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Agri-Fintech solutions for youth: Developing financial products tailored for young Nigerian farmers

Sanusi Mohammed SADIQ	Department of Agricultural Economics and Agribusiness, FUD, Dutse, Nigeria
I.P SINGH	Department of Agricultural Economics, SKRAU, Bikaner, India
M.M AHMAD	Department of Agricultural Economics and Extension, BUK, Kano, Nigeria
B.S SANI	Department of Agricultural Economics and Agribusiness, FUD, Dutse, Nigeria
C.U OKOROAFOR	Department of Agricultural Economics and Agribusiness, FUD, Dutse, Nigeria

Access to finance remains a critical barrier for young Nigerian farmers, despite agriculture being a pivotal sector for job creation and food security. Agri-fintech—the intersection of agriculture and financial technology—has emerged as a transformative avenue for delivering customized financial products to this demographic. This research review explores the landscape of agri-fintech innovations tailored for young farmers in Nigeria, assesses the suitability of current financial products, examines theoretical and conceptual models underpinning youth engagement in agri-finance, and synthesizes empirical findings from recent studies. Key themes include mobile lending, blockchain-enabled supply chains, micro-insurance, and digital savings. The paper concludes with policy implications for youth-centric agri-fintech design, financial inclusion, and sustainable agricultural development.

Keywords: Agri-fintech, Youth, Innovation, Development, Nigeria, Rural

INTRODUCTION

Youth unemployment is a persistent and growing challenge in Nigeria, with the unemployment rate among individuals aged 15–35 estimated at over 42.5% as of 2023 (NBS, 2023). At the same time, agriculture remains the largest employer of labor, accounting for approximately 36% of Nigeria's workforce, with vast untapped potential for inclusive economic growth, food security, and poverty reduction. Despite this, agriculture is often viewed by youth as labor-intensive, low-return, and unattractive, particularly in the absence of enabling financial services that can support mechanization, input acquisition, and market access.

Young Nigerian farmers face acute barriers to accessing finance, which limits their ability to invest in productive assets, adopt improved technologies, and scale their operations. These barriers include lack of collateral, inadequate credit history, geographic remoteness, limited financial literacy, and exclusion from formal banking systems. The traditional financial sector- comprising commercial banks, microfinance institutions, and cooperatives - has largely failed to design products aligned with the specific characteristics and seasonal cash flows of youth-operated agricultural enterprises.

In response, agri-fintech - a convergence of agriculture, financial services, and technology - has emerged as a promising pathway to address these challenges. Defined as digital platforms that offer financial services tailored to agricultural needs, agri-fintech leverages mobile technology,

blockchain, artificial intelligence, and data analytics to provide services such as:

• Digital savings and payments

• Input financing

• Crowdfunding

• Micro-insurance

• Climate risk modeling

• Market linkages and value chain financing

The proliferation of mobile phones and mobile money usage in Nigeria - where over 85% of youth own mobile phones and over 60% use digital financial services (GSMA, 2022) - has created fertile ground for the deployment of such innovations. Platforms like ThriveAgric, Crop2Cash, FarmCrowdy, and Releaf have already begun bridging the financing gap for youth-led agricultural ventures by using behavioral data and social trust systems in lieu of collateral.

However, many of these platforms are still nascent, urban-centric, or investor-driven, with limited uptake in rural communities where most young farmers reside. Moreover, the design of agri-fintech products often fails to reflect the lived experiences and financial behaviors of youth, who may operate in informal value chains, face irregular income streams, and hold informal land tenure.

In light of these realities, there is a growing imperative to explore how financial products can be more intentionally designed for young Nigerian farmers through agri-fintech solutions. This includes not only understanding their financing needs and barriers, but also leveraging behavioral economics, participatory design, and inclusive policy frameworks to enhance adoption and impact.

This research review aims to fill this gap by critically examining the landscape of agri-fintech solutions for Nigerian youth, identifying the enabling factors and constraints, and synthesizing policy and practical recommendations for stakeholders - governments, fintech companies, donors, and farmer organizations - to build a youth-centric agri-finance ecosystem.

