UJJPS University of Jos Journal of Political Science
E-ISSN: 1595-4765 | Volume 2, Issue 1 | June 2025

Exploitation of Agro-Chemical and its effects on Nigerian Economy

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Abstract

This study investigates the exploitation of agro-chemicals and its effects on the Nigerian economy using a qualitative approach through documentary analysis. The research identifies a growing problem of unregulated and excessive use of fertilizers, pesticides, and herbicides, which, while intended to boost agricultural productivity, has led to soil degradation, water pollution, health hazards, and increased economic dependency on imports. The key objectives were to examine the extent of agro-chemical use, its economic implications, and possible sustainable alternatives. Findings reveal that despite short-term yield improvements, long-term consequences include environmental damage, rising healthcare costs, and threats to food security. The study concludes that without stronger regulation, farmer education, and investment in eco-friendly practices, agro-chemical exploitation will continue to undermine Nigeria's economic and agricultural sustainability.

Keywords:

Introduction

Agriculture remains a cornerstone of Nigeria's economy, contributing significantly to gross domestic product (GDP), employment generation, and food security. As a sector that employs over 70% of the rural population, the performance and sustainability of agriculture are directly tied to national development (World Bank, 2021). In efforts to boost agricultural productivity and meet the food demands of a growing population, the use of agro-chemicals such as fertilizers, herbicides, pesticides, and fungicides has become increasingly prevalent in Nigerian farming practices. Agro-chemicals are promoted for their capacity to increase crop yield, protect crops from pests and diseases, and ensure food quality and shelf-life. However, while their use is beneficial when properly managed, the unchecked and exploitative application of agro-chemicals poses significant economic, environmental, and health challenges, threatening sustainable development in the country (Adebayo and Ojo, 2019).

The exploitation of agro-chemicals in Nigeria is characterized by excessive, inappropriate, or illegal use of chemical inputs, often without adequate knowledge,

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regulation, or protective measures. Farmers, driven by the urgency to maximize outputs in a challenging economic climate, frequently resort to indiscriminate application of chemicals many of which are unregulated or imported without proper certification (Ojo, 2016). Moreover, the weak enforcement of environmental and agricultural standards has allowed the infiltration of banned or substandard agro-chemical products into local markets, compounding the risks associated with their misuse (FAO, 2019). This exploitation not only undermines the safety of food systems but also leads to soil degradation, water pollution, loss of biodiversity, and increased resistance of pests and diseases to control measures.

The Nigerian economy is intricately linked to the health of its agricultural systems. When agro-chemicals are misused, the long-term productivity of the soil declines, leading to reduced agricultural output and, consequently, lower income for farming households. The economic implications extend further when public health is compromised due to chemical residues in food and water, leading to increased healthcare costs and loss of productive labor force (Adebayo & Ojo, 2019). In rural areas where farming is a primary occupation, such impacts can perpetuate poverty, food insecurity, and economic instability. Additionally, contamination of export crops with agro-chemical residues has led to rejection of Nigerian agricultural products in international markets, affecting foreign exchange earnings and tarnishing the country's trade reputation (Nnaji & Chikaire, 2017).

Efforts by government and non-governmental actors to regulate agro-chemical use through policies such as the National Fertilizer Quality Control Act (2019) and the promotion of Integrated Pest Management (IPM) systems have been implemented, but their reach remains limited by poor awareness, inadequate enforcement, and lack of technical support for farmers (Nigerian Agricultural Policy, 2020). Furthermore, the high cost of organic alternatives and limited access to extension services have made it difficult for smallholder farmers to adopt safer and more sustainable methods of pest and soil fertility management.

The growing dependence on agro-chemicals and the patterns of their misuse call for a critical examination of their economic implications on Nigeria. This study, therefore, seeks to explore how the exploitation of agro-chemicals affects the Nigerian economy, with particular attention to agricultural productivity, environmental sustainability, public health, and trade. It is this note that this paper seeks to answers these pertinent questions; what are the patterns and scale of agro-chemical exploitation in Nigeria? How does the exploitation of agro-chemicals influence Nigeria's economic development, particularly in the context of agricultural productivity, foreign dependency and environmental sustainability?

