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"Financial Proportions in Agricultural Insurance: Analyzing the Impact of PMFBY on Farmers"

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ABSTRACT

Agriculture remains the backbone of the Indian economy, with a significant portion of the population dependent on farming for livelihood. However, Indian agriculture is highly vulnerable to climate change, erratic rainfall, and financial instability, necessitating risk management mechanisms such as crop insurance. This study examines the awareness, perception, and adoption of agricultural insurance, particularly Pradhan Mantri Fasal Bima Yojana (PMFBY), among farmers in Shivamogga district, Karnataka. The study employs a mixed-method approach using primary data collected from 49 farmers and secondary data sources. The findings indicate that 75.5% of farmers are aware of crop insurance, with 71.4% having availed of PMFBY, primarily due to government support and financial incentives. However, challenges such as limited coverage options (34.7%), trust issues (24.5%), and data accessibility barriers (51.0%) hinder wider adoption. Additionally, 83.7% of respondents express satisfaction with PMFBY, yet concerns over claim settlement efficiency and policy flexibility persist. The study recommends enhanced awareness campaigns, improved accessibility, faster claim processing, and diversified risk mitigation strategies to improve the effectiveness of PMFBY. Strengthening government intervention and expanding policy coverage can ensure greater financial security and resilience for farmers.

Keywords: Crop Insurance, PMFBY, Financial Security, Risk Management.

INTRODUCTION

Agriculture is the backbone of the Indian economy, significantly contributing to employment generation and national income. The sector accounts for approximately 18% of India's Gross Domestic Product (GDP) and provides employment to nearly 50% of the workforce (Chand et al., 2017). India is one of the world's largest producers of pulses, rice, wheat, and spices, and its agricultural sector plays a crucial role in ensuring food

security and rural development. However, Indian agriculture remains highly vulnerable to climate variability, natural disasters, and market fluctuations, necessitating robust risk management mechanisms to safeguard farmer livelihoods (Government of India, 2016).

The Need for Agricultural Insurance in India

Agricultural production in India is highly dependent on monsoons, with frequent droughts, floods, and pest infestations affecting crop yields. The volatility of agricultural income, coupled with rising input costs and credit dependencies, makes crop insurance an essential financial instrument for farmers (Chand & Singh, 2017). The concept of agricultural insurance in India dates back to 1915, when J.S. Chakravarthi proposed a rainfall insurance scheme in the princely state of Mysore (Raju & Chand, 2008). Since then, various insurance programs have been introduced, such as the Comprehensive Crop Insurance Scheme (CCIS) in 1985, the National Agricultural Insurance Scheme (NAIS) in 1999, and most recently, the Pradhan Mantri Fasal Bima Yojana (PMFBY) in 2016 (Gulati et al., 2020). These schemes aim to stabilize farm incomes, reduce rural indebtedness, and encourage investment in modern farming techniques by providing financial protection against crop failures due to natural calamities and market uncertainties.

Challenges in Indian Agriculture and Crop Insurance

Despite the importance of crop insurance in financial risk management, its adoption in India remains limited due to multiple challenges. Structural issues such as small and fragmented landholdings, inadequate irrigation, and soil degradation have restricted agricultural productivity (Chand & Singh, 2017). Additionally, low farmer awareness, delays in claim settlements, and administrative inefficiencies continue to hinder the effectiveness of insurance schemes (Dev & Sharma, 2021). Moreover, high input costs, including seeds, fertilizers, and irrigation infrastructure, place a financial burden on small and marginal farmers, making insurance coverage crucial for their economic stability.

Pradhan Mantri Fasal Bima Yojana (PMFBY) and Its Financial Implications

The PMFBY, introduced in 2016, is India's flagship crop insurance scheme aimed at providing comprehensive risk coverage at affordable premium rates. The scheme is jointly funded by the central and state governments, ensuring low premium rates of 2% for Kharif crops, 1.5% for Rabi crops, and 5% for horticultural crops (Government of India, 2016). PMFBY has integrated satellite-based technology for yield assessment and automated claim processing, reducing fraud risks and increasing transparency in settlements (Gulati et al., 2020). However, delayed reimbursements, low farmer participation, and discrepancies in damage assessment continue to challenge its effectiveness. Analyzing the financial proportions of PMFBY is essential to assess its impact on economic resilience, debt reduction, and income stability among farmers.

OBJECTIVES OF THE STUDY

This study aims to analyze the financial implications of **PMFBY on Indian farmers**, focusing on:

1. Evaluating the economic viability of crop insurance in mitigating financial risks.
2. Examining the efficiency of claim disbursement and its impact on farmer livelihoods.
3. Identifying challenges in the implementation of PMFBY and proposing policy recommendations for improvement.
4. Assessing the role of crop insurance in enhancing access to rural credit and promoting farm investments.

SIGNIFICANCE OF THE STUDY

Agricultural insurance plays a pivotal role in stabilizing farm incomes, reducing financial distress, and promoting sustainable farming practices. A well-functioning insurance system can enhance financial security for farmers, improve access to institutional credit, and strengthen agricultural resilience against climate risks. By analyzing the financial proportions associated with PMFBY, this study aims to contribute to policy recommendations that enhance the efficiency, transparency, and reach of crop insurance schemes, ensuring long-term economic sustainability in Indian agriculture.