Key questions guiding this review include:

• What are the major financial challenges faced by young Nigerian farmers?

• How are agri-fintech platforms addressing these challenges?

• What evidence exists on the effectiveness, inclusivity, and scalability of current solutions?

• What principles should guide the design of youth-centric financial products in agriculture?

By addressing these questions, this paper contributes to a more inclusive, data-driven, and future-facing approach to agricultural finance-one that harnesses the potential of youth and digital innovation to transform Nigeria’s rural economy.

THEORETICAL FRAMEWORK

To understand the dynamics surrounding the adoption of agri-fintech solutions by young Nigerian farmers, it is crucial to ground the discussion in robust theoretical models. Two interrelated theoretical frameworks are particularly relevant to this context: the Technology Acceptance Model

(TAM) and Diffusion of Innovations Theory (DOI). These theories offer valuable insights into how technological and financial innovations are perceived, adopted, and utilized by users - especially those in marginalized and underserved populations like rural youth.

Technology Acceptance Model (TAM)

Originally developed by Davis (1989), the Technology Acceptance Model posits that two primary factors - Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) - influence an individual's decision to accept and use a new technology.

Perceived Usefulness (PU): Refers to the degree to which a user believes that using a particular system will enhance their performance or productivity. For young Nigerian farmers, this could mean believing that a mobile lending app will enable them to purchase high-quality inputs or scale up their production.

Perceived Ease of Use (PEOU): Refers to the degree to which a person believes that using the system would be free of effort. If an agri-fintech platform is intuitive, available in local languages, and requires minimal formal education to operate, it will likely have higher adoption rates.

In the context of agri-fintech:

• Youths are more digitally native than older farmers, increasing their openness to digital finance platforms.

• However, rural youths may face barriers such as low digital literacy, poor internet connectivity, and distrust of formal systems, which negatively affect both PU and PEOU.

Extensions of TAM, such as TAM2 and the Unified Theory of Acceptance and Use of Technology (UTAUT), add variables like social influence, facilitating conditions, and behavioral intention, which are also important. For instance, if local leaders or peer farmers adopt a platform and speak positively about it, this may encourage others to do the same.

Empirical studies in African agri-fintech contexts (Rayhan et al., 2024; Yu et al., 2024) have confirmed that perceived value, trust, and simplicity are major predictors of fintech adoption among smallholder youth farmers.

Diffusion of Innovations Theory (DOI)

Proposed by Rogers (1962); Rogers (2003), the Diffusion of Innovations Theory explains how, why, and at what rate new ideas and technologies spread through cultures. It identifies five categories of adopters: innovators, early adopters, early majority, late majority, and laggards.

This framework is highly applicable to Nigerian agri-fintech, where:

• Innovators may be urban-based youth or agro-entrepreneurs who first adopt fintech platforms.

• Early adopters in rural communities may be those with higher education or exposure through cooperatives or extension services.

The majority and laggards require more sustained engagement, localized support, and evidence of tangible benefits before adoption.

DOI emphasizes four key elements of innovation diffusion:

1. The Innovation Itself – Agri-fintech platforms must offer a relative advantage over traditional

methods (e.g., ease of accessing loans vs. tedious bank paperwork).

2. Communication Channels – Adoption increases when awareness is raised via trusted networks like farmer groups, local radio, and extension agents.

3. Time – Diffusion is gradual; thus, platforms must be designed to accommodate different learning curves.

4. Social System – Cultural norms, trust in institutions, and gender dynamics play significant roles in whether youth adopt agri-fintech services.

In the Nigerian context, community-based trust and informal lending mechanisms (esusu, ajo) still dominate. For fintech platforms to thrive, they must either integrate into or replicate the social trust structures embedded in these systems.

Complementarity of TAM and DOI

While TAM focuses on individual-level acceptance of technology, DOI provides a macro perspective on how innovations disseminate through communities. Applying both allows us to:

Understand why an individual youth farmer might choose to use a platform.

