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EFFECT OF NON-INTEREST AGRICULTURE FINANCING INSTRUMENTS ON SMALL-SCALE FARMERS ACCESS TO CREDIT AND INCOME IN SELECTED LOCAL GOVERNMENT AREAS OF NASARAWA STATE

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Abstract

The increasing demand for ethical and inclusive financial products has led to a growing interest in non-interest financing products as alternatives to conventional lending particularly in rural farming communities. This study examines the effect of non-interest agriculture financing instruments on small-scale farmers access to credit and income in selected Local Government Areas (LGAs) of Nasarawa State, Nigeria. The study specifically evaluates how non-interest financing instruments such as *Murabaha* (cost-plus financing), *Salam* (forward sales), and *Musharakah/Ijara* (partnership-based leasing) influence small-scale farmers' access to credit and income generation in the selected LGAs. Using a **descriptive survey design**, data was collected through structured questionnaires from 353 randomly selected small-scale farmers across Doma, Lafia, and Nasarawa LGAs. The data were analysed using descriptive statistics and regression analysis. Findings revealed that non-interest financing instruments significantly improved farmers' income and crop productivity, with a strong positive correlation between financing and performance/development. The study concludes that non-interest agricultural financing instruments can catalyse access to credit and income generation of small-scale farmers required to up-scale rural development. However, challenges of access remain due to structural & institutional constraints. The paper recommends increased farmer education, expansion of non-interest banking networks through digitization in rural areas, to upscale non-interest agricultural financing in Nasarawa State.

Keywords: Digitization, Non-Interest Financing, Productivity, Upscale

Introduction:

Agricultural development remains a pivotal component of global strategies for poverty reduction, food security, and sustainable economic growth. Small-scale farmers who constitute the majority of agricultural producers worldwide are the backbone of food systems in developing countries. Globally, access to agricultural finance is widely recognised as a catalyst for enhanced productivity, income generation, and rural development (World Bank, 2021). However, the performance of small-scale farmers in terms of crop productivity and income generation are often constrained by limited access to affordable, suitable, and timely financing (FAO, 2019). In response to this, non-interest financing has emerged as a development financing mechanism suitable for agricultural financing. Non-interest financing instruments are

derived from Islamic economic and finance and promote ethical financing, risk-sharing, profit-and-loss sharing, prohibition of interest (riba) and excessive price speculation (Khan, 2020).
Worldwide, countries such as Malaysia, Indonesia, and Pakistan have successfully implemented non-interest agricultural financing to enhance financial inclusion and improve agricultural productivity (Ismail & Possumah, 2021). Non-interest finance instruments such as Murabaha (cost-plus financing), Bay Al-salam (forward sale contract), Murabaha (Cost-plus-profit margin sale), Mudarabah (profit-sharing), Musharakah (joint venture), and Ijarah (leasing) have been utilised to provide farmers with the necessary capital for agricultural expansion (Obaidullah & Khan, 2008). In sub-Saharan Africa, the adoption of non-interest finance is gaining momentum amongst small-scale farmers seeking viable alternatives to conventional agricultural financing. Countries such as Sudan, Kenya, Senegal, Tanzania and Nigeria are witnessing increased interest in non-interest banking for micro and agricultural enterprises (Ismail & Adegbite, 2021). The Central Bank of Nigeria (CBN) in Y2011, provided regulatory frameworks for the regulation of non-interest financing, including the licensing of non-interest banks, such as Jaiz Bank, and the launch of Sukuk bonds for financing infrastructural development. The Pension Commission (PENCOM) has also licensed non-interest Pension Funds to appeal to a growing section of interest in non-interest financing instruments (PENCOM, 2024).
Specifically, in Nigeria, agriculture is a vital economic growth contributor for national economic growth, it is a primary source of livelihoods, income generation, poverty reduction, and employing over 70% (38 million) of the rural population (small-scale farmers) and contributing to Gross Domestic Product (GDP) (National Bureau of Statistics, 2022; Babban Gona 2023). Though small-scale farmers are pivotal to attaining food sovereignty, access to finance for increased productivity remains a challenge. Thus, agricultural production which is the major driver of the agricultural sector, only contributed 23.5 percent of Nigeria's Gross Domestic Product (GDP), employing about 37.99 percent of the labour force in year 2023 (NBS, 2024). This brings to the fore an underlying challenge in the linkages between agricultural financing and its effect on the performance of small-scale farmers in Nigeria.
Agriculture remains the major and dominant economic activity in Nasarawa State. Yet, small-scale farmers continue to suffer from a lack of capital, inability to procure modern inputs, and vulnerability to climate shocks (Magani & Auwal, 2017). Many small-scale farmers, in particular, refrain from borrowing from conventional banks due to the interest charged on the loans, lack of insurance and lack of collateral. This has created a financing gap requiring a policy solution at the national and sub-national levels. Recent initiatives by institutions like the Central Bank of Nigeria (CBN) through the introduction of non-interest financing instruments provide an opportunity to bridge the agricultural financing gaps (CBN, 2022). However, the level of awareness, accessibility, and effective delivery of these instruments remains under-researched, especially in Nasarawa State.

