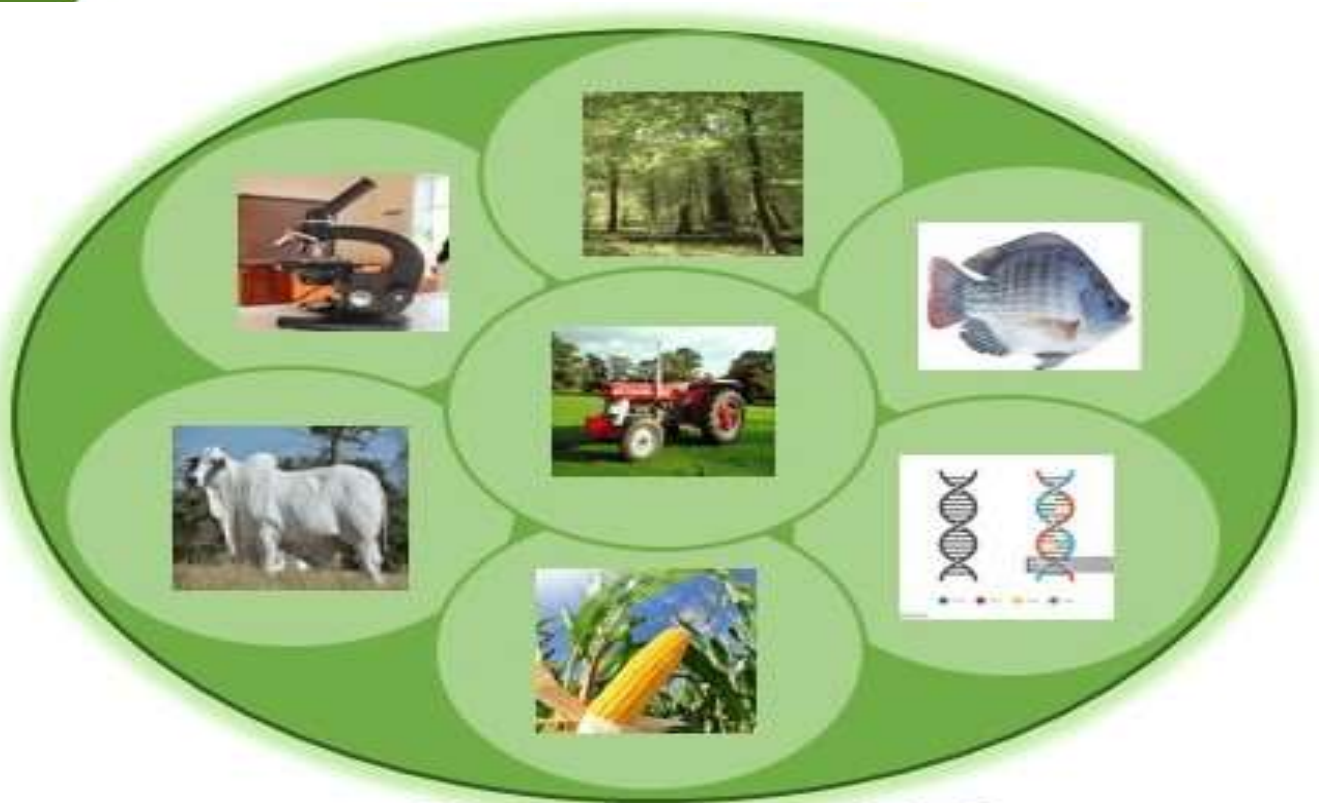




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HORTICULTURAL CROP PRODUCTION IN STRENGTHENING FOOD SECURITY AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

This paper conceptually examined the role of horticultural crop production in enhancing food security and economic growth in Nigeria. Guided by the Agricultural Development Theory, the study reviewed 27 works published between 2002 and 2025, covering Nigerian and international contexts. The analysis drew exclusively on secondary sources, including government reports, journal articles, and policy documents, with emphasis on documented evidence. The findings show that horticulture is a key component of Nigeria's agricultural sector, contributing to nutrition, employment generation, and economic resilience. By consolidating fragmented evidence, the study highlights horticulture's potential to address food insecurity and promote sustainable development. It recommends strengthening agricultural extension services, providing soft loans to horticultural farmers, and encouraging public-private partnerships to enhance productivity and competitiveness. Overall, the study underscores the strategic role of horticulture in advancing food security and inclusive economic growth in Nigeria.