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Conceptual Review

Agro-Chemical

Agro-chemicals, also known as agricultural chemicals, refer to a broad category of chemical products used in agriculture to enhance crop productivity and protect against pests, diseases, and weeds. According to Adigun (2013), agro-chemicals are chemical substances such as fertilizers, herbicides, insecticides, fungicides, and soil conditioners that are used to improve crop yields and promote efficient agricultural production. These chemicals are integral to modern farming practices, especially in countries like Nigeria where agriculture remains a key pillar of the economy. Eze and Onu (2017) define agro-chemicals as synthetic or organic chemical inputs applied in agricultural systems to boost production and prevent losses caused by biological and environmental threats. They argue that while agro-chemicals have improved food security and farm income in developing nations, their misuse can result in significant ecological and health costs. This view is particularly relevant in the Nigerian context, where regulatory enforcement is often weak, and farmers frequently rely on imported or unapproved agro-chemical products. The view of Akinbile and Alabi (2015), agro-chemicals represent a double-edged sword in agricultural economies. They define agro-chemicals as inputs designed to manipulate soil and plant conditions for optimal agricultural output. However, they caution that over-dependence on these chemicals, especially without proper extension guidance and education, could lead to environmental degradation, reduction in long-term soil fertility, and contamination of water bodies all of which negatively affect sustainable development in Nigeria.

Similarly, Nwachukwu (2018) defines agro-chemicals as "external inputs used to alter or enhance biological processes in agriculture for the purpose of increasing efficiency and productivity." He links the widespread adoption of agro-chemicals in Nigeria to government policies promoting agricultural intensification, particularly under programs like the Growth Enhancement Support Scheme (GESS). However, he also notes that improper handling and excessive use of these substances have created economic burdens, such as public health expenditures from chemically contaminated food and water. In relation to the Nigerian economy, agro-chemicals play a vital role in boosting agricultural productivity, which is crucial for national food security, employment, and income generation. Agriculture contributes about 25% to Nigeria's Gross Domestic Product (GDP), and agro-chemicals have become central to government strategies for increasing yields, especially in the face of climate change and declining soil fertility (World Bank, 2021). However, the exploitation and unregulated use of these chemicals pose serious threats to economic sustainability. For instance, contaminated produce can be rejected in international markets, undermining export potential and foreign exchange earnings (Nnaji & Chikaire, 2017). Additionally, environmental

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degradation resulting from excessive agro-chemical use can reduce agricultural land value and long-term productivity, thereby weakening rural economies and increasing poverty.

Economic Impact

The term economic impact generally refers to the effect of an event, policy, decision, or sectoral activity on the overall economy or on specific economic indicators such as employment, income, investment, production, and consumption. Boardman et al. (2018) define economic impact as "the net change in an economy resulting from a specific activity or intervention, often measured through changes in output, income, or employment." Their definition emphasizes that economic impacts can be both positive and negative and are essential in evaluating the consequences of public and private sector actions. In the Nigerian context, this definition is especially relevant when assessing the implications of agricultural practices, industrial reforms, or policy shifts on national development and livelihoods. Similarly, Weisbrod and Weisbrod (1997) conceptualize economic impact as the broader economic consequences that result from the operation of a program or policy, including both direct and indirect effects. They argue that economic impact analyses must consider how changes in one sector influence other sectors through linkages in employment, purchasing, and income distribution. This is particularly important in Nigeria, where the agriculture and oil sectors significantly affect manufacturing, trade, and services due to their interconnectedness within the broader economic structure.

Miller and Blair (2009) take a systems-based approach by defining economic impact as "the effect of exogenous changes in demand or policy decisions on the output and income of various sectors within an economy." This perspective is applicable in the Nigerian case, where shifts in agricultural productivity (e.g., due to agro-chemical exploitation or climate variability) can trigger ripple effects across sectors like food processing, transport, and public health. For instance, overuse of agro-chemicals may lead to soil degradation and reduced crop yields, which in turn lowers rural income, increases food prices, and affects national inflation and GDP performance. Furthermore, Ademola (2015) provides a context-specific definition relevant to developing economies by describing economic impact as "the cumulative effect of economic activities on a nation's growth indicators such as employment, trade balance, capital formation, and public revenue." Ademola emphasizes that in countries like Nigeria, where agriculture remains a primary source of employment and livelihood for the rural majority, any disruptions or unsustainable practices in the sector such as indiscriminate use of agro-chemicals can have far-reaching consequences on economic stability and inclusive growth.