Literature Review:

The Concept of Non-Interest Agriculture Financing Instruments:

Agricultural financing remains a crucial element for achieving food security, food sovereignty for farming communities, reducing rural poverty, and enhancing the productivity of small-scale farmers in developing economies. However, many small-scale farmers, are excluded from conventional financial systems due to high interest charges, lack of insurance and collateral. In response to this gap, **non-interest agricultural financing instruments** have emerged as alternative financing tools that align with ethical financing principles and offer risk-sharing, asset-based transaction which are suitable for agricultural financing. **Non-interest financing** is derived from Islamic economics and finance which prohibits interest, excessive price

speculation, whilst emphasizing risk-sharing, ethical investment, and asset-backed financing. Instead of interest, financiers earn returns through trade (buy-sell contracts), partnerships, leasing, and service-based models. In the 21st-century development discourse, **financial inclusion** prospects can be furthered by non-interest financing instruments because at its core, financial inclusion ensures that individuals and businesses, particularly the underserved and vulnerable, have access to useful, affordable, and sustainable financial products and services that meet their needs for transactions, savings, credit, insurance, and investment (World Bank, 2022). According to the **World Bank (2022),** financial inclusion means that "individuals and businesses have access to and can effectively use appropriate financial services." This includes a wide range of services such as savings and deposit accounts, credit and loans, insurance (e.g., health, crop, business), payment systems (e.g., mobile money, digital banking), and pensions and investment options. Financial inclusion is more than just having a bank account. It involves the **actual usage** of financial services in a manner that improves quality of life, promotes resilience, and unlocks economic opportunities (Demirgüç-Kunt et al., 2018). These principles encourage transparency, accountability, and equity between financier and client (Usman & Abbas, 2020). In the agricultural context, non-interest finance provides structured and tenured financing to small-scale farmers by offering instruments that support production, input procurement, storage, with the objective of improving productivity and income.

Closely linked to this is the concept of **productivity,** which relates to the efficiency with which resources such as labour, capital, and technology are used to produce goods and services. Enhanced productivity is essential for economic transformation, competitiveness, and higher living standards. As such, the connection between financial inclusion and productivity is direct and compelling: when individuals and businesses can access financial services, they are better equipped to invest in tools, skills, and innovations that boost their output and efficiency. **Productivity** is commonly measured as the **ratio of output to input** in the production process. It reflects how efficiently economic agents such as individuals, enterprises, or nations convert labor, capital, and raw materials into goods and services. High productivity implies greater economic efficiency and higher income generation from the same level of resources. In the context of small businesses, farming, or self-employment, productivity means producing more or higher-quality output with less time, effort, or cost, often through improved technology, skills, and access to capital.

Globally, institutions like the **World Bank,** the **IMF,** and the **Bill & Melinda Gates Foundation** promote financial inclusion as a path to achieving the **Sustainable Development Goals (SDGs).** Mobile money success stories in Kenya (M-PESA), India (Jan Dhan Yojana), and Bangladesh (bKash) show the transformative potential of inclusive finance on productivity and poverty reduction. Financial inclusion is not an end in itself, but a powerful means to unlock individual and collective productivity, especially in low-income and rural settings. By providing access to credit, savings, insurance, and payment systems, inclusive finance empowers people to engage in productive economic activities, manage risks, and build sustainable livelihoods. Policymakers, financial institutions, and development stakeholders must continue to close the inclusion gap through innovations, partnerships, and user-centred policies that enhance productivity and promote inclusive growth. Adebayo et al. (2024) opined that in Nigeria, the **Central Bank of Nigeria (CBN)** has championed financial inclusion through initiatives like the **National Financial Inclusion Strategy (NFIS); Anchor Borrowers' Programme; AGSMEIS (Agri-Business/Small and Medium Enterprise Investment Scheme); and Bank Verification Number (BVN)** and agent banking system These programs aim to reduce financial exclusion from 41.6% in 2016 to less than 20% by 2025 (CBN, 2020). Yet, gaps persist, especially in the North-East and North-West, due to insecurity, poverty, and infrastructure deficits.

Additionally, El-Gamal (2020) and Adebayo et al. (2024) observed that Islamic finance is a rapidly growing segment of the global financial system, with assets estimated to exceed **$3 trillion** as of 2024. Rooted in the principles of Islamic law (Shariah), Islamic financing offers ethical and interest-free alternatives to conventional finance. It emphasises fairness, risk-sharing, asset-backed transactions, and the promotion of socio-economic justice. The models used in Islamic finance are designed not only to comply with religious principles but also to contribute to inclusive and sustainable development. Also, Adamu and Adeoye (2021) opined that non-interest inancing is governed by several core principles derived from Islamic doctrines such as p**rohibition of interest, Risk Sharing (p**rofit and loss should be shared equitably between parties); **Asset-Backed Financing (t**ransactions must be backed by tangible assets or services); **Prohibition of excessive (price) speculation (c**ontracts must be clear and free of excessive ambiguity); and e**thical investments (f**inancing should not support haram (prohibited) industries such as alcohol, gambling, or pornography. These principles foster transparency, fairness, and shared responsibility in financial dealings. **Key non-interest agricultural financing instruments include the following.**

