COMMERCIAL FOOD AND CASH CROPS PRODUCTION IN NIGERIA

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Introduction

Agriculture is the art and science of land cultivation for raising crops, as well as breeding livestock for human consumption. Agriculture is as old as man and the earth itself, being the first assignment God gave to the man He created (Gen 1:28-29 & 2:15). Doing agriculture is therefore a service pleasing to God. Without agriculture life on earth would cease.

Nigeria has over 70.8 million hectares of land for agricultural production. Maize, Rice, Guinea corn, Cassava, Yam, Beans and Millet are the major crops produced. Nigeria is world's largest producer of cassava and acha (Digitaria spp), producing about 59 million metric tons and 126,000 metric tones per annum as at 2017. These figures, especially for acha, are declining by the year.

Importance of Effects of Agriculture Nigeria

- Almost 100% of life depends on agric directly or indirectly. This explains why agribusiness can never go extinct but would continue as a long as man exist.
- Poverty reduction for individuals and nation
- Economic growth (the sector contributes about 40% to Nigeria's GDP)
- Increase in industrial activities
- Job creation (provides employments for over 70% of the population of Nigeria)
- Environmental sustainability
- Food security
- Rural Development
- Higher life expectancy

In spite of the enormous potentials of agriculture, the level of production in Nigeria is very low. Several factors are responsible for this.

Factors Militating Against Commercial Agricultural Production in Nigeria

1. Poor Land Tenure System
2. Low Level of education
3. Low level of irrigation
4. Land degradation
5. Low level access to finance
6. Urbanisation
7. Climate change
8. High Harvest losses
9. High Post-harvest losses
10. Poor access to market
11. High cost of farm inputs
12. High level of insecurity
13. **Inappropriate technology** (This is key)

The result of these challenges is the increase in importation of food. In Q1 of 2021, import rose to as high as ₦3.35 Trillion as again export of ₦303 Billion. This imbalance provides a huge potential for agriculture and agribusiness in Nigeria.

Agriculture has changed. The way we used to farm has changed. Nigeria can never have sufficient food if we continue to farm the we do today. We must learn.

Principles of Crop Production in Nigeria

Crop production is the process of growing crops for food, feed and fibre, **ensuring environmental sustainability**. Crop production is the business of maximising profit in growing crop at minimum cost. Achieving this requires that crop production must be done on a large scale, and large scale production requires the use of machines (Agricultural mechanisation).

Classification of Crops

- Food crops:- Crops produced to the feed the farmer and for local market. This includes crops like rice, beans, groundnut, maize, sorghum, and acha, as well as vegetables
- Industrial (Cash) Crops:- Crops produced mainly for market, local or international. Crops like cocoa, cotton, sugarcane, tea, plantain/banana oil palm are examples of cash crop.

Crop classification consistent with United Nation's Food and Agricultural Organisation (FAO) is the Agricultural Classification also referred to as the Indicative Crop Classification (ICC).

1. Cereal crops

   rice, maize, wheat, sorghum, *acha*, millet
2. Vegetables crops

   lettuce, spinach, cabbage, tomatoes, water melon, pumpkin, Irish potato
3. Fruits and Nuts crops

   Date, mangoes, bananas, pineapple, avocado, orange, walnut, cashew, plum
4. Oil Seed crops

   Groundnut, soya beans, castor bean, sun flower, shear, oil palm, coconut, olive
5. Root/Tuber crops

   yam, potato, sweet potatoes, cassava
6. Beverage and Spices crops

   coffee, cocoa, tea, chilies & peppers, ginger, clove, cinnamon, nutmeg, vanilla
7. Pulse (Legumes) crops

   Beans, chick peas, pigeon peas, cow peas, lentils
8. Sugar crops

   Sugar beet, sugarcane, sweet sorghum, etc
9. Other crops

   - Grass and fodder
   - Fibre crops (cotton, jute, flax, hemp)
   - Tobacco

These crops do not grow well in all environments. It therefore very important to know which crop performs well in the environment one intends to grow crop.