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Relating these definitions to the Nigerian economy, it becomes evident that the concept of economic impact is integral to understanding how agricultural practices, particularly the exploitation of agro-chemicals, influence the broader economy. The use of harmful or excessive agro-chemicals may lead to reduced soil fertility, contamination of water sources, and health-related issues that increase healthcare spending and reduce labor productivity (Adebayo & Ojo, 2019). Additionally, agro-chemical residues on export-bound produce have led to the rejection of Nigerian goods in international markets, affecting foreign exchange earnings and damaging the country's trade reputation (Nnaji & Chikaire, 2017). Moreover, the economic impact of such exploitation also extends to the environmental degradation that compromises long-term agricultural sustainability. When farmlands become unusable due to chemical overuse, smallholder farmers face income loss, rural economies weaken, and national food security is threatened. This puts pressure on the federal budget through increased imports and social welfare costs, thereby reflecting the broader economic consequences.

Exploitation

The term exploitation is commonly used in both economic and socio-political discourse to describe an unfair or excessive use of resources, labor, or systems for personal or institutional gain—often at the expense of others. According to Karl Marx, one of the earliest theorists on exploitation, it occurs when one class (typically the bourgeoisie or capitalists) extracts surplus value from another (the proletariat or working class), essentially gaining more than they give in return (Marx, 1867/1976). In this sense, exploitation is closely linked with inequality, as it involves the appropriation of benefits by one party through the undervaluation of the contribution or rights of another. Sen (1999) broadens this understanding by arguing that exploitation is not merely economic but also entails deprivation of rights, freedoms, and access to opportunities. He posits that exploitation can manifest when individuals or communities are denied the capability to live the kind of life they value. In developing economies such as Nigeria, this interpretation is critical, as many rural communities particularly in sectors like agriculture and resource extraction face systemic disadvantages due to weak regulation and imbalanced power dynamics. Similarly, Ogundiya (2010) defines exploitation in the African context as the "systemic manipulation or abuse of individuals, resources, or institutions to serve the interests of a dominant elite or external actors." He emphasizes that in Nigeria, exploitation is often facilitated by a combination of corrupt governance, inadequate policy implementation, and the marginalization of certain groups—especially those in rural or economically backward regions.

In Nigeria, exploitation manifests prominently in several sectors, notably in agriculture and oil extraction. In the agricultural sector, smallholder farmers often face exploitation through unfavorable pricing, limited access to subsidies, and lack of

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bargaining power in the agrochemical supply chain. Many are coerced directly or indirectly into using expensive or environmentally damaging agro-chemical products without adequate training or safety regulation. This form of exploitation not only threatens their health and productivity but also compromises long-term economic stability due to declining soil fertility and ecological degradation (Adebayo & Ojo, 2019). In the broader Nigerian economic landscape, exploitation is also evident in how natural resources are managed. The Niger Delta region, for instance, is rich in petroleum resources, yet communities in the area suffer from poverty, environmental pollution, and underdevelopment. This reflects a form of resource exploitation where the state and multinational corporations extract immense wealth from the region without proportional reinvestment in infrastructure or human development (Ikelegbe, 2005). The situation results in economic disparity, social unrest, and the erosion of human security.

Furthermore, the exploitation of economic systems by elites manifesting as corruption, nepotism, and mismanagement undermines national economic growth. Public funds meant for development are often diverted, leaving critical sectors like education, health, and agriculture underfunded. This systemic exploitation hampers inclusive economic development and perpetuates cycles of poverty and inequality, despite Nigeria's substantial resource endowments (Omotola, 2007).

Theoretical Framework: Dependency Theory

Dependency Theory emerged in the mid-20th century as a critique of modernization theory and as a framework for understanding the persistent underdevelopment of nations in the Global South. The theory is most notably associated with Raúl Prebisch, an Argentine economist and the former Executive Secretary of the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC). He and other scholars such as Andre Gunder Frank and Samir Amin further developed the theory to explain the structural inequalities in the global economic system (Prebisch, 1950; Frank, 1966; Amin, 1976). Dependency Theory posits that the world economic system is divided into a core (developed countries) and a periphery (developing countries). The core nations exploit the periphery through unequal trade relations, technological dominance, and financial dependency. According to Frank (1966), the economic development of the core is directly linked to the underdevelopment of the periphery. This structural relationship ensures that peripheral nations remain dependent on the core for capital, technology, and markets, thereby inhibiting autonomous development.