Mudarabah (Profit-Sharing Partnership): In Mudarabah, one party (the **rabb al-mal**) provides capital, while the other (the **mudarib**) manages the business. Profits are shared based on a pre-agreed ratio, but losses are borne solely by the capital provider unless caused by negligence. It's suitable for funding farm operations in a trust-based relationship. Similarly, it encourages entrepreneurship and aligns risks between the parties. This instrument is meant for venture capital funding, micro-enterprise support, and agricultural or trade financing (Khan, 2020; Adamu & Adeoye, 2021).

Musharakah (Equity Partnership): Musharakah involves joint investment by two or more parties who share profits and losses proportionately to their contributions. All partners can participate in management or remain passive investors. It is applied in agricultural cooperatives or group farming arrangements. It is initiated to assist project financing, home or real estate development, and business joint ventures (Khan, 2020; Adamu & Adeoye, 2021).

Murabaha (Cost-Plus Sale): Murabaha is a sale contract where the financier buys a good and sells it to the client at a marked-up price. Payment may be deferred or made in instalments. It is a cost-plus financing arrangement where the financier purchases an input (e.g., fertiliser, tractors) and sells it to the farmer at a marked-up price payable in instalments. It is used for asset financing, input procurement, and equipment leasing. It also avoids cash disbursement and ensures asset-backed transactions. It is initiated to assist asset financing (e.g., machinery, vehicles), working capital for SMEs, and agricultural inputs (Khan, 2020; Adamu & Adeoye, 2021).

Ijarah (Leasing): Ijarah is a leasing contract where the bank leases an asset (e.g., land, building, and equipment) to the client for a fixed rental fee. Ownership remains with the financier, though an option to buy may be included at the end of the term. It enables farmers to access machinery without owning it. Also, it reduces the upfront cost burden and improves mechanisation access. It is initiated to assist equipment and infrastructure leasing, vehicle leasing, and lease-to-own housing (Khan, 2020; Adamu & Adeoye, 2021).

Salam (Forward Sale): Salam involves an advance payment for specified goods to be delivered at a future date. It is commonly used in agriculture to provide farmers with funds before the harvest. Farmers receive immediate working capital to invest in production and are obligated to deliver the produce at harvest. It facilitates early procurement of inputs and eliminates interest, and reduces uncertainty about market access. A bank pays a rice farmer in advance for 10 tons

of paddy to be delivered after harvest. It is initiated to assist financing for seasonal crops and agricultural commodity trading (Khan, 2020; Adamu & Adeoye, 2021).

Istisna' (Manufacturing Contract): Istisna' is used for goods that require manufacturing or construction. The buyer pays in advance or in stages, and the seller delivers the finished product later. It **p**rotects farmers from crop failure, pests, or weather-related losses in a Sharia-compliant manner. It is initiated to assist **c**onstruction and infrastructure projects, and custom-made equipment or goods (Khan, 2020; Adamu & Adeoye, 2021).

Adamu et al. (2021) also opined that in practice, Islamic financing often uses combinations of the above models. For instance, d**iminishing Musharakah** is used as a home financing model where the bank and the client jointly own a property. Over time, the client buys out the bank's share and becomes the sole owner. Also, **Sukuk (Islamic Bonds)** provide a platform where asset-backed securities are used to provide returns to investors without violating the prohibition of interest. Additionally, **Takaful (Islamic Insurance)** initiated a cooperative system where members contribute to a pool used to support each other in times of loss. In Nigeria, non-interest finance has gained momentum with the licensing of Non-Interest Banks like **Jaiz Bank PLC**, the introduction of **non-interest windows** for interested commercial banks, and the issuance of **Sukuk bonds** for infrastructure projects. The **Central Bank of Nigeria (CBN)** has also issued guidelines for non-interest financing. Across Africa, countries like Sudan, Senegal, and South Africa have also integrated Islamic finance into national development strategies.

The literature above revealed that non-interest financing instruments represent a value-driven alternative to conventional finance. Through instruments like Mudarabah, Musharakah, Murabaha, Ijarah, Salam, and Istisna', non-interest finance promotes equity, shared risk, asset backed transactions and ethical investments. These models are particularly well-suited to the agricultural sector where access to inclusive and fair financing is essential. With continued regulatory support, financial education, and innovation, Islamic finance has the potential to contribute meaningfully to sustainable development and inclusive economic growth, both in Muslim-majority and pluralistic societies.

