Nile and River Niger take their sources from areas that experience heavy rainfall and flow through the dry regions. The Nile flows through arid and semi-arid regions that need irrigation for agricultural purposes. The inland Delta of the Niger is found in Mali between Segou and Tombuktu, within the arid and semi-arid region.

Irrigation is needed in these areas because of low and unreliable rainfall, high evaporation rate dry and arid nature of the two regions, shortage of water supply and low level of technological development.

Major Types/Methods of Irrigation

The major forms of irrigation practiced are:

1. Shaduf method: It is one of the oldest traditional methods used by peasant farmers. Here, the farmer collects water from the river channel with a bucket or water bag and pours it on the farms.
2. Perennial method: It involves the damming of rivers to create artificial reservoir and releasing the water during farming season. Water is available and cropping is done all year round.

3. Saqia method: It is a water wheel which is usually turned by animals such as oxen, donkeys, camels or buffalo. A series of containers (e.g. buckets) is arranged in a circular manner and anchored on an upright. The wheel rotates as the animals turn the instruments and the containers dip in and out of water. The water is made to flow out into the nearby farms as the filled water containers get to the top of the will.
4. Basin/Flooding method: When flood occurs, water is held back by building up some embankments or banners. This water is later released during the dry season e.g. for cotton and padi cultivation.
5. Pumping machine method: It involves the use of electrically powered engines for the pumping of water to farms. It is used for larger areas but the method is expensive.

Economic Importance of Irrigation

The benefits of irrigation to the people include the following:

1. The farmers get revenue from the sale of the products.
2. Water which is made available all the year round ensures good harvest from crops.
3. It encourages the establishment of industries e.g. cotton ginneries, textile factories, canning factories, etc.
4. Irrigation in the Nile and Niger basin produces crops which serves as source of food e.g. sorghum rice and maize.
5. The products of irrigation serve as raw materials for industries e.g. wheat produced is turned into flour for baking industries.
6. Irrigation encourages the growth of towns along the Nile valley e.g. Cairo.
7. The Gezira and Managil extension plan an important part in the economy of Sudan.

8. Irrigation employs many people e.g. the Gezira Scheme employed about 2000 technicians and 150,000 unskilled workers.

9. Tourism is encouraged as a result of the irrigation system.

As a result of the benefits mentioned above, Egypt has been described as the gift of Nile or an elongated oasis. Oasis is a fertile land in the desert.

Problems of Irrigation

Irrigation system encounters the following problems:

1. Building of dams and canals is costly i.e. irrigation equipment is expensive.
2. There is the problem of fluctuation in the level of water used for irrigation purposes e.g. River Albara is considerably diminished and this reduces water available for irrigation.
3. The construction of dam could lead to displacement of people living along the rivers.
4. Irrigation uses up the water which could be used for other purposes. e.g. HEP and transportation.
5. The creation of many dams on the same river by some countries disturbs the normal flow of water.
6. There is the problem of insufficient number of qualified experts on the establishment and operation of irrigation scheme.
7. Over-flooding could be disastrous like that of Zambezi dam during construction in 1977.
8. There could be excess of mineral salts like sodium which is injurious to plant growth.
9. The fluctuations in the prices of products in the world market may create economic problem for both the government and the farmers.
10. The farms are too large for the farmer themselves to work efficiently e.g. the Gezira Scheme.

The Gezira Scheme in Sudan which began in 1913 was completed in 1961 with its Managil extension. The area is supported by vast expanses of Sudan grass and Scattered in the north. The irrigation area occupied 850,000 hectares. The crops planted include millet, barley, onions, dates and millet or sorghum.

19.5 Pastoral Farming in East and West Africa

Pastoral farming involves the movement of herdsmen and their cattle from their original homeland to move distant grazing fields during the dry season. The movement could be on low level land, up and down the slope. The movement up and down the slope is called transhumance.

In West Africa, pastoralism extends from Senegal eastwards to Nigeria. Pastoral nomadism is important only in the savanna zone (Sudan and Sahel) which is free from tsetse flies and rainfall less than 1000mm. Other areas include Northern Ghana and Nigeria Central Burkina Faso Southern Niger, Togo and Benin. The animals are reared mainly by Fulani ethnic group.

In East Africa, pastoralism is confined to the wetter grasslands in the highlands. East Africa comprises Kenya, Uganda and Tanzania. Specific areas of pastoral nomadism include Southern Kenya, Northern Tanzania and South of Lake Turkana. The rainfall in East Africa is very low and unreliable. The Nomadic pastoralists include the Masai, Boran, Karamajong and Turkans. The methods are based on free range grazing (extensively) and transhumance. Climatic factors, poor vegetation and culture are responsible for pastoral nomadism.