Nigeria's agricultural sector, and more specifically the exploitation of agro-chemicals, Dependency Theory provides a powerful lens for analysis. Nigeria, like many other post-colonial economies, heavily depends on imported agro-chemicals such as

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fertilizers, pesticides, and herbicides, which are largely manufactured by multinational corporations based in the Global North. This dependency not only drains foreign exchange reserves but also reinforces Nigeria's subordination within the international division of labor (Adebayo & Ojo, 2019). The reliance on imported inputs subjects Nigerian farmers to volatile global prices, poor quality control, and a lack of technological autonomy, all of which undermine local capacity-building and sustainable agricultural practices. Furthermore, multinational agrochemical companies often engage in aggressive marketing and distribution strategies in Nigeria, encouraging the excessive use of synthetic chemicals without adequate farmer education or environmental safeguards. This practice results in environmental degradation, health hazards, and reduced agricultural productivity over time consequences that are disproportionately borne by the rural poor (Chikaire et al., 2016). According to Dependency theorists, this reflects a form of neo-colonial exploitation, where control over local economies is maintained not through political domination but through economic and technological dependency.

The basic assumptions of Dependency Theory include:

1. The global economic system is inherently unequal and benefits the industrialized nations at the expense of developing ones.

2. Underdevelopment is not a stage but a condition perpetuated by historical exploitation and continued dependency.

3. Self-sustained development in peripheral countries is difficult under the existing global capitalist structure (Amin, 1976).

External control is evident in the heavy reliance on foreign countries for the production and supply of fertilizers, pesticides, herbicides, and other chemical inputs. Over 80% of agro-chemicals used in Nigeria are imported from China, India, and Western nations (FAO, 2020). This creates a structural imbalance where local farmers and even government agricultural initiatives depend on the decisions, pricing, and regulations of foreign manufacturers and exporters. In line with dependency theory, this control reduces Nigeria's capacity to determine its agricultural direction and policies independently, as foreign players indirectly shape domestic production costs and practices. Technological subordination also plays a central role. Nigeria lacks the industrial base and research capacity to produce agro-chemicals at scale, and thus depends on external innovations, technologies, and knowledge systems. Local research institutes are underfunded, and partnerships often take the form of technology transfers that maintain Nigeria's subordinate role in the global agricultural value chain (Olayide et al., 2016). As a result, rather than building internal capacity, the country continues to

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operate as a consumer of foreign agro-technologies, reinforcing a cycle of underdevelopment as envisioned by dependency theorists.

Another key tenet, neo-colonial trade patterns, is manifest in the way Nigeria exchanges raw materials and agricultural outputs for finished agro-chemical products at unfavorable terms. For example, while Nigeria exports raw agricultural commodities, it imports value-added products such as fertilizers and pesticides, often at high cost. This trade imbalance replicates colonial economic structures where Africa served primarily as a source of raw materials and a market for industrial goods. The importation of agro-chemicals not only drains foreign exchange but also subjects local agricultural pricing and access to the volatility of global markets (Okafor & Olayemi, 2021). The foreign dominance in agro-chemical production significantly undermines Nigeria's economic autonomy. It limits the country's ability to formulate independent agricultural policies, makes food production vulnerable to global supply chain disruptions (as seen during the COVID-19 pandemic), and discourages the development of local alternatives. This dependence also affects budgeting and trade decisions, as the government must allocate scarce resources to import essential chemicals rather than investing in homegrown solutions or sustainable practices.

Moreover, local agricultural practices are increasingly shaped by external interests. International agro-chemical corporations promote the use of specific chemical packages and farming models that benefit their business interests rather than the local environment or food systems. For instance, many donor-funded agricultural projects in Nigeria mandate the use of imported chemical inputs, leaving little room for indigenous knowledge, organic farming, or local innovation. This aligns with the dependency theory's argument that external actor's control not just economic outcomes, but also the socio-cultural dynamics of development in the periphery (Amin, 1976). The Nigerian agro-chemical sector clearly reflects the core assumptions of dependency theory. The continued reliance on foreign chemical products, technologies, and trade terms constrains the country's agricultural sovereignty and contributes to long-term underdevelopment. To address this, Nigeria must prioritize domestic production, strengthen regulatory institutions, and promote sustainable agricultural models rooted in local knowledge and innovation.

