

Awareness, Perception and Adoption of Crop Insurance Among Rural Farmers in Karnataka: An Empirical Assessment of Agricultural Risk Protection

Arshad Khan

Research Scholar, DoS in Economics and Cooperation, Manasagangothri, University of Mysore, Mysuru - 560006

Dr.S. Mahendra Kumar (Rtrd)

Professor, DoS in Economics and Cooperation Manasagangothri, University of Mysore, Mysuru- 570006

ABSTRACT

Agricultural production in Karnataka is exposed to weather variability, crop losses and associated income uncertainties, making crop insurance an important component of agricultural risk protection. Against this background, the present study examines awareness, perception and adoption of crop insurance among rural farmers in Karnataka through a secondary-data-based empirical framework. The analysis synthesizes evidence from official Pradhan Mantri Fasal Bima Yojana (PMFBY) administrative statistics, Government of India parliamentary and policy documents, the Karnataka-specific uptake assessment prepared by the Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change, and peer-reviewed empirical studies. The analysis focuses on three connected dimensions of agricultural risk protection: awareness of crop-insurance provisions, perception of insurance value and implementation experience, and actual adoption and coverage reflected in administrative enrolment. The evidence indicates that Karnataka has experienced substantial expansion in crop-insurance participation over the PMFBY period, with farmer applications under PMFBY/RWBCIS increasing from 19.45 lakh in 2019–20 to 30.15 lakh in 2023–24, while official data for 2018–19 and 2022–23 show an increase in insured area from 17.41 lakh hectares to 22.52 lakh hectares. Secondary evidence further highlights the importance of farmers' understanding of premium deductions, coverage conditions and claim procedures in shaping engagement with crop insurance. Perceptions are associated with the visibility of benefits, clarity of procedures, claim settlement experience and institutional communication. The findings establish awareness, perception and adoption as related and analytically distinct dimensions of agricultural risk protection and demonstrate that the effectiveness of crop insurance in Karnataka is associated with both the scale of enrolment and farmers' understanding and confidence in the insurance process.

Keywords: crop insurance; awareness; perception; adoption; PMFBY; rural farmers; Karnataka; agricultural risk protection.

1. Introduction

Agriculture in India is subject to a variety of risks that include rain variability, droughts, floods, pests and disease among others. Crop insurance is a system that seeks to mitigate the financial implications of the above risks by sharing some of the production risk with an insurance system. With the above definition in mind, it should be noted that the Pradhan Mantri Fasal Bima Yojana (PMFBY), which started in Kharif 2016, is a major institutional arrangement in India's risk management strategy in agriculture (Aditya et al., 2023; Pradhan Mantri Fasal Bima Yojana, 2026a). Through this system, farmers can protect their crops through an area-based insurance program, where farmer premiums are subsidised, and where the farmer premium rate is not more than 2 percent for Kharif food and oilseeds, 1.5 percent for Rabi food and oilseeds and 5 percent for annual commercial and horticultural crops under the scheme (Ministry of Agriculture and Farmers Welfare, 2023).

The state of Karnataka constitutes an important environment for analyzing the issue of participation in crop insurance because the agricultural activities in the state are affected by large amounts of variability in weather patterns, as well as the implementation of the KRS-PMFBY scheme in the state (Suresh & Sreedaya, 2022). Policy documents regarding agriculture from the government of Karnataka point out that crop insurance can be a mechanism to offer financial assistance to farmers who suffer losses due to unfavorable climatic conditions in notified crops (Kumari et al., 2025). The state of Karnataka has been developing systems and tools for enrollment, monitoring and claiming progressively. The official database of the PMFBY administrative system documents application, insured area, premium, sum insured, claims and benefits of farmers at the state and district levels.

Nevertheless, numerical enrollment alone cannot offer a full picture of the crop insurance program's effectiveness (Agale et al., 2023). A farmer may be enrolled without understanding what the scheme entails, the premium collected, the insured risks, the insurance unit, or the mechanism behind the claim determination process. The case study conducted in Karnataka region on the crop insurance uptake by Maruthi demonstrates this difference. The evidence obtained in Bidar, Kalaburagi, and Hassan reveals that some of the farmers, including loanee farmers, lacked full understanding of the PMFBY scheme even if they had been enrolled.

Latest national evidence reiterates the significance of differentiating between participation and effective demand. (Biswal & Bahinipati, 2025; Ministry of Agriculture and Farmers Welfare, 2021), based on data from the 70th and 77th rounds of the National Sample Survey Office surveys of agricultural households combined with Agricultural Insurance Company of India and PMFBY data, find that crop-insurance adoption is limited and heterogeneous between states and farmer categories. Institutional capacity, characteristics of landholdings and socio-economic heterogeneity emerge as crucial components of participation in the case. Such national-level evidence serves as a benchmark for interpreting the Karnataka experience.

