

## Financial Inclusion in Agriculture: Access to Credit, Digital Services, and Farmer Empowerment in India

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### SUMMARY

Financial inclusion in agriculture represents transformative framework integrating banking services, digital payment systems, formal credit facilities, and insurance mechanisms to expand rural farmers' access to financial resources enabling productive investment and income stability. Agriculture's critical role supporting 45% of India's workforce and 18% of national GDP necessitates comprehensive financial infrastructure ensuring credit availability, risk management, and secure savings mechanisms for farming communities. Pradhan Mantri Jan Dhan Yojana (PMJDY) has established foundational banking access with 55.98 crore beneficiaries reaching underbanked populations in rural and semi-urban areas, with 65% account holders in non-metropolitan regions. Pradhan Mantri Kisan Credit Card (PM-KCC) scheme provides short-term agricultural credit up to ₹5 lakh at subsidized interest rates averaging 4% under Modified Interest Subvention Scheme (MISS), with agricultural lending reaching ₹25.1 lakh crore in FY2024, exceeding targets by 25%. Digital financial infrastructure including AEPS (Aadhaar-Enabled Payment System), UPI, mobile banking, and FinTech platforms reduces transaction costs by 20-30% while democratizing financial services accessibility. Strategic government interventions including capacity building through 2,400 Centers for Financial Literacy, fintech-government scheme integration, cooperative strengthening, and targeted subsidy programs can expand formal financial service access ensuring agricultural credit availability, risk protection, and economic empowerment across India's diverse farming communities.

### INTRODUCTION

India's 160-million-hectare agricultural sector employs approximately 145 million farmers generating food security and rural livelihoods critical to national development objectives. Despite agriculture's economic significance, rural finance remains characterized by substantial access gaps with approximately 60% of rural households historically relying on informal credit sources including informal moneylenders, trader advances, and family borrowing networks. Informal credit systems impose financial distress through exploitative interest rates exceeding 30-40% annually, perpetuating agricultural indebtedness and constraining productive farm investment. The transformation requires integrated deployment of banking infrastructure expansion, formal credit mechanism development, digital financial technology integration, farmer awareness and capacity building, and targeted subsidy programs reducing access barriers. Government policy framework including PMJDY, PM-KCC, Kisan Rin Portal, and digital financial inclusion initiatives demonstrates institutional commitment to systematic financial inclusion. Understanding financial inclusion's mechanisms, implementation outcomes, adoption barriers, and scaling pathways provides critical perspective on building inclusive agricultural financial systems supporting farmer prosperity and agricultural sector sustainability across India's diverse farming communities.

### Financial Inclusion Mechanisms and Policy Frameworks

#### Banking Infrastructure and Account Access Expansion

Pradhan Mantri Jan Dhan Yojana, launched August 2014, represents foundational financial inclusion initiative providing universal banking access to previously unbanked populations. PMJDY has established 55.98 crore beneficiary accounts with aggregate deposits exceeding ₹2.3 lakh crore, with Direct Benefit Transfers of ₹39 lakh crore enabling 327 government scheme disbursements. Rural and semi-urban account holders constitute 65% of beneficiaries reflecting geographical inclusion focus. Women farmers represent more than 50% of account holders demonstrating inclusive gender participation. Basic Savings Bank Deposit (BSBDA) accounts provide zero-balance account access, free fund transfers, and accidental insurance coverage enabling poor farmer participation irrespective of minimum deposit requirements. Account activation through regular deposit patterns and financial literacy initiatives strengthens account utility beyond nominal membership.

## Formal Agricultural Credit Systems and Subsidy Mechanisms

Pradhan Mantri Kisan Credit Card (PM-KCC) scheme provides comprehensive short-term and medium-term agricultural credit up to ₹5 lakh at concessional interest rates, with Modified Interest Subvention Scheme (MISS) reducing farmer borrowing costs to 4% through interest subsidy provision. Kisan Rin Portal digitizes interest subvention claim processing ensuring transparent and timely loan disbursement verification. Agricultural credit delivery through scheduled commercial banks, regional rural banks, and cooperative institutions reached ₹25.1 lakh crore in FY2024, exceeding government targets by 25% reflecting enhanced institutional credit flow. Simplified PM-KCC application procedures through bank branches, primary agricultural cooperatives, and digital platforms reduce documentary requirements and processing delays. Crop insurance linkage through Pradhan Mantri Fasal Bima Yojana (PMFBY) integrated with PM-KCC provides comprehensive risk management protecting farmer income against production losses.

## Digital Financial Services and FinTech Integration

Digital payment infrastructure including Aadhaar-Enabled Payment System (AEPS), Unified Payments Interface (UPI), and mobile banking platforms reduce transaction costs by 20-30% while eliminating geographic access barriers. AEPS enables biometric authentication-based fund transfers without physical debit cards, particularly benefiting illiterate or semi-literate farmers. UPI-based payments facilitate direct input supplier transactions, government subsidy receipts, and market payments reducing cash handling and counterparty risks. Mobile banking applications provide account balance inquiry, fund transfers, and bill payments accessible through basic smartphones, democratizing financial service access. FinTech startup integration with government schemes enables digital credit assessment, alternative credit scoring mechanisms beyond traditional collateral requirements, and customized agricultural loan products. Digital insurance platforms offer crop insurance enrollment, claim documentation, and settlement processing through mobile interfaces reducing information asymmetries and processing costs.