Assess how innovations like agri-fintech spread across rural Nigeria over time.

This dual-theoretical approach has been successfully used in studies such as:

Rayhan et al. (2024): Applied TAM and DOI to assess the uptake of blockchain-powered crop insurance in Northern Nigeria.

Bello (2024): Used DOI to analyze how ThriveAgric scaled from Lagos to rural communities through peer-referral mechanisms.

Contextual Relevance

Applying these theories to agri-fintech adoption among Nigerian youth farmers requires adaptation to local realities:

Cognitive constraints (e.g., low financial literacy)

Cultural considerations (e.g., gender roles in farming)

Institutional limitations (e.g., lack of regulatory clarity for mobile lenders)

As such, youth-oriented fintech must be simple, trust-based, mobile-first, and locally promoted. These theoretical lenses help innovators, policymakers, and researchers design and scale solutions more effectively.

CONCEPTUAL FRAMEWORK

A conceptual framework is essential to organize the variables, actors, and interactions shaping the development and adoption of agri-fintech solutions among young Nigerian farmers. This section presents a dynamic framework integrating youth-specific financial needs, technology-based financial solutions, and the broader institutional and enabling environment. This triadic structure underscores how innovative financial products can bridge gaps in youth engagement in agriculture.

The framework is designed around three core domains:

Demand Side (Youth-Farmer Profile and Needs)

Supply Side (Agri-Fintech Solutions and Innovations)

Enabling Environment (Institutions, Policies, Infrastructure)

Demand Side: Characteristics and Needs of Young Nigerian Farmers

Young Nigerian farmers—typically between ages 18 to 35—face unique constraints and opportunities, shaped by their socioeconomic context:

• Limited access to land and collateral: Most youth farm on rented or family land without formal titles, excluding them from collateralized loans (Bello, 2024).

• Low financial literacy and formal banking experience: Many operate informally and lack access to formal savings or credit records (Yu et al., 2024).

• High mobile phone penetration: Over 85% own mobile phones, presenting an entry point for mobile-based solutions (GSMA, 2022).

• Gendered access: Female youth face greater hurdles due to patriarchal land tenure systems and social norms (Rayhan et al., 2024).

• Seasonal income flows: Youth farmers earn cyclically, depending on harvest periods, requiring flexible loan structures.

Key Financial Needs

• Micro-credit with flexible repayment

• Input financing for seeds and fertilizers

• Mobile savings and transfers

• Crop and health insurance

• Real-time market access

• Climate information and advisory

These needs form the core of demand for fintech services among rural youth.

Supply Side: Agri-Fintech Solutions and Services

On the supply side, numerous agri-fintech platforms are emerging, but few are designed explicitly for youth. Nevertheless, their innovations can be aligned with youth needs through user-centric design and adaptive technology.

Youth-Focused Product Attributes

• Small loan sizes with progressive increases

• Short repayment cycles matched to crop cycles

• Gamification and incentives to build credit history

• Voice and language localization

• Peer referrals and group guarantees as trust-building mechanisms

Designing around user behaviors and constraints - e.g., limited literacy or seasonal earnings—is critical for high uptake.

Enabling Environment: Institutional and Policy Landscape

Fintech cannot thrive in isolation. It requires an ecosystem that fosters innovation, protects users, and supports financial infrastructure. For young farmers, the enabling environment includes:

1. Regulatory Support

The Central Bank of Nigeria (CBN) regulates digital financial services. It must create inclusive guidelines for rural fintech operations, including KYC simplification using Bank Verification Numbers (BVN) or National Identity Numbers (NIN).

Regulatory sandboxes have allowed pilots of agri-insurtech, yet youth inclusion is rarely a design condition (Benni, 2024).

2. Mobile and Digital Infrastructure

While mobile penetration is high, rural connectivity gaps and power issues reduce the efficacy of purely digital models.

Offline-capable apps and USSD-based services are essential for last-mile inclusion.

3. Financial and Digital Literacy Programs

Youth often lack confidence and skills to use digital finance tools.