Types of animal rearing

The four major types of animal rearing are:

1. Pastoral nomadism: The animal rearers have no permanent homes. They are called nomads or wanderers. The nomads are illiterates and move from one grazing land to another. The federal government of Nigeria has established nomadic education for nomads to enlighten them. Their emphasis is on large number of cattle rather than quality.
2. Semi-nomadism: The pastoralists have a place to call their home. Crop cultivation is carried on round their homes. Their movement is regulated by availability of pasture and rainfall pattern distribution e.g. Turkana and Masai tribes of East Africa.
3. Ranching: It concentrates only on the rearing of animals on their own land. It is a capital intensive system which requires adequate training in veterinary science. Water is supplied by wells, ponds, boreholes and natural water. Ranching is not common, in both East and West Africa. Example of ranching is Obudu Cattle Ranch in Cross River state of Nigeria and Ankole Mosaka Ranching Scheme in Uganda.
4. Mixed farming: It involves cultivation and animal rearing being undertaken together. The animals are used to boost crop production and vice versa. Mixed farming ensures economic stability for the farmers. It is not well developed in both East and West Africa.

Economic Importance of Pastoral Nomadism

The economic importance of nomadism are listed below:

1. The presence of tropical continental (Sudan) climate favours the rearing of animals.
2. Low rainfall which favours the growth of grasses.

3. Fulani reared their cattle of meat i.e. source of protein. Cattle are also valued for milk and hides.
4. The animals are sources of industrial materials e.g. food processing industries.
5. Cattle's manure or faeces is used to fertilize the fields.
6. Some animals like cattle are used to pull farm implements.
7. Pastoral farming provides jobs for many people.
8. Export of cattle, hides and skin provide foreign exchange for the country.
9. Farmers get money by selling their cattle, sheep and goats.

Problems of Pastoral Farming

The problems include the followings:

1. Grazing of pasture leads to soil erosion.
2. Most of the pastoralists do not possess a good education but depends on age long tradition.
3. Animals, are usually led on foot over a long distance and some may die of exhaustion or trypanosomiasis which they contact on their journey.
4. A lot of diseases attack the animals e.g. rinderpest, liver fluke, foot cholera and gall sickness.
5. Inadequate capital for large scale production.
6. Most of the pasture in West and East Africa is not highly nutritious e.g. elephant grass.
7. In the dry season, the pasture (or grasses) may even dry up.
8. Transportation of live cattle by lorries has its own problem too because cattle can easily die during the long journey.
9. Some breeds of cattle are poor/low with slow growth rate and late maturity.

10. Negative attitude of the Fulanis and the Massai who regard cattle rearing as a way of life and not for economic reasons.

Solutions to the Problems

1. Nomadic education should be encouraged for the Fulanis and Massai as being done in Nigeria by the Federal Government.
2. Ranching which restricts their movement should also be encouraged. Government should demarcate specific areas of land for animal rearing.
3. Better breeds of cattle should be adopted.
4. Sufficient veterinary officers and clinics should be provided to assist the farmers.
5. Fattening centres should be provided to allow improved meat production.
6. Good transport network should be developed.

19.6 Lumbering in Equatorial Africa (West Africa and Zaria)

Lumbering is the act of felling big trees and transporting them to the saw miles for processing. One of the major primary resources of Equatorial Africa is its forests. It covers an extensive area in the Zaire basin and stretching almost the full length of the West African Coast. Altogether about 228,000 hectares is tropical rain forest. In West Africa, lumbering is an important economic activity in Nigeria, Ghana and Cote D'Ivoire. In Nigeria, the major areas is the high forest of Delta state around Sapele. Other areas include Edo, Ondo, Ekiti, Ogun and Cross River states.

In Zaire, lumbering areas include Zaire basin around the provinces of Kinshasa, Ituri and eastern equator.

The conditions favouring lumbering industries are:

1. The dense equatorial forest which is a source of valuable timber.
2. Heavy rainfall throughout the year that accounts for the growth of trees.
3. Availability of umberable trees like Iroko, Obeche and Mahogany.
4. Rivers provide means of transporting the logs of the port for export or sawmills.
5. There is a high demand for timber as fuel.
6. Availability of skilled and unskilled labour.

Methods of Lumbering

The methods include:

1. Identification of lumberable trees.
2. Felling of trees by axes or hand saws or powered saws.
3. Cutting of trees with buttress roots with the aid of platform (3-4m high)
4. Cutting off of branches and cutting of trunks into logs.
5. Carriage of logs by tractor to the nearest river.

Economic values/Importance of Lumbering

The economic values of lumbering are as follows:

1. Lumbering provides employment opportunities to people who are involved in it and related activities.
2. Timber is exported to other countries for foreign exchange earning.
3. Trees in forest help to control soil erosion and serve as wind breaks.
4. Softwood (okoume) is used for making plywood while hardwood is used for construction work and furniture making.