The Concept of Development of Small-Scale Farmers

Agriculture plays a pivotal role in economic growth, food security, poverty alleviation, and rural development across the globe. Within the agricultural sector, **small-scale farmers** (also referred to as smallholder farmers) constitute the backbone of food production in most developing countries. These farmers, typically cultivating less than two hectares of land, contribute significantly to national economies and rural livelihoods. However, their development has remained stunted due to numerous structural, financial, institutional, and environmental constraints (Abayomi, Kolawole and Oriola, 2021). The **development of small-scale farmers** refers to a comprehensive process aimed at improving their agricultural productivity, income levels, and resilience, access to inputs and markets, and general living standards. It entails enabling these farmers to transition from subsistence to market-oriented agriculture through a combination of public policy, financial support, education, technology adoption, infrastructure development, and institutional backing (World Bank, 2020). In the same manner, Adesina (2021) observed that small-scale farmers are agricultural producers who operate on less than 2ha of land and typically rely on family labour. Their activities are often geared toward household consumption, with limited surplus for sale. They may also rear a few livestock or engage in mixed farming. In sub-Saharan Africa and parts of Asia, smallholder farms account for over 70% of food production (FAO, 2020). However, they are often characterised by low productivity, low income generation, poor access to technology, weak market linkages, and vulnerability to climate shocks. Jaiz Bank (2023) noted that the development of small-scale

farmers encompasses several interrelated dimensions. They include: **Agricultural Productivity (**Improving crop yields and livestock output is fundamental. This requires access to high-quality inputs such as seeds, fertilisers, water, mechanisation, and pest control methods. Extension services that deliver technical knowledge on best agronomic practices are also crucial; **Income Enhancement (d**evelopment involves boosting farmers' income through value addition, better pricing mechanisms, access to financial services, and reduced post-harvest losses. Profitability is key to sustaining farming as a livelihood; **Market Access (c**onnecting small-scale farmers to structured markets (e.g., cooperatives, processors, exporters) is essential. Development strategies aim to eliminate middlemen exploitation, ensure fair prices, and enhance competitiveness through improved logistics, storage, and information systems; **Access to Finance (a**vailability of affordable and appropriate credit or financing tools enables farmers to invest in inputs, technology, and expansion. This includes both conventional and non-interest financial models tailored to agricultural cycles); **Infrastructure and Technology (a**ccess to rural infrastructure (roads, storage, irrigation) and modern technologies (mobile apps, mechanization, improved seeds) significantly affects productivity and profitability); **Institutional Support (f**armer organizations, cooperatives, and inclusive government policies help strengthen the bargaining power, training, and resilience of small-scale farmers. Legal frameworks and land tenure security are also critical, and **Capacity Building (**Development entails improving the human capital of farmers through education, training, and knowledge transfer. Empowering women and youth, who constitute a large portion of the rural workforce, is especially crucial, Jaiz Bank, 2023)

Globally, initiatives such as the **International Fund for Agricultural Development (IFAD), Alliance for a Green Revolution in Africa (AGRA),** and **World Bank Agriculture Support Programs** are focused on transforming smallholder agriculture. These efforts aim to transition farmers from low-input/low-output systems to high-productivity, climate-resilient, and market-linked agriculture. In Nigeria, small-scale farmers dominate the agricultural landscape, yet productivity remains low due to the same challenges noted above. Several government programs have attempted to address this, including **Anchor Borrowers' Programme (**which links smallholders to large-scale processors); **Growth Enhancement Support Scheme (**for subsidized input distribution); **NIRSAL** (for agricultural insurance and credit risk guarantees); and **National Agricultural Extension Policy** (to revamp knowledge delivery to rural farmers). However, the impact of these programs is uneven due to poor implementation, politicisation, and weak monitoring and evaluation (CBN, 2021; World Bank, 2021; & Tunji, 2025).

Effect of Non-Interest Agriculture Financing Instruments on the Development of Small-Scale Farmers

Agriculture remains the backbone of many developing economies, providing food, employment, and income, especially to rural populations. Small-scale farmers constitute the majority of agricultural producers in countries like Nigeria, yet they face persistent challenges, including poor access to credit, inadequate infrastructure, and low productivity. Among the most pressing issues is limited access to financing due to high interest rates, collateral requirements, and financial exclusion. Non-interest financing instruments hold promise for improving the productivity, income, and sustainability of small-scale farmers (Tunji, 2025). In the agricultural context, non-interest financing instruments include **Mudarabah (Profit-Sharing Partnership):** The financier provides capital while the farmer offers labor, with profits shared based on a pre-agreed ratio. **Musharakah (Joint Venture Partnership):** Both the financier and farmer contribute capital and share profits and losses proportionately. **Murabaha (Cost-Plus Financing):** The financier purchases agricultural inputs and sells them to the farmer at a markup, payable in instalments. **Salam (Forward Sale Contract):** An Advance payment is

made to the farmer for a specified future delivery of agricultural produce. **Ijarah (Leasing):** Farmers lease agricultural equipment or land for a fixed rental without transferring ownership. These instruments are not only interest-free but also encourage fairness, mutual responsibility, and productivity (Emerald Insight, 2021).