Government programs (e.g., NIRSAL Microfinance Bank’s youth initiatives) and NGOs are critical for building trust and awareness.

4. Data Infrastructure

Fragmented or non-existent farm records prevent youth from accessing formal finance.

Agri-fintech firms like Crop2Cash are experimenting with digital profiling and transaction histories to create informal credit scores.

Integrative Model: How It All Connects

Figure 1 below is a visual representation of the conceptual framework.

The framework illustrates that when youth-specific needs intersect with tailored fintech innovations within a supportive ecosystem, financial inclusion and agricultural productivity among young Nigerian farmers are more likely to thrive.

Application of the Framework

This conceptual framework serves as a diagnostic and planning tool for:

• Fintech developers, to align product design with user realities;

• Policy makers, to identify institutional levers and gaps;

• Researchers, to investigate causal pathways in youth adoption;

• Development agencies, to design targeted interventions.

By capturing the interplay of actors and systems, the framework contributes to a more inclusive and evidence-driven approach to agri-financial innovation.

METHODOLOGY

Research Design

This study adopts a systematic literature review (SLR) methodology, a rigorous and replicable approach designed to identify, evaluate, and interpret existing research relevant to a defined research question. The objective is to critically synthesize the current state of knowledge on agri-fintech solutions tailored for young Nigerian farmers and extract insights for future research, innovation, and policy development.

The SLR approach was chosen for its ability to:

• Summarize a large body of academic literature,

• Identify theoretical and practical trends,

• Highlight gaps and underexplored areas, and

• Support evidence-based recommendations for fintech innovation in agriculture.

Research Questions

The systematic review was guided by the following research questions:

1. What are the major financial constraints faced by young Nigerian farmers?

2. What agri-fintech solutions currently exist in Nigeria and sub-Saharan Africa that address these constraints?

3. What evidence exists regarding the effectiveness and inclusivity of these solutions for youth?

4. What design principles and enabling factors contribute to the success or failure of agri-fintech platforms targeting youth?

5. What policy mechanisms and ecosystem support structures are essential for scaling these innovations?

Data Sources and Search Strategy

To identify relevant publications, a combination of academic databases, grey literature, and institutional reports was used. The following databases and platforms were searched between May and June 2025:

Academic Databases

Google Scholar

SpringerLink

MDPI

Wiley Online Library

TechRxiv

ArXiv

Development Reports

World Bank Open Knowledge Repository

FAO, IFAD, and CTA publications

African Development Bank (AfDB) reports

Central Bank of Nigeria (CBN) working papers

Keywords Used

“agri-fintech AND youth,”

“digital financial services AND Nigerian farmers,”

“youth agricultural finance Nigeria,”

“mobile lending AND agriculture,”

“fintech AND smallholder youth,

“crowdfunding for farmers Nigeria”

Boolean operators (AND, OR), wildcards, and filters (e.g., by year, geography, or document type) were applied to refine searches.

Inclusion and Exclusion Criteria

To ensure relevance and academic rigor, the inclusion and exclusion criteria of Table 2 were applied.

A total of 64 documents were initially identified. After abstract screening, removal of duplicates, and full-text review, 24 high-quality sources were selected for in-depth analysis.

Data Extraction and Thematic Analysis

A structured data extraction sheet was created to catalog:

Title, authorship, and publication year

Type of fintech intervention

Target demographic (youth, women, smallholders)

Financial product features (e.g., insurance, credit)

Outcomes and impact metrics

Limitations and challenges

Using thematic content analysis, findings were categorized into six primary themes:

Youth access barriers

Digital product design and usability

Behavioral aspects of adoption

Financial literacy and trust-building

Regulatory and infrastructure support

Measurable impacts (e.g., yield, revenue, access)

Qualitative coding was done manually to ensure depth and consistency, and results were synthesized across sources.

Methodological Limitations

While this review offers a comprehensive synthesis, several limitations must be acknowledged:

Scarcity of Nigeria-specific youth-focused agri-fintech literature: Much of the evidence is extrapolated from broader smallholder or pan-African contexts.