5. It provides raw materials for timber processing industries (sawmill industries)
6. Lumbering provides firewood in most of the rural areas for cooking and heating.
7. It is a source of poles and posts used for building in rural areas, farming operations, transmission of telephone, etc.
8. The timber from mangrove tree is used for making pitprops in coal mining areas and railway sleepers.

Problems of Lumbering

The following problems face lumbering industry in Tropical Africa.

1. It is not always easy to identify the useful trees for felling among the numerous species.
2. The useful trees are scattered all over the forest and many roads have to be constructed to reach these trees.
3. Felling becomes a serious problem where the canopies intermingle with each other.
4. Some logs are so large and heavy that they do not float on water.
5. The trees grow close together, making felling more difficult.
6. Swampy terrain makes transportation difficult especially in the wet season.
7. There is the problem of capital to build enough sawmills.
8. Most of the valuable trees felled are not replaced.
9. Poorly developed communication network is a problem.

Solutions

1. Forest guards should be employed to check illegal felling and ensure planting of new trees.
2. Afforestation should be encouraged.

3. Bush fallowing and bush burning should be discouraged.
4. Roads should be constructed round the lumbering areas for easy transportation of logs.
5. Re-afforestation should also be encouraged.

Summary

- Agriculture plays an important role in Africa's development. It provides about 70% of employment and 30% of sub-Saharan Africa's gross domestic product.
- Bush fallowing is the cultivation of a piece of land for some years and leaving it for some years to regain fertility of the soil. The conditions that favour bush fallowing in West Africa include low population, abundance of large areas for farming, crude implements, low level of education and technology.
- The crops grown in plantation agriculture are cocoa, coffee, rubber, oil palm, tea, coffee, sisal, cloves, etc.
- The two major areas where Mediterranean type of climate is experienced and fruits grown are South Africa and Atlas region of North West Africa.
- The major methods of irrigation practised in Nile and Niger basins are shaduf, perennial, saqia, basin and pumping machine methods.
- The four major types of animal rearing are pastoral nomadism, semi-nomadism, ranching and mixed farming.
- Lumbering is the act of felling big trees and transporting them to the saw mills for processing.
- The conditions for lumbering industries in West Africa and Congo are dense equatorial forest, heavy rainfall, availability of lumberable trees, availability of labour and rivers for transportation.

Revision Questions

Objectives

1. The major fruits grown in the Mediterranean regions of Africa include:
 - A. grapes, olives, apricots and figs.
 - B. lime grape fruits, orange and lemon.
 - C. pineapples, bananas, lime and figs.
 - D. apples, pears, apricots and olives.
2. In Africa, the Mediterranean climate occurs in the
 - A. south eastern coastland.
 - B. northern part.
 - C. continental interior.
 - D. extreme north and south.
3. The Mediterranean vegetation is described as xerophytic vegetation because it is
 - A. heat resistant.
 - B. fire resistant.
 - C. wind resistant.
 - D. drought resistant.
4. The most important cash crop grown in the Nile Basin is
 - A. barley.
 - B. cotton.
 - C. groundnut.
 - D. sugar cane.
5. The Mediterranean type of climate is best suited for
 - A. cattle rearing.
 - B. fruit growing.
 - C. rice cultivation.

- D. vegetative gardening.
6. All the following are benefits of irrigation farming except
- provision of employment.
 - making early planting possible.
 - making farmers depend solely on rainfall.
 - bumper harvest.
7. Bush fallowing ensures that
- artificial fertilizers are used.
 - only one crop is cultivated at a time.
 - the land regain its fertility naturally.
 - modern agricultural machinery are used.
8. Which of the following favours the growth of Olives in the Mediterranean region of Africa?
- High temperature and humidity.
 - heavy rainfall.
 - Abundant supply of skilled labour.
 - cool, wet winter and warm, dry summers.
9. The predominant system of agriculture among rural farmers in Nigeria is
- terrace farming
 - irrigation farming
 - plantation agriculture
 - bush fallowing
10. The basin system of irrigation in the Nile Basin is not reliable because
- too much of the water percolates into the ground.
 - only a few crops can be grown.
 - it is not considered suitable by some farmers.
 - It depends on the flow of the Nile in a particular year.

Essay

1. Define agriculture.
- b. State the advantages and disadvantages of bush fallowing in West Africa.
- 2a. What is plantation agriculture?
- b. Compare between West and East African plantations.
- c. State the importance of plantation agriculture.
- 3a. Discuss fruit farming in Mediterranean region.
- b. Highlight the problems fruit farming in this region.
- c. Outline the solutions to these problems.
- 4a. Discuss irrigation agriculture in the Nile Basin.
- b. List and explain the major types of irrigation in this region.
- 5a. Discuss pastoral farming in West Africa.
- b. Mention and explain three types of animal rearing.
- c. State four problems of pastoral farming.