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## Credit Risk Management in Agriculture

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### Credit Risk Management in Agriculture

Safeguarding Farmers and Financial Stability by Agriculture is often described as the backbone of many developing economies, yet it remains one of the most vulnerable sectors when it comes to financial risks. Among these, credit risk—the possibility that borrowers may fail to repay loans—poses a significant challenge for both farmers and financial institutions. Managing this risk effectively is essential not only for the sustainability of agriculture but also for the stability of the broader financial system.

#### Why Credit Risk is High in Agriculture?

Unlike other sectors, agriculture is heavily dependent on external factors that are beyond human control. Unpredictable weather conditions, pest attacks, fluctuating market prices, and changing government policies all contribute to income instability for farmers. For instance, a sudden drought or flood can wipe out an entire crop, leaving farmers unable to repay their loans. This makes agricultural lending inherently riskier compared to industries with more predictable cash flows.

#### The Scale of the Challenge

Recent trends highlight the seriousness of the issue:

A significant portion of rural credit in developing countries is directed toward agriculture.

In India, agricultural loans account for a large share of priority sector lending.

Non-performing assets (NPAs) in agricultural loans tend to rise during periods of crop failure or economic stress.

These factors make it crucial for banks and policymakers to adopt strong credit risk management practices.

#### Key Components of Credit Risk Management

Effective credit risk management in agriculture involves a combination of assessment, monitoring, and mitigation strategies:

##### 1. Credit Assessment

Before granting loans, financial institutions evaluate the borrower's repayment capacity. This includes analyzing:

Landholding size

Crop patterns

Past credit history

Income sources

##### 2. Risk Diversification

Banks reduce risk by diversifying their loan portfolios across different regions, crops, and borrower categories. This ensures that losses in one area do not severely impact the overall system.

### 3. Use of Technology

Modern tools such as satellite imaging, weather forecasting, and digital credit scoring help in better risk assessment and monitoring. These innovations improve decision-making and reduce uncertainties.

### 4. Insurance Mechanisms

Crop insurance schemes play a vital role in protecting farmers against losses due to natural disasters. Insurance reduces the burden on both farmers and lenders.

## Government Initiatives and Support

Governments play a crucial role in managing agricultural credit risk. In India, several initiatives have been introduced:

Crop Insurance Schemes to protect against natural risks.

Interest Subvention Schemes to make loans affordable.

Priority Sector Lending norms to ensure credit flow to agriculture.

These measures aim to create a supportive environment for both farmers and financial institutions.

## Challenges in Implementation

Despite various measures, several challenges persist:

Lack of accurate and timely data on farmers

Dependence on informal credit sources

Limited financial literacy among farmers

Delays in insurance claim settlements

These issues reduce the effectiveness of risk management strategies.

## Evolution of Credit Risk Management (2016–2026)

Era / Year	Primary Data Sources & Methods	Key Analytical Focus	Risk Indicators (Example Trends)
2016 – 2018 (Post-Crisis Recovery)	Traditional scoring (FICO), historical financial statements, and manual credit audits.	Minimizing legacy Non-Performing Assets (NPAs) and implementing Basel III.	<b>High NPAs:</b> Global peaks in stressed assets (e.g., India's GNPA reached ~11.2% in 2018).
2019 – 2021 (Digital Transformation)	Inclusion of "Alternative Data" (utilities, mobile usage, social footprints). Machine Learning (ML) starts replacing static models.	Pandemic-driven stress testing and liquidity management.	<b>Volatility:</b> Sudden shifts in default risk; heavy reliance on government stimulus data.
2022 – 2024 (AI & ESG Integration)	Big Data analytics, real-time transaction monitoring, and ESG (Environmental, Social, Governance) risk scoring.	Climate risk modeling and the rise of Automated Decisioning Systems.	<b>Improvement:</b> Significant decline in NPAs (e.g., India's GNPA fell to ~2.8% by 2024) due to better risk tech.
2025 – 2026 (The AI & ECL Era)	<b>Generative AI (GenAI)</b> , Large Language Models (LLMs) for sentiment analysis, and Expected Credit Loss (ECL) frameworks.	Real-time predictive forecasting; managing "AI Model Risk" and algorithmic bias.	<b>Low NPAs:</b> Reaching 20-year lows (approx. 2.3%); focus shifts to "invisible" risks like cyber-fraud.

## The Way Forward

To strengthen credit risk management in agriculture, a more integrated approach is needed:

Expanding digital financial services in rural areas

Improving access to real-time data and analytics

Encouraging farmer awareness and financial education

Strengthening institutional frameworks for faster claim processing

## Conclusion

Credit risk management in agriculture is not just about protecting banks from losses—it is about ensuring that farmers have continued access to financial support without falling into debt traps. A well-balanced system that combines technology, policy support, and financial innovation can transform agricultural lending into a more secure and sustainable practice.

In the long run, managing credit risk effectively will be key to building a resilient agricultural economy and ensuring food security for millions.

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