LITERATURE REVIEW

Raju and Chand (2008) examined crop insurance schemes, highlighting PMFBY's improved risk coverage and lower premiums compared to NAIS. However, issues like low farmer participation and claim delays remain. They recommend faster claim settlements and better transparency to enhance effectiveness.

Gulati et al. (2020) analyzed PMFBY's role in income stability and financial risk reduction. The study found delayed claims and state-wise disparities, affecting its success. They suggest using technology-driven loss assessment to improve efficiency.

Chand and Singh (2017) noted that while PMFBY's low premium structure benefits small farmers, trust issues and delayed payouts hinder adoption. They propose increased financial literacy and targeted incentives to boost participation.

Dev and Sharma (2021) found that insured farmers had better access to institutional credit, but premium subsidies often benefited private insurers more than farmers. They recommend direct benefit transfers and timely disbursements to enhance financial security.

METHODOLOGY

This study aims to analyze farmers' awareness and perception of Agricultural Insurance Schemes, with a specific focus on the Pradhan Mantri Fasal Bima Yojana (PMFBY) in Shivamogga district, Karnataka. A descriptive research design is adopted to assess farmers' awareness, satisfaction, and adoption of crop insurance schemes. The study considers farmers in Karnataka who are eligible for agricultural insurance as the target population. A random sampling technique was used to select 50 farmers from Shivamogga district, ensuring an unbiased representation of respondents. The findings of this study will provide valuable insights into the effectiveness, challenges, and potential improvements in the implementation of PMFBY.

DATA SOURCES

Primary Data

Data was collected using a structured questionnaire with open-ended, close-ended, and Likert-scale questions. Surveys were conducted through face-to-face interactions with farmers.

Secondary Data

Secondary data was obtained from government reports, research journals, newspapers, periodicals, and official websites related to agricultural insurance.

Data Analysis

Collected data was analyzed using quantitative and qualitative techniques to assess awareness levels, factors affecting participation, and implementation challenges.

RESULTS OF THE STUDY

The study on farmers' awareness and perception of Agricultural Insurance Schemes, particularly Pradhan Mantri Fasal Bima Yojana (PMFBY), in Shivamogga district, Karnataka, revealed key insights into adoption patterns, challenges, and satisfaction levels among farmers. The detailed tabular data supporting these findings is provided in the Appendix for reference.

Demographic Insights

- The majority of respondents (69.4%) were male, and most farmers (40.8%) were in the age group of 36-45 years, indicating that middle-aged individuals are more involved in agricultural insurance.
- 51.0% of respondents had a PUC-level education, reflecting moderate literacy, which may influence their understanding of insurance schemes.
- 79.6% of respondents were engaged in agriculture, demonstrating that the sample primarily represents the farming community.

Awareness and Adoption of Crop Insurance

- 75.5% of respondents were aware of crop insurance, with government agencies (67.3%) being the primary source of information.
- 71.4% had availed of crop insurance, mainly due to government support and financial incentives (20.4%).

Challenges in Adoption

- The primary barriers preventing adoption included limited coverage options (34.7%), trust issues (24.5%), and limited access to insurance providers (24.5%).
- The claims process and premium affordability were highlighted as concerns, with 26.5% of respondents being neutral on the settlement process.
- The biggest challenge in assessing crop insurance was limited access to data and records (51.0%), followed by a lack of knowledge (26.5%).

Perception of Scheme Effectiveness

- Government support (42.9%) was viewed positively, highlighting its critical role in promoting crop insurance.

- 83.7% of respondents were satisfied with crop insurance, but 38.8% expressed only normal satisfaction, suggesting room for improvement.
- 77.6% of respondents used crop insurance to mitigate weather-related risks, underscoring its importance in risk management.

Constraints Faced by Farmers

- 49% of farmers cited weather-related risks (drought, flood, etc.) as the most significant challenge in farming.
- Limited landholding (36.7%) and lack of market information (18.4%) were major constraints for smallholder farmers.
- 38.8% struggled with limited access to organic fertilizers and pesticides, impacting soil health and productivity.

Need for This Study

- Bridging the Awareness Gap: While awareness is relatively high (75.5%), knowledge gaps still exist, particularly regarding premium calculation, claims processing, and policy differences. More educational programs are needed to enhance farmers' understanding.
- Enhancing Insurance Accessibility: Limited coverage options and access to insurance providers are barriers to adoption. The expansion of insurance services in rural areas and digital access to policy information could increase participation.
- Improving Claim Processing and Transparency: Delayed or complex claim settlements remain a concern. Simplifying the claims process and ensuring timely payouts would increase farmer trust and satisfaction.
- Strengthening Risk Mitigation Strategies: While 77.6% rely on crop insurance for weather-related risks, complementary strategies like improved irrigation and crop diversification are necessary. Policymakers should integrate these solutions to enhance agricultural resilience.
- Policy Refinement and Farmer Support: Since 83.7% of farmers are satisfied, further refinements in policy coverage, affordability, and government intervention will ensure greater financial security and inclusivity for all farmers.