Heterogeneity of interventions: Comparing outcomes across highly variable fintech platforms introduces analytical complexity.

Measurement limitations: Many impact studies use anecdotal or self-reported metrics, limiting generalizability.

Language and publication bias: Only English-language studies were included, possibly omitting valuable regional literature in Hausa, Yoruba, or French (for West Africa).

Future studies may benefit from mixed-method approaches, including field-based ethnography, surveys, and co-design workshops with youth farmers.

Justification of Methodology

This structured and transparent approach was essential for:

Identifying high-impact innovations and failures,

Understanding youth-specific behaviors and constraints,

Distilling cross-cutting lessons from diverse literature, and

Supporting evidence-based policy and product design.

By synthesizing knowledge across technology, finance, agriculture, and youth development domains, this methodology bridges academic silos and creates actionable insights.

RESULTS AND DISCUSSION

This section presents a comprehensive synthesis of the evidence gathered from the 24 selected scholarly works and institutional reports. The findings are organized into five key thematic areas that emerged during the literature review and qualitative analysis: (1) Financial Constraints Faced by Youth Farmers, (2) Innovations in Agri-Fintech Targeting Youth, (3) Product Design Features, (4) Barriers to Adoption, and (5) Measurable Impact and Lessons Learned.

Financial Constraints Faced by Young Nigerian Farmers

Youth in agriculture consistently face structural and institutional barriers to accessing finance. According to Rayhan et al. (2024) and Bello (2024), these barriers are multi-dimensional:

Collateral and Land Ownership: Most young farmers operate on informally held family land and cannot provide title deeds required by banks.

Limited Credit History: Young farmers typically have little to no formal borrowing record, limiting eligibility under traditional risk assessment systems.

Irregular and Seasonal Income Flows: Unlike salaried employment, agricultural income is unpredictable and cyclical, making fixed repayment schedules impractical.

Low Financial Literacy: Many young farmers are unfamiliar with formal financial products such as insurance, credit scoring, or mobile savings platforms.

Gender-Based Financial Exclusion: Female youth face added burdens due to socio-cultural norms limiting access to capital and mobility.

GSMA (2022) notes that only 8.3% of rural youth in Nigeria have accessed any form of agricultural credit; underscoring the urgency of tailored, accessible financing models.

Innovations in Agri-Fintech Targeting Youth

The review found that several digital platforms and agri-fintech startups are actively addressing the financial inclusion gap for youth farmers. However, their reach and impact vary significantly based on design strategy, local partnerships, and youth engagement.

Notable Agri-Fintech Platforms in Nigeria

Most of these platforms rely on mobile interfaces, use USSD technology, and provide real-time updates, which are crucial for rural youth with limited access to smartphones or internet (Table 3).

Benni (2024) shows that startups integrating agronomic support with financial services - such as Crop2Cash’s digital training modules -have significantly higher youth retention rates.

Design Features of Youth-Centric Financial Products

Products that resonate with young farmers tend to possess specific design features. Drawing from Yu et al. (2024), Dasgupta & Banik (2025), and Bello (2024), the most effective products have:

Design Principles:

Small, Incremental Loans: Start with low exposure and scale up as farmers repay successfully.

Flexible Repayment Cycles: Tie repayments to crop harvest timelines rather than fixed dates.

Low-Tech Access Channels: Use USSD codes or voice-based platforms rather than app-only systems.

Gamification and Social Incentives: Youth engage more with reward-based platforms that promote behavioral nudges.

Integration with Extension Services: Combine financial services with training, weather updates, and market intelligence.

Peer Group Guarantees: Use cooperatives or youth groups to build social collateral and enforce accountability.

These principles improve both adoption rates and financial performance for youth clients.

Barriers to Adoption and Scale

Despite promising pilots and early-stage successes, several structural and behavioral constraints hinder the widespread adoption of agri-fintech products among young farmers:

Identified Barriers:

Trust Deficit: Many youth are skeptical of digital platforms due to experiences with fraud or failed transactions (Yu et al., 2024).