Iqbal and Mirakhor (2021) opined that n**on-interest agriculture financing plays a vital role in small-scale farmer development by providing** flexible and inclusive approach which emphasizes partnerships and asset-based transactions. This increases farmers' access to financing for seeds, fertiliser, irrigation, equipment, and labour. Also, Farooq and Ahmad (2022) noted that, unlike interest-based loans that place the entire risk burden on the borrower, non-interest financing promotes shared risk between the financier and the farmer. This builds trust and enables participation from previously marginalised farmers, especially those in Muslim-majority communities where interest is religiously forbidden. They also opined that with access to Shariah-compliant funds, farmers are more likely to invest in quality inputs and adopt modern farming practices, leading to increased yields and profitability. Instruments like **Salam** ensure that farmers are capitalised before planting season, mitigating the risks of undercapitalization and food insecurity. Additionally, Adamu et al. (2021) claimed that non-interest financing emphasises ethical investments, which align with the principles of environmental stewardship and social responsibility. This can drive the adoption of sustainable agricultural practices and promote community development as a step towards attaining food sovereignty. Studies and pilot projects across several countries provide evidence of the positive effects of non-interest agricultural financing: Islamic banks in Sudan have been offering Salam and Murabaha contracts to farmers for decades. A study by El-Gamal (2020) found that such contracts reduced reliance on middlemen and improved farmers' income stability. In **Pakistan,** a study by Farooq and Ahmad (2022) revealed that Islamic microfinance schemes increased small-scale farmer productivity and resilience against crop failure. Additionally, the Central Bank of Nigeria (CBN), through the **Non-Interest Financial Institutions (NIFI) Guidelines,** supports non-interest financing instruments for agricultural financing. Jaiz Bank PLC and Non-Interest Banks offer Murabaha and Ijarah to farmers. Research by Adamu & Adeoye (2021) shows that farmers who accessed non-interest financing reported higher input use and better market linkages than those who relied on informal financing.

The literature reviewed above revealed that non-interest agricultural financing instruments offer a viable, inclusive, and ethical alternative to conventional finance, especially for small-scale farmers excluded from conventional financing systems. By promoting partnership, risk sharing, and asset-based lending, these instruments address key barriers to agricultural development, including access to capital and sustainability. With proper policy support, institutional capacity building, and farmer education, non-interest financing can become a catalyst for the development of small-scale farmers, boosting productivity, income generation and inclusive growth opportunities.

Empirical Review

Adamu and Adeoye, (2021), in their study t**itled** *"Impact of Islamic Agricultural Financing on Rural Farmers' Productivity in Northern Nigeria",* assessed how Islamic agricultural financing (non-interest-based), such as Murabaha and Salam contracts, affects the productivity of rural farmers in Northern Nigeria. The study employed a mixed-method approach, using structured questionnaires for 120 rural farmers who accessed non-interest loans from Jaiz Bank PLC and the Bank of Agriculture under the NIRSAL initiative. Productivity indicators such as crop yield, income level, and input usage were evaluated before and after access to financing. **Findings revealed that a**ccess to non-interest agricultural financing significantly improved input use

(fertilisers, seeds) and farm productivity. It also shows that farmers appreciated the ethical and interest-free nature of the financing, which aligned with religious beliefs and reduced repayment pressure. The study concludes that Islamic agriculture financing promotes financial inclusion and productivity among small-scale farmers, especially in Muslim-dominated rural areas. However, awareness and institutional support need to be expanded. The study adopted mixed designs without highlighting which type of design was employed. The present study, as a point of departure, employed the use of a convergent parallel design. This design is chosen over other designs in mixed design because a convergent parallel design employs both quantitative and qualitative methods concurrently to collect and analyse data.

Khan (2020), in his study t**itled "***Islamic Microfinance and Agricultural Development: Evidence from Sudan", examines* how Islamic microfinance institutions (IMFIs) contribute to agricultural development in rural Sudan through instruments such as Mudarabah and Salam. The research used panel data from 200 agricultural cooperatives between 2010–2016, applying regression analysis to measure the impact of financing on income levels, output quantity, and asset acquisition. **Findings revealed that f**armers who accessed non-interest finance reported an average 27% increase in agricultural output over the 6 years. Mudarabah was found to be more effective for cooperative farming, while Salam was best suited for individual smallholders. The study concludes that non-interest financing significantly improves agricultural development in rural areas by increasing productivity, reducing financial exclusion, and promoting shared risk. The study was conducted in Sudan, although the findings support the idea that non-interest agriculture financing instruments are effective in contexts where small-scale farmers face credit constraints. The study used a small sample size and was **over-reliance on self-reporting. The study also lacks specific community data**. This study also has a **larger and more representative sample** (>350), covering **urban, peri-urban, and rural communities** for **geographic diversity**. It also provides **empirical evidence** for policy design by bridging gaps in previous studies' scope and methodology.

Theoretical Framework:

Financial Intermediation Theory:
The Financial Intermediation Theory, as developed by Gurley and Shaw (1960) and further expanded by Diamond and Dybvig (1983), explains the role of financial intermediaries (such as banks and microfinance institutions) in bridging the gap between savers and borrowers. Financial intermediaries reduce transaction costs, manage risks, and provide liquidity, thereby facilitating economic development and financial inclusion. This theory emphasizes that when financial intermediaries function effectively, they mobilise savings and allocate credit efficiently to productive sectors, including agriculture. By channeling funds from surplus units

(savers/investors) to deficit units (borrowers/farmers), intermediaries enable investment in income-generating activities, which in turn fosters growth and poverty reduction.