Studies of Karnataka similarly illustrate that farmers' perceptions are not defined only by the presence of insurance. Cariappa et al. (2019), for instance, find that drought history, education, farm size, income and other variables distinguished insured farmers from uninsured in their Karnataka sample, whereas lack of awareness, premium paying capacity and lack of trust emerged as impediments (Cariappa et al., 2019). Low awareness and issues with claims, loss assessment and implementation were found by Nayak et al. in their North Karnataka study. These studies provide valuable secondary empirical evidence, but their individual samples cannot be used as the sample of the current study ("Protecting Land and Livelihood Under Climate Risks," 2023).

The current research thus adopts a purely secondary data based methodology. It does not seek to conduct another farmer survey; rather its aim is to bring together administrative data, evaluation findings, and empirical literature in one analysis of awareness, perceptions and adoption in Karnataka (MANAGE, 2023). The advantage of this methodology is that while administrative data contain information on actual enrolments, evaluation findings and literature have details of what enrolments mean for the farmers (Ministry of Agriculture & Farmers Welfare, 2021; Ministry of Agriculture and Farmers Welfare, 2024a; Ministry of Agriculture and Farmers Welfare, 2024b).

1.1 Research Problem

This research problem arises from the discrepancy between the increase in the number of people subscribing to crop insurance cover and the factors of awareness, perception, and uptake among the farmers regarding the use of the insurance scheme. An increase in the number of applications made does not necessarily mean that the farmers are aware of the scheme, consider it credible, and are voluntarily adopting it based on rational risk management decisions. On the other hand, a low or varying subscription rate does not necessarily indicate low demand since uptake is determined by factors like institutional credit, design of the scheme, notification, choice of crop, payment of premium and adverse weather conditions.

1.2 Objectives of the Study

- To examine the evolution of crop-insurance adoption and coverage in Karnataka using official secondary statistics.
- To assess the available secondary evidence on farmers' awareness of PMFBY provisions and procedures in Karnataka.
- To analyse the reported perceptions, implementation experiences and barriers associated with crop insurance among rural farmers in Karnataka.
- To integrate awareness, perception and adoption evidence into a coherent framework of agricultural risk protection.
- To identify the principal institutional and informational factors that shape the effectiveness of crop insurance in the Karnataka context.

1.3 Contribution of the Study

The novelty of the study includes the integration of three distinct sources of evidence that tend to be analyzed separately, which include administration data on enrolments, secondary data on awareness and perception, and empirical evidence from adoption in the national or regional context of Karnataka. The methodological contribution of the paper consists of the separation of administrative measures and survey measures into two separate categories, thus ensuring that the administrative count of applications is not taken as equal to the count of farmers who have full awareness or perception of the scheme.

2. Review of Literature

In the literature review section, the researcher outlines the current research and theoretical viewpoints regarding the study area. This section contains research gaps, trends, and findings that serve as a base for the current research. The existing literature on crop insurance has examined agricultural risk, farmer awareness, perceptions, implementation experiences, and adoption patterns. The reviewed studies have provided important evidence on the factors influencing crop-insurance participation, particularly in the Indian and Karnataka contexts.

2.1 Crop Insurance and Agricultural Risk

The concept of crop insurance has been discussed in the literature as an effective tool to lower the vulnerability of farmers with regard to the unpredictability in crop production. Literature on this subject has focused on the role of crop insurance in ensuring protection of farmer income from weather hazards and risks related to crop production, especially among those families of farmers that do not have other avenues to manage risk.

Santhoshkumar et al. (2021) reviewed the implementation of Pradhan Mantri Fasal Bima Yojana (PMFBY) in India and highlighted the critical problems faced during the process of crop insurance. According to their study, the program had successfully improved the institutions of crop insurance in India. However, some of the critical factors like late claim settlement, complexity, and lack of awareness about crop insurance still remained problematic. The findings of the study indicate that the success of crop insurance is not only based upon its availability but also on its implementation (Santhoshkumar et al., 2021).

Biswal and Bahinipati (2025) analyzed the need for crop insurance in India based on survey data of agriculture households from NSSO 70th and 77th rounds, together with information on the insurance sector and the PMFBY scheme. This research found that there were low rates of participation in crop insurance schemes and significant variations in participation among states and different groups of farmers. It was further revealed that the participation of small and marginal farmers had been relatively restricted and that institutional factors had been a critical determinant in insurance participation (Biswal & Bahinipati, 2025).

2.2 Awareness of Crop Insurance

Awareness has emerged as an important variable in terms of involvement in crop insurance by farmers. Literature has identified that there is a distinction between awareness about insurance and scheme knowledge with respect to the premium, eligibility, and other issues.

