

Sustainable Agriculture through Food Security

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Abstract

Though, much progress has been made towards food security in the past decades. But overtime, the food security challenges faced has become rather too alarming and in years to come, many of the world's population will be subjected to extreme poverty, hunger, malnutrition and even deaths.

It is expedient that the issue of food security is tackled as the world's population is expected to climb to 8.5 billion in 2025. The need to improve agricultural productivity to facilitate a sustainable agriculture, thereby improving food security is very key. This module explains sustainable agriculture to a large extent, food security challenges, as well as food security measures, giving a direct guide on how sustainable farming can boost the food production systems in Nigeria.

Keywords: Food Security; Sustainable Agriculture; Agriculture; Pandemic; Nigeria

Introduction

Agriculture being the science of cultivating crops, rearing of animals for man's needs and industrial purposes plays an important role in the quest to curbing food security challenges faced and which has in turn brought about other divisions like the sustainable agriculture which focuses on the availability of food for the now and the future as well as bringing about good health globally. Agriculture still remains the largest sector of the Nigerian economy and as such the government is leveraging on the agricultural sector for possible collaborations with the Food and Agriculture Organization (FAO) to ensure food security.

According to statistics, 70% of youths in Nigeria are engaged in Agriculture, showing the sustainability of the agricultural sector in Nigeria and how the youths are leveraging on the agricultural schemes put in place by the Nigerian government.

Sustainable agriculture

A household is considered food secure when it does not live in fear of hunger. The major aim of sustainable agriculture is to meet the needs of the populace without compromising the needs of the

future generation. Sustainable agriculture meets the needs of individuals by providing quality food and sufficient food to enhance improved growth. The center for integrated agricultural systems (CIAS) defines sustainable agriculture as farming systems and government policies that develop long term positive impacts on the following; agricultural profitability, environmental quality, food sufficiency, quality and affordability and rural family and community vitality, which is not far from the three main goals of sustainable agriculture such as environmental health, economic stability, social and economic equity. These three (3) goals have their roles to play when it comes to sustainable agriculture.

Relating environmental health to sustainable agriculture shows that climate change, deforestation and irrigation problems and soil degradation and health which are major environmental health factors have adverse effects on sustainable agriculture. Nigeria has tropical climate with variable rainy and dry seasons depending on the location. With much emphasis given to climate change, Nigeria practices rain-fed agriculture depending immensely on the varying climate changes and as such, the vulnerability to adverse effect of climate change is evident. At high temperatures, crop yield is be-

ing reduced encouraging weed and pest proliferation, leading to reduced access to food, reduction in food availability, and reduced food quality.

Food security challenges

Food security as defined by the Food and Agricultural Organization (FAO, 1996) means that all people at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their food preferences and dietary needs for an active and healthy life. Therefore, the main purpose of food security is for individuals to be capable of obtaining adequate food needed at all times and to be able to use food to meet the body's needs (Wada 2012: 174).

Furthermore, citing the World Food Summit Plan of Action (1960), Wada (2012) says that food insecurity exists when:

1. People encounter a large reduction in their sources if food and are unable to make up the difference through new strategies.
2. The incidence of malnutrition is abnormally high for most of the, and this cannot be accounted for by either health or care factors.
3. A large percentage of the population or group is using marginal or unsuitable strategies and
4. People resort to using "coping" strategies that are damaging to their livelihoods in the longer term or incur some other unacceptable cost, such as illegally or immorally.

This means that food security does not subject households to consuming unhealthy food in order not to leave the stomach empty or even result to carrying out immoral and illegal acts just to avoid starvation.

Though much progress has been made towards food security over the past decade, but the pandemic brought into limelight the alarming rate of food insecurity across the globe. Nigeria not being spared, and with the statistics of the countries examined by the global food security index in 2019, ranked Nigeria as the 96th food insecure country out of 113 countries. Nigeria being the most populated African country with over 160million people, representing about 47% of the population across Nigeria gives a summary of how Nigeria's food security situation has drastically deteriorated.

Findings from the October 2019 Cadre Harmonize analysis indicates that 2.9 million people are food insecure (CH/IPC Phase 3

to 5) across BAY States, showing a 72% increase from October to December 2018 post- harvest period. Around 3.8million people in BAY States are identified food insecure and currently facing crisis (CH Phase 3 or 4).