Ecology of Crops in Nigeria

Agro-Ecology refers to the relationship between crops and their environment and human influence. Nigeria lies in the tropics, within latitude 4° 1′ and 13° 9′ N , and longitude 2° 2′ and 14° 30′ E with a landmass is 923,768km^2 and divided into 6 agro-ecological zones. The type of crop grown in each region depends on the climate and soil condition of that region. From South to North the zones and the types crops grown are shown in Table 1. Figure 1 is a map of Nigeria showing the Nigerian agro-ecological zones

Table 1: Nigeria Agro-ecological Zones and Crops Grown

Mangrove Swamp	Rice , Rubber
Rain Forest	Oil Palm, Cocoa, Banana, Kola-nut, Yam, cassava
Derived Savanna	Cereals, Legumes
Guinea Savanna	Maize, sorghum, Millet, Groundnut, Yam
Sudan Savanna	Cotton, Groundnut, Sesame, Sugarcane, Gum arabic
Sahel Savanna	Millet, Sorghum

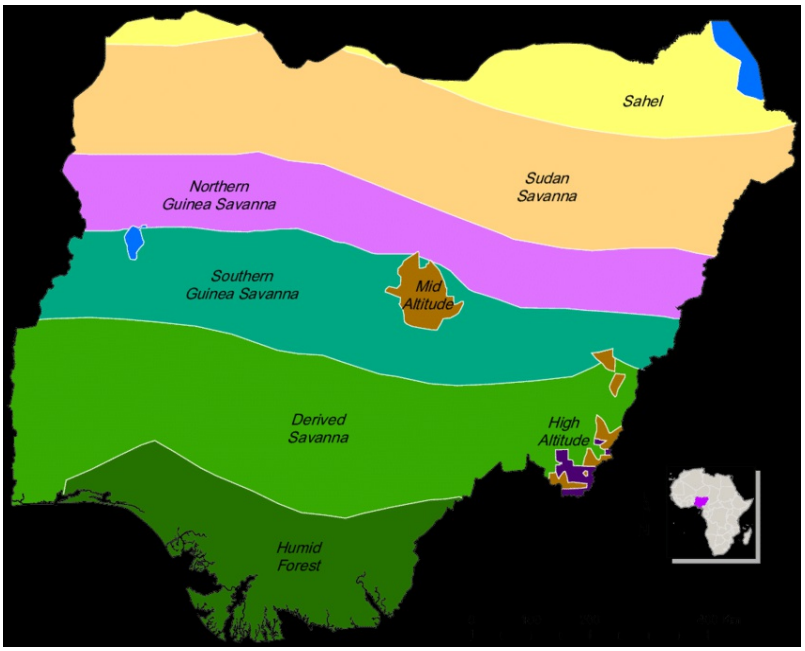


Figure 1: Map of Ecological Zones of Nigeria

Commercial Cropping Systems

There are three possible cropping systems that can be adopted for commercial cropping. These are

- Shifting Cultivation
- Continuous Cropping
- Crop Rotation

A. Shifting Cultivation:- a system where the farm is cultivated for some years, abandoned for some years to another place and then returned to.

Purpose of Shifting Cultivation

- Declining yield as a result of declining soil fertility

- High incidence of pests and diseases.

Disadvantages

- Farmer must have vast land in multiple places
- Labour utilisation is inefficient
- Family needs to be on the move, therefore no permanent structures are erected.

B. Continuous Cropping:- Continuous growing of one crop on the same land year after year. To sustain this system,

- fertilizer must be applied
- crops must be carefully selected
- short term fallow may be introduced
- during fallow, a nitrogen fixing crop (break crop) may be introduced

Advantages

- Land management is efficient
- Family is more stable so permanent structures can be erected
- Machinery use is efficient

Disadvantages

- Excessive use of inorganic fertilizer may lead to soil degradation.

C. Crop Rotation:- Changing to different type of crop each year on the same land, (or changing from crop to fallow) in a predefined sequence. The sequence should include crops that help soil maintenance.

Advantages

- improves soil structure and organic matter
- improves soil fertility
- helps control pests
- helps control weeds
- helps control diseases

There are two types of rotation namely

- Whole Field Rotation:- A different crop is grown in the whole field each year.
- Partitioned Field Rotation:- The field is divided into the predefined partitions and different crop is planted in each partition in turn, rotated through the predefined number of years.

A 4-year Whole field rotation

Year 1	Year 2	Year 3	Year 4
Rice	Cow pea	Yam	Cabbage

A 4-year Partitioned field rotation

Plot	Year 1	Year 2	Year 3	Year 4
A	Maize	Cabbage	Yam	Cow pea
B	Cow pea	Maize	Cabbage	Yam
C	Yam	Cow pea	Maize	Cabbage
D	Cabbage	Yam	Cow pea	Maize

Market availability is a major consideration in deciding which method to adopt.

Agricultural Value Chain

A successful commercial farming consists of several components and each can stand alone as a business. The value chain of a crop refers to the various aspects of the production of the crop from selection to consumption. An Agripreneur may capitalise on any aspect of the chain at any stage for business.

Basic Components (Operations/Processes) in Crop Production (Value Chain) include

- Crop selection:- This refers to the selection of a crop(s) appropriate for a region. The crop selected must be favoured by the soil type.