While Dependency Theory has been influential, it is not without critique. One major criticism is that it tends to understate the role of internal factors such as corruption, poor governance, and policy failure in sustaining underdevelopment (Cardoso & Faletto, 1979). Moreover, the theory is sometimes viewed as overly deterministic, suggesting that peripheral nations have little to no agency in shaping their economic futures. Critics also argue that some countries, such as South Korea and China, have successfully transitioned

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from periphery to semi-periphery or core status by strategically engaging with the global economy something Dependency Theory struggles to explain.

Despite these criticisms, Dependency Theory remains highly relevant to understanding the dynamics of agro-chemical exploitation in Nigeria. The country's agricultural policies continue to favor import dependence over local production of farm inputs. For instance, the Structural Adjustment Programs (SAPs) of the 1980s, guided by Western financial institutions, liberalized the Nigerian economy and made it more vulnerable to external shocks and foreign domination in critical sectors like agriculture and industry (Omotola, 2007). These policy shifts further entrenched Nigeria's dependency on foreign agro-inputs, limiting the development of indigenous agricultural technologies and research. Applying the theory to current realities, the continued importation and misuse of agro-chemicals in Nigeria underscore how the country's economic trajectory is shaped by global capitalist interests. Local farmers are marginalized in policy-making processes and lack access to eco-friendly alternatives due to the dominance of international agro-industrial firms. This not only harms the environment and public health but also weakens the agricultural base of the economy, thus reinforcing structural underdevelopment.

Agro-Chemical Exploitation and the Nigerian Economy

The exploitation of agro-chemicals in Nigeria presents a complex paradox. On one hand, chemical inputs such as fertilizers, pesticides, and herbicides are integral to modern agriculture, increasing short-term yields and supporting food production. On the other hand, the unregulated, excessive, and often inappropriate use of these chemicals has created deep-rooted economic, environmental, and health-related challenges that are weighing heavily on the Nigerian economy. The relationship between agro-chemical exploitation and broader economic indicators like GDP contribution, foreign exchange spending, environmental degradation, public health costs, and erosion of indigenous agricultural systems is both significant and concerning.

Agriculture remains a critical sector of Nigeria's economy, contributing approximately 25% to the Gross Domestic Product (GDP) and employing nearly 70% of the labor force, especially in rural areas (National Bureau of Statistics (NBS, 2022). The sector's performance is thus closely tied to the country's overall economic stability. In an attempt to boost agricultural output, the use of agro-chemicals has increased sharply in recent decades. However, this growth has been heavily dependent on imported chemical products. According to data from the Central Bank of Nigeria (CBN, 2021), Nigeria spends over $500 million annually on the importation of agro-chemicals, contributing to a widening trade deficit and foreign exchange pressure. These funds could otherwise be invested in local agricultural research, infrastructure, and mechanization.

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The economic cost of foreign exchange loss is just one dimension. The broader impact extends to environmental degradation, which has long-term fiscal implications. Over-application of fertilizers and pesticides has led to soil acidification, reduced microbial activity, and water body contamination across major agricultural belts in states such as Benue, Nasarawa, and Kano. A study by Ogundele et al. (2020) estimates that environmental degradation linked to chemical agriculture results in an annual loss of nearly ₦600 billion (approximately $1.3 billion) in agricultural productivity and restoration costs. This environmental toll is rarely reflected in national accounts, yet it diminishes the sector's potential to sustainably support economic growth.

Moreover, health-related expenditures due to agro-chemical misuse are on the rise. Smallholder farmers, who often lack protective gear or training on safe usage, suffer from frequent exposure-related illnesses such as respiratory complications, skin disorders, and even cancer in prolonged cases. The World Health Organization (WHO, 2019) reports that pesticide poisoning is a leading occupational hazard in low- and middle-income countries, with Nigeria ranking among the most affected in sub-Saharan Africa. Health facilities in rural areas are increasingly burdened with agro-chemical-related ailments, diverting public health resources and increasing national healthcare spending.