The theory is highly relevant to the study because non-interest financial intermediaries (e.g., Islamic microfinance institutions or non-interest windows in banks) provide a Shariah-compliant mechanism for mobilising funds and delivering credit to financially excluded farmers. Also, small-scale farmers in Nigeria often lack access to formal credit due to collateral and interest rate challenges. Financial intermediation through Islamic instruments (Murabaha, Salam, etc.) serves as an inclusive alternative, thus improving access to agricultural financing. By facilitating the acquisition of inputs, mechanisation, and expansion, these financing models directly contribute to farmers' productivity and income levels, key indicators of development.

Data Presentation, Analysis and Interpretation

This section presents the data collected from respondents, analyses it using statistical tools, and interprets the findings based on the study objectives. The presentation is structured into demographic characteristics, analysis of research questions, hypothesis testing, regression results, and discussion of findings.

Table 1: Demographic Characteristics of Respondents

Variable	Categories	Frequency	Percentage (%)
Gender	Male	242	68.6%
	Female	111	31.4%
Age Group	18–30	64	18.1%
	31–45	187	53.0%
	46–60	79	22.4%
	61 and above	23	6.5%
Educational Level	No formal education	48	13.6%
	Primary	97	27.5%
	Secondary	129	36.6%
	Tertiary	79	22.3%
Farm Size	Less than 1 hectare	101	28.6%
	1–3 hectares	179	50.7%
	Above 3 hectares	73	20.7%
Type of Financing Used	Murabaha	197	55.8%
	Salam	99	28.0%
	Musharakah/Ijara	57	16.2%

Source: Farmer Data 2024

The data shows a male-dominated farming population (68.6%). This reflects a typical pattern in rural agricultural settings in Nigeria, where men are more frequently involved in land ownership and formal farming operations, while women, although active, often play supportive or informal roles. Gender plays a role in access to finance, and this may influence participation in non-interest financing schemes. **It also shows that t**he majority of respondents (53.0%) fall within the 31–45 years age range, indicating that most small-scale farmers are in their productive years. This group is more likely to be economically active, receptive to innovation, and willing to take calculated risks, such as accessing financing products. The relatively low percentage of elderly farmers (6.5%) suggests reduced participation in formal financing due to age-related constraints or preferences for traditional practices. The table also reveals that a considerable proportion of the respondents (36.6%) attained secondary education, while 22.3% had tertiary education. This suggests a fairly literate farming population, which is important as literacy often influences the ability to understand and access financial products. However, a notable 13.6% of the farmers had no formal education, indicating the need for simplified and inclusive financing mechanisms that accommodate non-literate individuals through visual, oral, and community-based financial literacy training. It also revealed that most respondents (50.7%) operate farms between 1–3 hectares in size, classifying them as small-scale farmers. This segment typically faces difficulties in accessing conventional bank loans due to limited collateral, which makes them ideal beneficiaries of non-interest financing that often uses group lending and partnership-based models. The presence of a significant number of very small farms (less than 1 hectare) also points to issues of land fragmentation and low economies of scale. Additionally, it shows that

the Murabaha financing model (cost-plus markup sale) emerged as the most accessed product (55.8%), likely due to its simplicity and clarity in structure. Salam (advance payment for future delivery) was accessed by 28.0% of farmers, while 16.2% had experience with Musharakah or Ijara (partnership-based and leasing models). These figures indicate that while non-interest instruments are gaining traction, there remains room to diversify and popularize other Islamic financing tools that may be better suited to different agricultural needs.

Analysis of Research Questions

Table 2: What is the effect of non-interest agriculture financing instruments on the income level of small-scale farmers?

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Decision
I have experienced an increase in farm income after receiving Murabaha financing.	172	113	36	18	14	4.12	Agree
Murabaha allowed me to buy inputs in bulk, leading to more production.	151	123	43	23	13	4.05	Agree
My repayment terms under Murabaha were flexible enough to allow reinvestment.	130	117	59	29	18	3.85	Agree

Source: Farmer Data 2024

The table above revealed that the respondents generally agree that non-interest agriculture financing instruments have had a **positive effect on their income**, farming output, and investment in inputs, with mean values above 4.12, indicating agreement. With a **mean score above 4.0,** most respondents **agree** that Murabaha financing positively influenced their **income level**. The majority of small-scale farmers acknowledged that the input credit enabled them to expand production and improve revenue. Farmers also noted the flexible repayment plans, which allowed them to reinvest profits into their farms rather than being burdened by interest. This implies that Murabaha financing has significantly contributed to the income enhancement of small-scale farmers, supporting the hypothesis that non-interest financing positively affects agricultural income.

Table 3: How has non-interest financing influenced the productivity and sustainability of small-scale farming?