Achieving food security

Food security is achieved when the populace at all times have physical, economic, and social access to enough food that is of quality in order to maintain food health and well-being. Food security cuts across four (4) fundamental pillars; Availability, Access, Utilization and Stability.

Availability: This pillar plays an important role in terms of improving food security and most important. Food availability is the supply of food through production, distribution and exchange. In the case of production, there are factors such as crop selection, live-stock breeding and management, harvesting etc. that can hinder effective production and thereby reducing the availability of food across the globe. As a result of the adverse climate change and the rain fed practices, crop production is usually affected as a result of little or no rainfall, high temperature for crops not requiring high sunlight/chlorophyll. Also, lands that are used for agricultural purposes can be lost to soil erosion, desertification due to unsustainable agricultural practices, and even urbanization leaving little or no land to aid agricultural activities.

Distribution of agricultural finished products through the appropriate distribution chain is key.

Manufacturer→ Wholesaler→ Retailer→ Contractor = Final consumer. These channels of distribution facilitate the availability of agricultural products for consumption.

In the olden days, the major form of exchange was trade by barter as a result of hyperinflation. This medium of exchange allows individuals to exchange goods and services for other goods and services without money exchange. Though the medium of exchange was solely dependent on wants, meaning that a participant must want what the other has for exchange to occur, but the point here is that this medium brought about immediate exchange, people could afford to trade what they had to get what they needed, meaning there was something called availability. In summary, for there to be availability of any product, exchange must occur.

Access: Food security explains the need to have access to sufficient, safe and nutritious food that meets the preference and di-

etary needs for an active and healthy life. It is one thing to have the food available, but another thing to be able to access it. Gaining access to the global market, its foreign exchange earnings is essential. The ability of a particular household to purchase food in the right quality and diversity in the market is what we look forward to as this is a major factor when it comes to improving food security. The major aim of food security is that each household will have access to quality, nutritious food at all levels.

Utilization: Food safety plays an important role when it comes to utilization as it involves handling, preparation, and storage of food which can affect food utilization if not properly considered. As soon as a household obtains food, there are variety of factors that affects the quality and quantity of food that is being consumed by the household. It is of great importance that food consumed is safe, meeting the physiological requirement of individuals. The health of individuals controls how food is being metabolized, showing that health care is part of utilization. Therefore, in improving this pillar of food security, it is important for a general education about nutrition, food safety and how it can affect food utilization.

Stability: Above all the four pillars of food security, stability is another major factor that shouldn't be overlooked. If there is food availability, access, utilization and no stability, there is already an alteration which explains that all four pillars must go together for food security to be achieved. And for food security to be achieved, there should be a form of stability. The ability to obtain food consistently over a long period of time is what we can refer to as stability.

In summary, there is need to work around all four pillars of food security to achieve a result as they go hand in hand with each other.

Contributory role of agriculture to food security

Agriculture is a broad sector that creates a form of inclusiveness of people across the globe. It plays an important role when it comes to the increase in quality and quantity of food diversity, providing a source of income for many of the world's population as well as a boost in the economy. Agriculture is regarded as the mainstay of the Nigerian economy as it was the first occupation of man that brought about change in the standard of living of citizens, creating job opportunities as well as economic transformation. Agriculture contributes about 40% of the Gross Domestic Product (GDP) employing about 70% of the working population in Nigeria (CIA 2012).

According to Central bank of Nigeria (CBN), between 1960 and 2011, an average of 83.5% of agriculture GDP was contributed by the crops production sector, making it a key source of the agriculture sector growth. In 2019, agriculture contributed about 21.91% to Nigeria's GDP. In terms of job opportunities, agriculture plays an important role. About 60 - 70 percent of Nigerian youths are engaged in agriculture, showing that many are leveraging on the agricultural schemes put in place by the Nigerian government and bring about employment.

In summary, with agriculture serving as a boost to the Nigerian economy and also creating job opportunities, achieving food security will be easy in the sense that the first two global goals (Zero hunger, no poverty) that are in line with agriculture and food security will be met [1-12].

Conclusion

The rate of food security has climbed up the ladder and is already serving as an eye opener to us all. The key word for agriculture is team work and as such, working together to achieve a common goal (food security) is key as this will quicken the process towards attaining the set goal.

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