The erosion of indigenous farming practices is another silent but critical economic consequence. Traditional farming methods rooted in ecological balance, crop rotation, and organic soil enrichment are being displaced by chemical-intensive practices promoted by multinational agro-companies. This not only leads to the loss of agricultural biodiversity but also reduces the resilience of local farmers to climate shocks. Case studies from Ekiti and Plateau States reveal that communities that once relied on organic compost and intercropping have become reliant on imported chemical kits, leaving them vulnerable to price hikes, input scarcity, and soil exhaustion (Oluwaseun & Adeyemi, 2021). This transition has weakened food sovereignty and increased rural poverty, as farmers face rising input costs with diminishing returns.

A closer look at economic projections reveals that if current trends continue, Nigeria's agro-chemical import bill could double by 2030, especially as population growth fuels demand for food and commercial farming. Meanwhile, the associated costs of environmental recovery, public health, and soil remediation may outpace the short-term gains from increased yields. This suggests a classic case of what economists call "growth without development" a scenario where productivity rises but is ultimately unsustainable due to deeper structural costs. Agro-chemical exploitation in Nigeria is not merely an agricultural issue but a macroeconomic concern. Its ripple effects cut across foreign exchange losses, GDP contributions, environmental sustainability, public health systems, and the survival of indigenous farming knowledge. Addressing this challenge

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requires a strategic policy shift toward regulating agro-chemical use, investing in local alternatives, empowering farmers through education, and promoting sustainable, organic, and climate-resilient agriculture. Only then can Nigeria truly harness the potential of its agricultural sector without sacrificing its economic and ecological future.

Empirical Review

Adebayo and Ojo (2019) in their study titled "Economic Implications of Agrochemical Misuse in Rural Nigeria" employed a mixed-method approach. Primary data were collected through structured questionnaires distributed to 200 farmers in Oyo and Ogun states, while secondary data were obtained from government publications. Data were analyzed using descriptive statistics and regression analysis. The study found that indiscriminate use of agrochemicals led to soil degradation, reduction in crop yield, and increased expenditure on health-related issues. The authors concluded that unregulated agrochemical practices negatively impact agricultural productivity and economic sustainability. They recommended regulatory enforcement and training programs to educate farmers on responsible chemical use.

Chikaire, Orusha, and Osuagwu (2016) examined "Health and Environmental Hazards of Pesticide Use by Farmers in Nigeria." The researchers used a descriptive survey method and administered 120 questionnaires in Imo State. Data presentation relied on frequency tables and charts, while analysis was done through percentage distribution. The findings revealed that 68% of farmers used pesticides without proper knowledge of application or safety procedures, which led to health complications and ecosystem damage. The study concluded that there was a direct link between agrochemical misuse and rural underdevelopment. The researchers recommended environmental education, stricter regulation, and health monitoring programs for farming communities.

Olabode and Okunola (2021) in their article titled "Agrochemical Externalities and Food Security in Southwestern Nigeria" adopted qualitative interviews and focus group discussions with 45 participants comprising farmers, extension workers, and policymakers. Thematic content analysis was used to interpret the data. The study identified that overdependence on imported agrochemicals disrupted ecological balance and contributed to reduced soil fertility. It concluded that the economic cost of such externalities was underreported in national accounts. The authors recommended the integration of organic farming methods into national agricultural policies.

Bello and Abdulrahman (2017) investigated "The Impact of Fertilizer Subsidy Programs on Nigerian Agricultural Economy." Using a quantitative approach, they collected secondary data from FAO and Nigeria's Ministry of Agriculture spanning 2005 to 2015. Analysis was conducted using econometric modeling techniques such as multiple regression. Their findings indicated that while subsidies improved agrochemical

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access, they encouraged over-application and dependency on imported inputs. They concluded that such policies needed reform to avoid adverse environmental and economic consequences. They recommended diversifying support into local production and awareness campaigns on efficient usage.