Item	S/A	A	N	D	S/D	Mean	Decision
Salam financing helped me access capital before the planting season.	167	122	35	19	10	4.15	Agree
My crop yield improved due to the timely purchase of farm inputs through Salam.	139	111	55	35	13	3.91	Agree
Early funding through Salam reduced my dependence on local moneylenders.	156	118	42	27	10	4.06	Agree

Source: Farmer Data 2024

The table above reveals that the results suggest that **productivity and sustainability** have been enhanced due to access to non-interest funding, particularly through land expansion and better market access. It shows that a majority of farmers **agreed** that Salam financing provided them with early capital, enabling them to purchase inputs **before price hikes or input scarcity**. It also revealed that early planting and adequate input use contributed to better **crop yields**. Salam also helped reduce reliance on **informal credit sources** like moneylenders, who typically charge high-interest rates. This implies that Salam financing has had a **positive effect** on agricultural productivity, supporting the hypothesis that non-interest pre-financing models can improve farming outcomes for smallholders.

Test of Hypotheses

Table 4: H_{01}: Non-interest agriculture financing has no significant effect on farmers' income level.

Variables	Mean	Std. Dev.	t-value	Df	p-value
Income before financing	₦84,000	₦17,200			
Income after financing	₦126,000	₦23,800	14.76	352	0.000**

Source: Farmer Data 2024

The table revealed that the mean income before accessing non-interest agriculture financing (e.g., Murabaha, Salam) was ₦84,000, with a standard deviation of ₦17,200. After accessing the financing instruments, the mean income increased to ₦126,000, with a higher standard deviation of ₦23,800. This shows a ₦42,000 average increase in farmers' income, a 50% rise. This difference suggests a substantial increase in income levels among beneficiaries of non-interest financing schemes. A paired samples t-test was applied to compare farmers' income levels before and after accessing non-interest financing. This test is appropriate because it measures mean differences in related samples, i.e., the same group of farmers, before and after financing. A t-value of 14.76 indicates that the observed difference between pre- and post-financing income is large and unlikely to have occurred by chance. This represents the sample size minus 1 (n–1), which, in this case, indicates a sample size of 353 farmers was analysed. The p-value represents the probability of observing the results if the null hypothesis were true. In this case, $p = 0.000$, which is far below the significance level of 0.05. Since $p < 0.05$, we reject the null hypothesis (H_{01}). This means there is strong statistical evidence to accept the alternative hypothesis (H_1). The test results reveal that non-interest agricultural financing instruments have had a statistically significant and positive effect on farmers' income levels in the selected LGAs of Nasarawa State. This supports the view that ethical, interest-free financial products like Murabaha and Salam not only align with the religious and cultural preferences of rural farmers but also provide the capital needed to enhance income-generating capacity. These results strengthen the case for scaling up non-interest agricultural financing as a poverty reduction and livelihood improvement strategy. Policymakers and agricultural finance institutions (e.g., Jaiz Bank, NIRSAL Microfinance Bank) should increase outreach, particularly in rural communities, to improve financial inclusion.

Table 5: H_{02}: There is no significant relationship between non-interest agricultural financing and the productivity of small-scale farmers.

Variables	R	p-value
Financing Instrument vs Output	0.651	0.000**

Source: SPSS Output, 2025

The **Pearson correlation test** was used to determine the **strength and direction** of the relationship between the use of **non-interest agricultural financing instruments** (e.g., Murabaha, Salam, Ijara), and the **productivity** of small-scale farmers (measured in terms of output per season or yield per hectare). This test is appropriate because both variables are **continuous** and **numerically measurable**. The correlation coefficient (r) ranges from **-1 to +1**. **+1** indicates a perfect positive relationship. **0** indicates no relationship, and **1** indicates a perfect negative relationship. An **R-value of 0.651** indicates a **moderately strong positive correlation** between access to non-interest financing and productivity. In simple terms, **as farmers gain access to Islamic financing**, their **farm productivity tends to increase**. This suggests that non-interest financing mechanisms are effective tools in **boosting agricultural output** by enabling farmers to procure improved seeds, fertiliser, machinery, and services in a timely and affordable manner. The **p-value** tells us whether the observed relationship is **statistically significant**. With a **p-value of 0.000**, which is **less than the 0.05 threshold**, we conclude that the observed correlation is **not due to random chance**, and there is **strong evidence** to support the existence of a meaningful relationship between the two variables. Since **p < 0.05**, we **reject the null hypothesis (H_{02})**; therefore, we **accept the alternative hypothesis (H_1)** which states that "there is a significant relationship between non-interest agricultural financing and productivity of small-scale farmers." The results confirm that **non-interest agricultural financing** has a **statistically significant and positive impact** on the productivity of small-scale farmers in the selected LGAs of Nasarawa State. The relatively strong correlation (r = 0.651) suggests that when farmers are given access to tailored financial tools such as **Salam (advance payment for farm produce)** or **Ijara (lease-to-own farm equipment)**, their **output increases measurably**.

Regression Result

The regression was conducted to determine the extent to which **non-interest agricultural financing instruments** (specifically *Murabaha* and *Salam*) **predict or explain the development** of small-scale farmers, measured through two dependent variables: i**ncome level,** and a**gricultural productivity**.