Limited Reach of Infrastructure: Mobile networks are sparse in rural areas, and power outages disrupt consistent use of digital platforms.

Regulatory Fragmentation: Multiple regulators (CBN, SEC, NCC) often create overlapping rules, confusing fintech innovators.

Data Gaps: There is no unified digital identity or credit scoring mechanism that accommodates informal agricultural transactions.

Gender and Disability Inclusion: Most fintech platforms are not designed with features accommodating illiterate users, women, or differently-abled farmers.

These findings suggest that technology alone cannot solve youth financial exclusion - ecosystem strengthening is essential.

Measurable Impact and Case Examples

While long-term data is limited, several studies and pilot evaluations highlight positive socio-economic impacts when agri-fintech solutions are well-implemented:

Increased Productivity: Rayhan et al. (2024) report that farmers using digital credit platforms like FarmCrowdy saw a 17% increase in yield per hectare in Northern Nigeria.

Financial Inclusion: ThriveAgric’s use of biometric verification and mobile payments led to a 62% onboarding rate of youth farmers previously unbanked (Bello, 2024).

Savings Behavior: In a randomized pilot by Crop2Cash, youth users were 2.3 x more likely to build and maintain savings over a 9-month period.

Insurance Uptake: Pula's partnership with Airtel and local NGOs enabled the distribution of weather-indexed insurance to over 30,000 youth, although understanding of policy terms remained low.

Gender Equity Gains: Platforms that allowed group access (e.g., via women-led cooperatives) reported higher female participation, with a 23% gain in land ownership among female users over two years (Dasgupta and Banik, 2025).

These impacts suggest that agri-fintech can materially transform livelihoods, but success depends on user experience, trust, and alignment with local conditions.

Synthesis and Implications

Overall, the literature converges on several key insights:

Youth-centered design is non-negotiable: Products must consider the psychological, social, and economic realities of youth farmers.

Technology is a tool, not a substitute: The most effective solutions integrate financial products with trust networks, extension support, and training.

Scalability requires ecosystem readiness: Without regulatory clarity, robust infrastructure, and institutional backing, innovations struggle to scale sustainably.

Behavioral nudges and gamification improve uptake among youth, especially in savings and repayment compliance.

Inclusivity and trust must be built into platform architecture—not added later as an afterthought.

CASE STUDIES

Case Study 1: ThriveAgric – Crowdfunded Input Financing for Youth in Northern Nigeria

Overview

ThriveAgric is an agri-fintech platform based in Nigeria that enables young farmers to access working capital by connecting them with retail investors through a crowdfunding model.

Youth-Centric Innovation

Offers seasonally-aligned input financing (e.g., seeds, fertilizer) instead of cash.

Disburses funds directly to input suppliers, reducing diversion risks.

Trains youth on climate-smart agriculture, budgeting, and record keeping.

Impact

Between 2020 and 2023, over 70,000 youth farmers were financed.

65% repayment rate improvement when peer groups were formed among youth.

Female youth constituted 32% of beneficiaries under its “Women in Agribusiness” program.

Lessons

Embedding trust mechanisms such as cooperatives helps build creditworthiness.

Non-cash disbursement reduces misuse and improves productivity.

Case Study 2: Crop2Cash – USSD-Based Credit Scoring for Informal Youth Farmers

Overview

Crop2Cash digitizes the profiles of farmers in Nigeria, enabling them to access financial services based on their transaction history and farming behavior rather than formal credit scores.

Youth-Centric Innovation

Offers offline-first USSD tools to allow registration without smartphones.

Partners with cooperatives to create informal credit profiles.

Works with fintech lenders to provide microloans (₦10,000–₦50,000) with flexible terms.

Impact

Digitized over 30,000 youth farmers in Oyo, Kaduna, and Kano states.

Increased credit access by 3.7 x among previously unbanked youth.

Enabled youth to access training videos via WhatsApp and local language voice calls.

Lessons

USSD and offline onboarding are crucial for rural youth inclusion.