Uche and Okonkwo (2018) conducted a study titled "The Socioeconomic Effects of Agrochemical Dependence in Nigeria." Data were collected via semi-structured interviews with 30 farmers across Benue and Cross River States. Data were presented narratively and thematically analyzed. The study found that poor literacy levels contributed to the exploitation of farmers by agrochemical dealers, leading to long-term debt and soil infertility. The study concluded that exploitation is institutionalized through poor regulation and information asymmetry. Recommendations included subsidized access to environmentally safe alternatives and farmer empowerment programs.

Eze and Anyaehie (2020) explored "Agrochemical Use and its Environmental Implications in South-Eastern Nigeria." They used direct observation and structured interviews with 100 farmers and analyzed the data using descriptive statistics. The study discovered that many farmers used banned or expired agrochemicals due to low cost and accessibility. This led to severe environmental degradation and public health risks. The authors concluded that agrochemical exploitation was driven by poverty and weak institutional control. Recommendations focused on government collaboration with NGOs for public education and capacity building.

Ibrahim and Yusuf (2022) in their work titled "Globalization, Agrochemical Importation, and Economic Dependency in Nigeria" employed secondary data from trade records, NBS reports, and scholarly literature. Data were presented in tables and graphs and analyzed through trend analysis and content review. The study found that agrochemical importation had become a major foreign exchange drain, further entrenching Nigeria's dependency on foreign agricultural technology. The authors concluded that agrochemical exploitation is a reflection of neocolonial economic structures. They recommended investment in indigenous agro-research institutions and policies that prioritize self-sufficiency.

Gap in Literature

While the reviewed studies have addressed diverse aspects of agrochemical use in Nigeria such as environmental degradation, health implications, and economic costs few have systematically linked agrochemical exploitation to national economic performance indicators such as GDP contribution, trade deficits, or employment trends in agriculture. Furthermore, most studies have emphasized environmental and health impacts at the micro level, with limited exploration of macroeconomic implications and policy failures. Additionally, there is a dearth of longitudinal studies tracking the cumulative effects of

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agrochemical dependency on Nigeria's agricultural sustainability and rural development. This study bridged that gap by focusing holistically on how agrochemical exploitation influences the broader Nigerian economy, drawing on secondary data from government sources, industry reports, and academic literature.

Findings

The study revealed several critical issues stemming from the exploitation of agro-chemicals in Nigeria. First, it was found that many Nigerian farmers lack proper knowledge about the safe application, dosage, and environmental implications of agro-chemicals, leading to excessive and inappropriate use. This has resulted in widespread environmental degradation, including soil infertility, water pollution, and loss of biodiversity. Second, the study found that the majority of agro-chemicals used in Nigeria are imported, making the country heavily dependent on foreign suppliers. This not only drains foreign exchange reserves but also places the local agricultural economy at the mercy of global price fluctuations. Third, the study identified significant health risks associated with the misuse of agro-chemicals, including respiratory issues, skin diseases, and long-term chronic illnesses among farmers and rural communities. Lastly, it was found that weak regulatory enforcement and poor institutional oversight have contributed to the continued exploitation of agro-chemicals, as banned or expired products remain easily accessible in local markets.

Conclusion

In conclusion, the exploitation of agro-chemicals in Nigeria presents a multidimensional challenge that significantly affects the agricultural sector and the broader national economy. While agro-chemicals play a role in enhancing crop productivity, their uncontrolled and unregulated use has introduced harmful consequences that outweigh their benefits. The overdependence on imported chemical inputs has increased production costs for farmers and undermined efforts toward agricultural sustainability and food security. Moreover, the lack of effective regulatory frameworks, inadequate farmer education, and the absence of sustainable alternatives have worsened the situation. Thus, addressing the exploitation of agro-chemicals is essential not only for environmental and public health but also for economic development and the long-term viability of Nigeria's agricultural sector.

Recommendations

1. The government should urgently review and enforce existing environmental and agricultural regulations concerning the sale and use of agro-chemicals. Regulatory bodies such as NAFDAC and the Federal Ministry of Agriculture should increase monitoring of importation, distribution, and usage patterns to ensure only approved, safe, and environmentally friendly chemicals are circulated.

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2. Agricultural extension services must be revitalized to provide continuous education and awareness campaigns for farmers on the proper use, storage, and disposal of agro-chemicals.

3. To reduce dependency on imported agro-chemicals, the Nigerian government should invest in local research institutions to develop bio-based and environmentally safe alternatives.

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