Table 6:

Model Summary	
R	0.701
R^2	0.491
Adjusted R^2	0.488
F-Statistic	106.34
Sig. (p-value)	0.000

Source: SPSS Output, 2025

The table revealed that the **R-value** indicates a **strong positive correlation** between **non-interest agricultural financing** and **farmers' development outcomes.** This means that as the use of non-interest financing increases, income and productivity also tend to rise. The **R-squared value** shows that **49.1%** of the variation in the development indicators (income and productivity) **can be explained by the use of non-interest agricultural financing instruments.** This is a substantial proportion, suggesting that these financing tools are influential predictors of farmer development. The **Adjusted R^2** adjusts for the number of predictors in the model. It confirms the model's strength while accounting for sample size. At **48.8%,** it confirms the model's robustness and reliability. The **F-statistic** tests the overall significance of the model. Since the **p-value is 0.000 (< 0.05)**, it indicates that the regression model is **statistically significant**, meaning that the predictor (non-interest financing) reliably explains changes in the dependent variables (income and productivity).

Table 7: Coefficients Table

Predictor	B	Std. Error	T	p-value
(Constant)	41.280	6.124	6.74	0.000
Non-interest Financing Score	0.672	0.065	10.31	0.000

Source: SPSS Output, 2025

This is the **predicted value** of the dependent variable (development) when **non-interest financing = 0.** It implies that even without access to non-interest financing, a baseline development score of **41.28 units** (e.g., income and productivity index) is expected. The **unstandardized beta coefficient** of **0.672** indicates that for **every one-unit increase** in non-interest financing usage (e.g., access to Murabaha or Salam), the **development score increases by 0.672 units**, assuming all else constant. This shows a **strong positive effect** of non-interest financing on small-scale farmer development. A **high t-value** and a **p-value < 0.05** mean the predictor (non-interest financing) is **statistically significant.** Hence, we can conclude with confidence that the financing instruments meaningfully contribute to improving farmer income and productivity. This regression analysis provides **strong statistical evidence** that non-interest agricultural financing instruments such as Murabaha and Salam **have a significant and positive impact** on the development of small-scale farmers in Nasarawa State. **Approximately 49% of the variation** in development outcomes (income and productivity) is **explained** by these instruments.

Discussion of Findings

Firstly, the study found a statistically significant increase in the income levels of smallholder farmers who accessed these financial instruments. This aligns with **Abdul-Rahman and Nor (2016)**, who reported that Shariah-compliant agricultural finance in Malaysia improved farmers' profitability and household welfare. Farmers in Nasarawa indicated higher returns due to better access to farm inputs and expanded production capacity. Secondly, a strong positive relationship was observed between access to non-interest financing and productivity indicators such as land expansion, input acquisition, and reduction in reliance on middlemen. In summary, the findings support the theoretical framework (Financial Intermediation Theory), confirming that properly structured non-interest finance can serve as a viable tool for agricultural development and financial inclusion.

Summary of Findings

i. The study revealed that non-interest agriculture financing instruments, especially Murabaha and Salam, significantly improved the income levels of small-scale farmers. This was evident in increased sales, improved access to the market, and the ability to reinvest. Also, beneficiaries reported improved access to farming inputs, cultivation of larger plots, and better storage facilities due to the funds accessed. Regression analysis showed a strong relationship between financing and farmer development ($R^2 = 0.49$).

ii. Non-interest financing instruments attracted high levels of trust and compliance among Muslim-dominated communities in Nasarawa State. Also, despite the success, issues like inadequate awareness, poor outreach by financial institutions, and lack of collateral-free options for certain instruments were identified.

Conclusion:

The study concludes that non-interest agriculture financing instruments play a pivotal role in the socio-economic transformation of small-scale farmers in Nasarawa State. They promote inclusiveness offering small-scale farmers with alternative access to development finance. The

findings confirm that such instruments not only increase income and productivity but also enhance food security and rural development. However, their effectiveness is dependent on institutional support, awareness, and appropriate implementation strategies. Considering these, non-interest agriculture financing is not just an alternative but a **strategic necessity** for improving access to finance in underserved agricultural communities across Nigeria.

Recommendations:

i. States/LGAs, faith based NGOs, and non-interest finance institutions should intensify public enlightenment campaigns and capacity-building programmes to raise awareness and understanding of non-interest agricultural financing products. Also, Jaiz Bank and similar institutions should establish rural branches in the selected LGAs to bring services closer to farmers. Additionally, financing products should be customised to reflect the seasonal and risk nature of agriculture. Options like *Salam* and *Istisna'* can be aligned with crop cycles and harvest timelines.

ii. Group lending through cooperatives can enhance access and reduce risk. Institutions should partner with these cooperatives for better screening, monitoring, and repayment assurance. Also, the State and LGAs should provide guarantee schemes and invest in non-interest finance as catalysts for development. Similarly, technology-driven platforms can ease access, reduce costs, and improve transparency in fund disbursement, tracking, and repayment.

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