## Financial Literacy and Capacity Building Programs

Centers for Financial Literacy (CFLs) numbering over 2,400 provide systematic farmer training in banking services, formal credit mechanisms, digital payment platforms, insurance principles, and financial planning. Basic financial management training including savings discipline, loan repayment discipline, and portfolio diversification strengthens farmer financial capability. Digital literacy programs addressing smartphone operation, mobile banking interface navigation, and online transaction authentication enable confident digital financial service utilization. Farmer producer organization training in collective financial management, cooperative lending principles, and group guarantee mechanisms enhances organizational financial inclusion capacity.

## Implementation Framework and Financial Inclusion Outcomes

Implementation strategy begins with baseline assessment identifying unbanked populations, financial service gaps, and farmer credit constraints. Account opening campaigns through bank branches, primary agricultural cooperatives, and mobile banking units enable rapid financial service access. Simplified documentation procedures including Aadhaar-based electronic Know Your Customer (eKYC) reduce enrollment barriers and processing delays. Phased credit introduction through targeted PM-KCC promotion and agricultural lending by cooperatives establishes farmer confidence in formal credit systems. Digital infrastructure development including mobile money service points, business correspondent banking, and ATM expansion strengthens financial service accessibility in remote areas. Adoption outcomes demonstrate substantial financial inclusion advancement. Formal credit access increased by 35-40% among previously informal-credit-dependent farmers through PM-KCC and institutional lending expansion. Digital payment adoption among farmers increased by 60-70% within two years of platform introduction reducing cash dependency and transaction costs. Insurance coverage through formal mechanisms increased by 30-35% as farm credit linkage integrated risk protection with credit provision.

## Adoption Challenges and Enabling Factors

Financial inclusion adoption faces substantial barriers constraining broader farmer participation and service utilization intensity. Digital literacy deficits among elderly and traditional farming communities limit technology adoption despite digital platform availability. Internet connectivity limitations in remote areas restrict mobile banking and digital payment platform access. Low financial awareness regarding formal credit benefits and insurance protection perpetuates informal credit dependency despite superior subsidy terms in formal systems. Historical farmer distrust of formal banking institutions from past negative experiences and

high loan rejection rates constrains credit seeking behavior. Regional rural bank scarcity in remote districts limits physical banking service accessibility despite digital infrastructure development. Weak farmer producer organizations limit collective action capacity required for cooperative lending and group guarantee mechanisms. Strategic enabling factors strengthen financial inclusion momentum. Cooperative institution strengthening through technical training and digital infrastructure investment enhances member lending capacity and account mobilization. Business correspondent networks utilizing local retailers and post offices extend banking service accessibility to remote villages reducing access barriers. Mobile banking unit deployment in periodic market gatherings enables convenient account opening and financial transactions. Agricultural extension system integration with financial literacy training ensures farmer awareness reaches through familiar extension channels. Digital payment merchant network development through input suppliers and output buyers creates transaction demand strengthening digital payment platform utilization.

## CONCLUSIONS

Financial inclusion in agriculture represents essential transformation pathway enabling farmer access to formal credit, digital financial services, and insurance protection critical for agricultural productivity and income stability. Integration of banking infrastructure expansion through PMJDY, subsidized formal credit through PM-KCC, digital payment systems including AEPS and UPI, and comprehensive financial literacy programs provides multi-faceted inclusion strategy addressing rural farmer financial needs. Government policy commitment through National Mission for Financial Inclusion and strategic investments in financial service accessibility demonstrate sustained institutional engagement with inclusive financial system development. Implementation outcomes including 55.98 crore PMJDY beneficiaries, ₹25.1 lakh crore agricultural credit delivery exceeding targets by 25%, reduced borrowing costs by 15-25%, and 35-40% formal credit access increase demonstrate financial inclusion's substantial development impact. Financial Inclusion Index progression to 67 in 2025 reflecting 24.3% improvement since 2021 indicates accelerating inclusive financial system development. Financial inclusion in agriculture represents critical pathway toward farmer economic empowerment, agricultural sector sustainability, and rural prosperity ensuring formal financial system access, credit availability, risk protection, and income security across India's diverse farming communities contributing substantially to national food security and development objectives.

## REFERENCES

Das, A., and Patnaik, N. M. (2020). Innovations in agricultural credit disbursement and payment systems for financial inclusion in rural India. *International Journal of Current Microbiology and Applied Sciences*, 9(2), 11-18.

Nithyashree, R., and Vallabhaneni, M. (2023). A study on the role of financial services in the financial inclusion of farmers. *Saudi Journal of Business and Management Studies*, 8(6), 113-117.

Raghi, T., and Boniface, P. J. (2022). Financial inclusion among farmers through electronic banking. *Journal of Financial Services*, 14(4), 98-112.