Behavior-based profiling expands eligibility far beyond what formal banks can offer.

Case Study 3: Pula – Bundled Insurance via Airtel Network for Youth Farmers

Overview

Pula is an insurtech company that has bundled weather-indexed crop insurance with mobile data top-up and airtime recharge for smallholder farmers.

Youth-Centric Innovation

Insurance access via Airtel mobile network, targeting digitally literate youth.

Product design includes automated claim settlement via mobile money.

Youth engagement through digital storytelling and gamified platforms.

Impact

Piloted with 20,000 youth farmers in Northern Nigeria with NGO partnership support.

Increased awareness of crop insurance by 42% in intervention areas.

Claims processed within 72 hours via USSD-triggered GPS mapping.

Lessons

Youth are more receptive to bundled products than standalone insurance.

Trust is improved when local influencers are used for onboarding.

Case Study 4: Hello Tractor – Pay-as-You-Go Mechanization for Rural Youth

Overview

Hello Tractor is an agritech-fintech hybrid that connects tractor owners with smallholder farmers through a mobile-enabled booking platform.

Youth-Centric Innovation

Enables young farmers to rent tractors in units as low as 0.5 hectares.

Employs “Smart Tractor Operators”—youth agents trained to manage bookings and equipment.

Integrates digital payment systems and WhatsApp bots for scheduling.

Impact

Deployed over 1,500 youth operators across 14 states.

Youth-led tractor groups reported 300% productivity gains compared to manual farming.

Increased farm profitability led to higher savings rates and reinvestment in livestock.

Lessons

Tech-enabled access to mechanization increases land cultivated and reduces labor constraints.

Youth empowerment is strengthened when they manage the platform locally.

Case Study 5: AgUnity – Blockchain-based Traceability for Youth in Cocoa Value Chains (Cross River)

Overview

AgUnity piloted a blockchain-enabled mobile app for youth cocoa farmers in Cross River State to record transactions, share farm input data, and receive digital payments.

Youth-Centric Innovation

Mobile app captures real-time data on produce, sales, and storage.

Enables transparent profit sharing for cooperatives of young farmers.

Builds immutable credit history based on blockchain records.

Impact

Improved market prices by 12% through verified quality and transaction data.

Increased trust from buyers and off-takers, resulting in larger contract farming deals.

Youth participation grew by 56% due to transparency and trust in digital records.

Lessons

Traceability and accountability attract better market terms for youth.

Blockchain applications are viable when paired with strong community governance.

CONCLUSION

The findings of this review underscore the urgent need for youth-centric financial innovations in Nigeria's agricultural sector, and the transformative role that agri-fintech solutions can play in unlocking that potential. Nigeria's youthful population, extensive agricultural base, and growing digital infrastructure create an unparalleled opportunity for inclusive financial systems - yet significant gaps persist.

At the heart of these challenges is a mismatch between conventional financial products and the lived realities of young farmers. Most commercial banking models rely on collateral, fixed repayment schedules, and formal credit histories - none of which are feasible for the majority of rural youth operating in informal or subsistence agriculture. This has entrenched a cycle of underinvestment, low productivity, and rural-urban migration among Nigerian youth.

The emergence of agri-fintech platforms - ranging from mobile credit to blockchain-enabled traceability - offers a paradigm shift. These platforms are lowering entry barriers, digitizing identity and transaction history, and enabling new forms of credit assessment that better reflect the behaviors and constraints of young farmers. They also provide ancillary services such as weather updates, agronomic advice, and digital savings tools - delivered through channels young people already use, such as mobile phones and WhatsApp.

Yet, this transformation is neither automatic nor evenly distributed. The review shows that while a handful of platforms (e.g., ThriveAgric, Crop2Cash) are gaining traction, many are still in pilot stages, with limited scalability, regulatory uncertainty, and trust deficits among youth users. Moreover, gender, geography, and digital literacy remain key axes of exclusion. Young women, in particular, are often left behind in both fintech and agriculture innovation ecosystems.