- Land preparation:- Modification of the structure of the soil, making it conducive for plant growth. Depending on the current nature of the soil, land preparation may include conventional tillage, minimum tillage or zero. Conservation tillage methods helps to the maintain the farm environment.

- Seed selection:- The quality of the seed planted is a major determining factor in the success of crop production. Using improved seed greatly increases probability of high yield. An Agripreneur can take up the business of preparing seeds for farmers.

- Planting/Sowing:- The placement of seeds/seedlings/stems into the soil. Planting may be done once a year for rain-fed cropping or multiple more than once through irrigation. This is one way of achieving food security in Nigeria. The method used in planting depends on the type of crop.

- Crop protection:- To improve yield, crop must be protected from weeds, diseases (fungi, virus, bacteria) and pests insects, rodents, nematodes).

- Fertilizer application:- Any substance added to the soil to provide one or more of the chemical elements essential for plant nutrition. Fertilizer could be organic or inorganic (synthetic). Granular fertilizers are the most common in Nigeria and there are 3 main types

+Single Super Phosphate (SSP)

+Ammonia base Nitrogen fertilizer (Urea, Calcium Ammonium Nitrate (CAN))

+Compound fertilizer:- a mixture of Nitrogen, Phosphorus and Potassium (NPK) in different proportions.

Different crops require these minerals (elements) in varying quantities, therefore proper soil test is required to determine which is lacking in the soil and the quantity to be added for specific crop. Fertilizer application must be done in such a way that does not impact the environment negatively.

- Irrigation:- the application of water, other than rain, to the soil to provide the required moisture for crop production.

Reasons for Irrigation

-Water from the rain may not be in the right amount and therefore not sufficient for crop

-Rain may seize for awhile while plant require water (ie rain may not fall when it is required)

-When there is need to grow crop outside the rainy season

-When there is drought

Types (Methods) of Irrigation

There are basically 4 types of irrigation namely 1. Surface Irrigation, 2. Subsurface Irrigation, 3. Sprinkler Irrigation and 4. Drip Irrigation. The method used must take into consideration soil type land topography, availability of water and crop water requirement.

- Harvesting:- the process of plucking mature crop from the farm. Machines used must be properly selected for specific crops to minimise harvest losses.

- Transportation:- can be :

*movement of farm input to the farm,

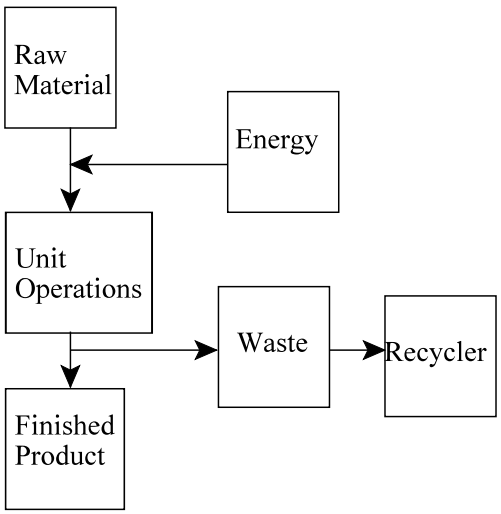
*movement of crop from the farm,

*movement of finished product to industry for processing, to warehouse for storage, or to the market for sale.

- Processing (Post harvest handling):- the process of adding value to the harvested crop. It includes any activity that

- maintains the quality of the crop
- raises the quality of the crop
- changes the characteristics of the crop

Many activities are involved in crop processing. Each of them is referred to as a **unit operation**



General Processing Flowchart

- Storage:- adequate and appropriate storage system is necessary for crops not ready for the market or awaiting process. Type and duration of storage will depend on the type and condition of the crop.

- Marketing:- this refers to the sale of harvested or processed product. For agricultural products, demand is always higher than supply. Producing crop in commercial quantity is a sure way to meet the demand. This opens up a new business opportunity.

Each of these operations MUST be mechanised in order to archive commercial crop production. **Lack of application of appropriate technology** has been the major setback in achieving food security in Nigeria. Appropriate technology, if properly applied, would mitigate most of the challenges in commercial crop production. Commercial crop production is capital intensive and government must provide incentives to farmers, making access to finance easy.

Government must provide the necessary infrastructure to support commercial crop production. Access roads, power and medical facilities must in place to ease the difficulties faced by farmers. Government must create and sustain a link between new technologies and the farming communities. Above all, government must provide security cover for farmers.

Commercial crop production is the only way to achieve food security, boost the economy and alleviate poverty. The world is changing fast. **Smart Agriculture** is the to go.

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