Keywords: Horticulture, Crop Production, Food Security and Economic growth

Introduction

Horticulture, which involves the cultivation of fruits, vegetables, flowers, ornamental plants, and medicinal plants, plays a vital role in food security and employment generation. It provides fresh, nutritious produce, diversifying food sources and improving diets. Horticulture also supports economic growth by offering employment opportunities in terms of cultivation of fruits like mangoes, bananas, and vegetables like tomatoes and peppers (Scholar, 2024).

Over the past two decades, horticultural exports from developing countries have grown significantly, with exports from Latin America, Africa, and Asia increasing

substantially (Parmar, 2023). In Nigeria, horticulture supports millions of livelihoods, with crops like tomatoes, peppers, and onions contributing to both food security and the national economy (Scholar, 2024). The sector generates substantial employment, contributing 30.4% to GDP while occupying only 13.1% of the gross cropped area. However, seasonal employment challenges persist, as horticultural crops require intensive care from cultivation to harvesting (Kumar et al., 2021).

In terms of food nutrition, horticulture provides essential vitamins, minerals, and antioxidants, addressing malnutrition and health issues. It empowers communities by



promoting local food production through home gardening and urban farming (Ilo, Onabanjo, & Hamzat, 2023). Additionally, horticultural crops contribute to environmental beautification and ecological conservation, enhancing living standards and supporting various industries, including honey production.

As Nigeria continues to face challenges related to food security and unemployment, the horticultural sector stands out as a key player in creating sustainable solutions. Through technological innovations, access to research, and effective market knowledge, horticulture can enhance profitability, reduce input costs, and drive economic resilience, fostering long-term growth in both food security and youth employment (FEEDFUTURE, 2025)

Despite the enormous contributions of horticulture to Nigeria's economy and food security, the industry faces several difficulties that hamper its expansion and sustainability. Key challenges include soil degradation, poor climatic conditions, deforestation, and inconsistent agricultural policies. In northern Nigeria, soil erosion and falling fertility reduce crop yields, endangering food production. According to the World Bank, (2023), climate change exacerbates these issues by producing unpredictable weather patterns that disrupt farming activity. Additionally, excessive deforestation affects ecosystems, further decreasing horticultural yield. Against this background therefore, that the study seeks to investigate the role of horticultural crop production in enhancing food security and economic growth in Nigeria. The study aims to examine the role of horticultural crop production in improving food security and driving economic growth in Nigeria.

Concept of Horticulture

The word 'horticulture' is obtained from two Latin words 'hortus' (garden) and 'cultura'

(cultivation), which connotes garden cultivation (Rajani and Joshi, 2017). It is the scientific cultivation of garden crops which involve the production of fruits, flowers, ornamental plants, plantation crops, spices, tubers, vegetables, medicinal and aromatic plants. In other words, it is the art and science of cultivation, management, utilization, improvement and value addition of fruits, vegetables, ornamental, medicinal, and aromatic plants, mushrooms, spices, and plantation crops for human food, non-food uses, and social needs. It is still considered as a high value from the nutritive perspective as it has high contents of vitamins, minerals, and antioxidants, and today consumers need nutrition (Parmar,2023). The nutrients obtainable from fruits and vegetables by human beings include water, carbohydrates, fats, proteins, fibre, minerals, organic acids, pigments, vitamins, antioxidants and others (Chadha and Patel, 2019), making horticultural crops a major source of healthy diet.

Food Security

Chadha and Patel (2019) defined food security as "access by all people at all times to enough food for an active healthy life". Food security involves not only food availability through storage, and trade but also more importantly food access through domestic or home production (Peter et al., 2020). National Food Security (NFS) refers to a nation's ability to produce or import enough food to feed its population. However, this alone does not guarantee Household or Individual Food Security, as weak markets, bad infrastructure, lack of information, and income disparity can impede access to food. Various indices, such as the Aggregate Household Food Security Index (AHFSI) by FAO and the Food Security Index (FSI) by USAID, have been established

to quantify food security across various aspects (Adebayo, 2010).