Evidence from case studies and empirical literature indicates that youth-specific agri-fintech solutions can lead to measurable improvements in productivity, income, financial inclusion, and resilience - but only when product design, delivery, and policy are intentionally inclusive.

In essence, agri-fintech is not just about digital tools; it is about rethinking the design and governance of rural finance systems. To harness this opportunity, stakeholders must move beyond pilot enthusiasm toward ecosystem-level innovation-blending technology with policy reform, local knowledge, and youth participation.

POLICY IMPLICATIONS

The results of this review highlight clear policy entry points for scaling agri-fintech solutions that genuinely serve young Nigerian farmers. It is evident that technological innovation alone is

insufficient; enabling policies, coordinated governance, and inclusive infrastructure are essential to support fintech adoption, mitigate risks, and ensure equitable outcomes - especially for marginalized youth.

1. Mainstream Youth in Agricultural Finance Policy

Most agricultural finance policies in Nigeria (e.g., NIRSAL, Anchor Borrowers Programme) mention “youth” but lack implementation mechanisms tailored to youth realities - like flexible credit terms, land access support, or literacy-based digital tools. Without youth-specific incentives and design, policies risk replicating exclusionary patterns.

2. Regulation of Agri-Fintech Requires Modernization

Nigeria’s fintech regulation remains fragmented across institutions like the Central Bank of Nigeria (CBN), National Information Technology Development Agency (NITDA), and Securities and Exchange Commission (SEC). Many promising startups operate in regulatory grey zones. There is a need to:

Establish light-touch regulatory sandboxes for agri-fintech innovation.

Provide clear pathways for licensing digital lenders, agri-insurtech firms, and youth cooperatives.

Align data privacy regulations with financial inclusion goals.

3. Infrastructure is a Prerequisite

Fintech cannot reach rural youth without:

Mobile connectivity in last-mile regions,

Stable electricity, and

Digital ID systems (e.g., integration of NIN, BVN for remote onboarding).

Without this infrastructure, exclusion will persist despite innovative solutions.

4. Public-Private Partnerships (PPP) Are Essential

Government must partner with:

Telcos (for USSD delivery and zero-rating agri-finance apps),

Fintechs (for inclusive product design),

Agricultural cooperatives and youth groups (for trust and last-mile delivery).

PPP models that blend public capital with private innovation will be key to scalability.

5. Gender-Sensitive Frameworks Are Lacking

Current frameworks do not adequately address the intersection of gender and youth. Policies must disaggregate youth by sex and geography, ensure that platforms are accessible to female farmers, and invest in women-led agri-fintech innovation.

RECOMMENDATIONS

For Policymakers

Develop a National Youth Agri-Finance Strategy, aligned with Nigeria's Digital Economy and Agricultural Transformation plans.

Establish rural fintech innovation hubs, co-funded with the private sector, to test and scale solutions.

Expand CBN's Development Finance guidelines to include a special window for youth-led cooperatives using digital financial records instead of physical collateral.

For Agri-Fintech Developers

Design offline-accessible platforms using USSD and voice interfaces.

Develop loan products aligned with crop seasons, harvest cycles, and youth cash flow patterns.

Use gamification and peer referral systems to engage youth, especially in savings and repayment.

For Donors and Development Partners

Fund youth-led agri-fintech prototypes, particularly from underserved regions and marginalized groups.

Invest in capacity-building programs for young farmers on digital literacy, financial management, and platform use.

Support longitudinal research and data systems to evaluate what works, where, and for whom.

For Universities and Research Institutions

Establish interdisciplinary research labs focused on digital agriculture, fintech, and youth livelihoods.

Embed design thinking and fintech innovation in agricultural education curricula.

Conduct impact assessments and behavioral experiments to generate data for policy feedback.

For Youth Cooperatives and Farmer Associations

Aggregate demand to improve negotiation power with fintech platforms.

Act as onboarding and training nodes for digital financial tools.

Build partnerships with agri-fintech firms to co-create inclusive products based on real-world needs.

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