DISCUSSION

The study on farmers' awareness and perception of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Shivamogga district, Karnataka, provides key insights into adoption, challenges, and effectiveness of crop insurance. While PMFBY has contributed significantly to financial security, certain challenges remain that need to be addressed for its wider and more effective implementation.

Awareness and Adoption

75.5% of farmers are aware of crop insurance, with government agencies (67.3%) as the main information source, indicating the effectiveness of government outreach programs. 71.4% have availed insurance, but 28.6% have not, due to trust issues, limited access, and lack of awareness. The findings suggest that while PMFBY has gained traction, further awareness campaigns, farmer education initiatives, and transparent claim processes are essential to build greater trust and participation.

Challenges in Adoption

Limited Coverage (34.7%): Farmers feel PMFBY does not adequately cover all risks, requiring expansion of coverage to ensure more comprehensive financial protection. Trust Issues & Accessibility (24.5%): Concerns over claim transparency and limited availability of insurance providers highlight the need for easier access and grievance redressal mechanisms. Data Limitations (51.0%): The lack of comprehensive agricultural data makes it difficult for timely claim verification, delaying payouts.

Effectiveness & Satisfaction

83.7% are satisfied, but 38.8% have only moderate satisfaction, pointing to delays in claim settlements and inconsistent premium benefits. 77.6% use crop insurance as a risk mitigation tool, yet additional support measures such as irrigation improvements and climate-adaptive farming techniques are necessary to enhance long-term agricultural resilience. Timely claim settlements, better premium structuring, and increased farmer participation in policy design could further improve satisfaction levels.

Agricultural Constraints

Weather-related risks (49%): Droughts, floods, and erratic climate conditions remain a major challenge, making insurance a crucial tool for risk mitigation. Limited landholding (36.7%) and lack of market access (18.4%) restrict profitability and economic sustainability for smallholder farmers.Soil degradation & lack of organic inputs (38.8%) negatively impact productivity, highlighting the need for sustainable farming practices.

RECOMMENDATIONS

1. Increase Awareness: Strengthen training programs, digital outreach, and grassroots initiatives to improve farmers' understanding of insurance benefits.
2. Enhance Accessibility: Expand mobile-based enrollment and rural insurance service centers to make the process easier for farmers.
3. Improve Claim Settlements: Ensure faster, more transparent, and hassle-free claim disbursement to build trust in the scheme.
4. Promote Risk Mitigation: Encourage diversified cropping, better irrigation facilities, and climate-resilient farming methods to reduce reliance on insurance payouts.
5. Strengthen Policy & Government Support: Ensure affordable premiums, wider coverage, and increased policy flexibility to cater to different farm sizes and crop types.

CONCLUSION

While PMFBY has been effective in providing financial protection, improving awareness, accessibility, and claim efficiency will enhance its reach and trustworthiness among farmers. Addressing broader agricultural challenges, including climate risks, land constraints, and market access, will ensure sustainable financial security and resilience for farmers. Future research should compare regional effectiveness and farmer experiences to further refine policy interventions and tailor insurance schemes to diverse farming needs.

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APPENDIX

Appendix A: Classification of Respondents

Table A1: Classification of Respondents by Gender

Gender	No of Respondents	Percentage (%)
Male	34	69.4
Female	15	30.6
Total	**49**	**100.0**

Table A2: Classification of Respondents by Age

Age Group	No of Respondents	Percentage (%)
Below 25 Years	1	2.0
26 to 35 Years	13	26.5

36 to 45 Years	20	40.8
Above 46 Years	15	30.6
Total	**49**	**100.0**

Appendix B: Awareness and Adoption of Crop Insurance

Table B1: Awareness of Crop Insurance

Awareness Status	No of Respondents	Percentage (%)
Aware	37	75.5
Not Aware	12	24.5
Total	**49**	**100.0**

Table B2: Availing of Crop Insurance

Availed Crop Insurance	No of Respondents	Percentage (%)
Yes	35	71.4
No	14	28.6
Total	**49**	**100.0**

Appendix C: Challenges in Crop Insurance Adoption

Table C1: Reasons for Positive Opinion on Crop Insurance

Reason	No of Respondents	Percentage (%)
Government Support & Incentives	10	20.4
Financial Stability	9	18.4
Investment and Planning	9	18.4
Risk Mitigation	5	10.2
Disaster Relief Complement	2	4.1
No Response	14	28.6
Total	**49**	**100.0**

Table C2: Reasons for Not Availing Crop Insurance

Reason	No of Respondents	Percentage (%)
Lack of Awareness	2	4.1
Trust Issues	6	12.2
Government Support & Interventions	4	8.2
No Response	35	71.4
Total	**49**	**100.0**

Appendix D: Perception of Scheme Effectiveness

Table D1: Satisfaction with Crop Insurance

Satisfaction Level	No of Respondents	Percentage (%)
Highly Satisfied	6	12.2
Satisfied	15	30.6
Neutral	19	38.8
Dissatisfied	1	2.0
No Response	8	16.3
Total	**49**	**100.0**