Food Insecurity

The FAO (2010) defines food insecurity as the result of inadequate intake of nutritious food, stressing that the physiological benefits of food are tied to nutrition and health. Food insecurity occurs when there is a lack of access to sufficient food, which can be either temporary or long-term. According to Adeoti (cited by Metu et al., 2016), Food insecurity is a result of insufficient resources to acquire or produce food, leading to ongoing inadequate nutrition.

Economic Growth

The World Bank (2023), defines economic growth as the rise in a country's output of goods and services, measured by the real Gross Domestic Product (GDP). The organization underlines that economic growth is vital not just for raising living standards but also for attaining long-term sustainability, poverty reduction, and economic resilience in the face of challenges such as climate change and global economic upheavals. In other words, Economic growth refers to the sustained increase in a country's real per capita income over time, measured by the rise in the production of goods and services, include agricultural products like food. Growth happens when the production capacity of labour, land, and entrepreneurship expands, leading to more goods and services. Economic growth can also be inclusive, meaning it benefits various groups of society, contributing to the greater goal of equitable development. However, while growth is a universal goal, the annual growth rate varies across economies. Jhingan (2016), also posits that Economic growth is expected to improve citizens' standard of living and reduce income inequalities.

Horticulture Crop Production and Employment Opportunities

According to Attanda (2024), horticultural crops must be incorporated into Nigeria's agricultural plans in order to improve food security and create jobs for young people. He emphasizes the significance of capacity building to enhance the cultivation of crops like tomatoes, peppers, and other vegetables in both upland and lowland. By engaging young people in the cultivation of high-value crops, horticultural production can contribute significantly to the reduction of youth unemployment thereby creating jobs in the farming, processing, and distribution industries. Buttressing this is assertion, Oyekale (2023), points out that encouraging horticulture through young entrepreneurial initiatives and agricultural extension services will greatly aid in rural development and employment generation. In the same vein, Bello et al. (2022), contend that extending government incentives and programs to engage young people in horticulture will go a long way to promote long-term economic growth, increase agricultural output, and stimulate innovation. In addition, Adebayo (2023), posits that, including horticultural development within Nigeria's agricultural strategies can result in more inclusive growth, thereby enhancing employment and food security.

Challenges Facing Horticulture Industry

Horticulturists face various significant concerns that effect productivity and sustainability. These include climate change which modifies rainfall and affects planting and harvesting cycles due to rising temperatures; variable rainfall patterns which increases drought and heat stress, requiring climate-resilient crops and precision agriculture, and extreme weather events,



increasing the likelihood of crop failures and pest outbreaks.

Also, high energy prices further strain profitability, driving the demand for sustainable energy options like solar-powered irrigation particularly for greenhouse businesses and irrigation systems that demand significant power. In the same vein, labour shortages remain a serious issue due to workforce aging and immigration constraints, prompting interest in automation despite high costs. Bio-security risks are increasingly rising due to global trade, demanding severe precautions to prevent the spread of pests and diseases, in addition, low profit margins continue to challenge and compel producers, growers to investigate high-value commodities and direct-to-consumer sales for financial stability and to remain competitive in the business (Green and Lawson, 2023; Das, 2024).

Solutions to the Challenges Facing Horticulture

The future of horticulture is led by sustainability and technological advancements. Key trends include protecting resources, expanding crop output, and improving product quality for both local and international markets. There is a shift towards sustainable practices such as planting native species, developing climate-resilient crops, and boosting drought-tolerant plants. Consumer tastes for healthier, locally-sourced, and sustainably-produced food are shaping horticultural practices. Technological innovations like precision agriculture, AI, and smart irrigation are improving output. The global population growth and climate change challenges highlight the need for sustainable farming practices and efficient post-harvest management to meet global trade standards (Parajuli et al., 2019).

Trends like smart agriculture, sustainable water management, and biodiversity protection will influence horticulture in the future. While on the one hand urban agriculture, including rooftop gardens, addresses food security and sustainability, technologies like robots and precision irrigation systems are increasing output and preserving resources (Yuan et al., 2020), Global food security on the other hand is also being improved by genetic advancements like CRISPR, which increase crop tolerance to pests, diseases, and climate change (Kanchiswamy, 2021).

Food Security and Economic Growth

Warr (2014) highlights the connection between economic growth and food security, demonstrating the close relationship between enhanced economic performance and increased food security. Food security is more likely to occur when economic growth enhances people's and communities' general access to food. The individual's financial standing also has an impact on the household's level of food security. (Warr, 2014).

The studies have examined unemployment as a contributing factor to food insecurity. It is among the most studied aspects of food security and economic development. People who are unemployed fall into poverty, and those in poverty typically rely on the market to buy food. They are more likely to experience food insecurity because they spend a larger portion of their income on food (Etana & Tolossa, 2017).

Numerous other literatures contend that unemployment, especially prolonged unemployment, causes people to alter their diet in addition to spending less on food. Evidence indicated that they purchased less nutritious and less expensive food, which consequently affected the daily caloric consumption. According to other research, when one loses

their job, their consumption patterns also change (Leichenko&Silva,2014).

Similarly, Smith et al. (2019) discovered that by decreasing household earnings and increasing reliance on inexpensive, nutrient-poor foods, economic downturns worsen food insecurity. They contend that long-term nutritional inadequacies are caused by ongoing unemployment, especially in poor groups. Furthermore, Jones and Ejeta (2016) point out that job stability has an impact on food security in addition to income levels. They further support the link between economic growth, job stability, and food security by showing that changes in work status have a substantial impact on dietary diversification and nutritional outcomes.

Horticulture and its contribution to the Nigerian Economy

Several researchers Scholar have highlights the contributions of horticulture to the economy through income generation from fresh produce sales and job creation for both skilled and unskilled workers. According to Scholar, (2024), horticulture also helps biodiversity conservation and improves the aesthetic value of public and private spaces. Ali et al., (2002), documents that, horticultural crop production produces twice the employment per hectare compared to cereal crops' varied applications, including ornamental and medicinal uses. Lending his voice, Ibeawuchi et al. (2015) reviewed the benefits of fruit and vegetable consumption, linking it to poverty reduction, better education, gender equality, maternal and child health, and disease prevention. FAO, (2021), also documents that horticulture acts as a source of pharmaceuticals and economic opportunities, improving food security and farmer incomes. The sector's economic significance stretches beyond Nigeria, as seen in the United Kingdom, where it contributes

billions of pounds and supports thousands of jobs (LinkedIn, 2023).

Theoretical Foundation

The study is underpinned by the Agricultural Development Theory. The Agricultural Development Theory, advocated by scholars such as Arthur Lewis (1954) and Hugo von Haden (1964), underscores the importance of agricultural improvements in fostering economic growth and rural development, especially in developing countries like Nigeria. This idea posits that augmenting agricultural output, via modern methodologies, superior crop varieties, and enhanced market access, is significant for attaining food security and economic growth. The hypothesis posits that enhancing productivity in horticultural crop production can reduce poverty, create jobs, and improve national income, therefore fostering overall economic growth. The theory postulated that technological advancement, education, and supportive policies are important in driving agricultural development, which in turn is vital for sustainable development and economic success, hence the need to research on food security and economic growth in Nigeria.

Methodology

The study utilized secondary data drawn from government publications, journal articles, official books, and institutional reports. Documented evidence was systematically reviewed and synthesized to generate the dataset that served as the basis for analysis and conclusions. The reviewed studies were organized to show the methods applied, results obtained, and their direct relevance to the present investigation.

Conclusion

Horticulture is a major component of Nigeria's agricultural industry, considerably

contributing to food security, economic resilience, and employment generation. The sector not only increases nutritional diversity by expanding the supply of fruits and vegetables but also acts as a crucial source of income for farmers and other stakeholders within the agricultural value chain. Empirical data from Nigeria's agricultural and economic sectors covering the period 2014–2023 reveal that horticulture plays a crucial role in economic growth, with ties to GDP contributions, employment models, and sustainable development efforts.

Drawing on the three-track approach, the following recommendations are proposed to enhance horticulture's role in Nigeria:

- i. Government should employ the services of agricultural extension officers to educate horticulturists and those interested in horticultural farming on modern practices and methods in line with global best practices.
- ii. Government and private sectors should provide soft loans to horticultural farmers to boost the horticultural farming business.
- iii. Government and private sectors should encourage the adoption of advanced technologies in horticultural farming.
- iv. Government should introduce horticulture as a subject at the primary and secondary school levels to instil an early interest in the field.

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