Maruthi (2018–19) investigated the implementation of PMFBY in certain districts of Karnataka and studied farmers' awareness and understanding of the scheme. It was found out that 23 percent of the total respondents who borrowed from banks for agricultural purposes in the district of Bidar and about 20 percent in the district of Kalaburagi mentioned that they had no idea about the existence of PMFBY scheme. Moreover, there were also farmers who did not know that insurance premium had already been deducted from the amount of money they had borrowed. It became clear that institutional enrollment does not mean the awareness about the insurance scheme provisions (Maruthi, 2018–19).

Nayak et al. (2020) examined the outreach of agricultural insurance in North Karnataka and looked into the experience of farmers with the provision of insurance. They found that there is low awareness of crop insurance and delay in claim settlement, problems in assessing losses, and other procedural problems as major barriers. This showed that awareness is strongly linked with farmers' capacity to comprehend the insurance system. Therefore, the researchers argued that awareness should be considered as a separate dimension for studying crop insurance participation (Nayak et al., 2020).

In summary, from the literature reviewed, it is clear that awareness, perception, and adoption are interrelated yet distinct concepts concerning crop insurance enrollment. Awareness is related to farmers' information regarding insurance terms, perception relates to their evaluation of the effectiveness and implementation of insurance policies, whereas adoption refers to participation in the schemes. In addition, it is evident from the literature that there is considerable diversity in the case of farmers in Karnataka. However, in the existing research, much emphasis has been laid on individual studies, selected districts, and aspects of insurance enrollment.

2.3 Research Gap

The reviewed literature has established the importance of crop insurance in reducing farmers' exposure to agricultural production risks and has examined implementation, awareness, and participation from different perspectives. However, the existing evidence remains fragmented across agricultural risk, awareness, and adoption dimensions. Santhoshkumar et al. (2021) focused primarily on PMFBY implementation and highlighted issues related to claim settlement, procedural complexity, and awareness, while Biswal and Bahinipati (2025) examined crop-insurance participation using national-level agricultural household evidence and identified variations across states and farmer groups. Karnataka-specific evidence from Maruthi (2018–19) demonstrated gaps between institutional enrolment and farmers' detailed knowledge of scheme provisions, whereas Nayak et al. (2020) highlighted awareness constraints, claim-settlement delays, and loss-assessment issues in North Karnataka. Despite these contributions, the existing studies have largely examined individual dimensions or selected geographical areas separately, creating limited integrated evidence on how awareness, perception, adoption, and agricultural risk protection can be examined together in the Karnataka context. Furthermore, administrative indicators such as farmer applications and insured area and farmer-oriented evidence on awareness and implementation experience are derived from different sources and therefore require systematic synthesis. The present study addresses this gap by integrating secondary evidence on awareness, perception, adoption, and agricultural risk protection to provide a consolidated assessment of crop-insurance participation among rural farmers in Karnataka.

3. Conceptual and Analytical Framework

The research has operationalized agricultural risk insurance as a series of interconnected yet distinct dimensions. Awareness refers to the level of information that the farmers possess; perception refers to their assessment of the quality, cost, credibility, and reliability of the insurance; and adoption refers to observable use of crop insurance programs. Institutional access, agricultural credit, risk exposure, experience with claims, premium structure, extension communications, and administration are among the contextual factors affecting the dimensions.

Table 1. Analytical dimensions and secondary indicators

Dimension	Secondary indicators used in the study	Interpretive role
Awareness	Knowledge of PMFBY; knowledge of premium deduction; knowledge of covered crops/risks; awareness of procedures; information sources	Measures the extent to which enrolment is accompanied by substantive scheme knowledge
Perception	Reported views on usefulness, claim settlement, transparency, affordability, procedural clarity and institutional performance	Captures how farmers evaluate the insurance mechanism
Adoption	Farmer applications enrolled; insured area; participation across years; loanee/non-loanee participation where reported	Represents observable insurance participation
Risk protection	Sum insured; claims paid; farmer benefits; insured area	Indicates financial scale and operational reach
Institutional context	Bank/credit linkage, notification, information channels, implementation arrangements, claim procedures	Explains differences in observed participation and experience

The theory purposely avoids causality because the study lacks a longitudinal dataset at the level of individual farmers to link awareness, perception and adoption. Hence, it does not seek to make any causal links between the above concepts. Rather, it relies on finding patterns and discontinuities from triangulated secondary information.

4. Research Methodology

The methodology explains the systematic process employed to analyze the objectives of the study through the use of secondary data sources. This section outlines the sources of data, analysis framework, variables, and the methods used to measure the awareness, perception, and adoption of crop insurance.

4.1 Research Design

The study uses the descriptive and analytical secondary data approach to analyze crop insurance awareness, perception, usage, and agricultural risk protection in Karnataka. The research utilizes information from various sources including the administration's official data, government evaluation reports, parliamentary annexes, institutions' research reports, and empirical studies published in scholarly journals.

4.2 Data Sources

- Admin dashboard and statistical information related to Pradhan Mantri Fasal Bima Yojana including applications, insured area, premium, sum insured, claims, and farmer-benefits data.
- Government of India parliamentary papers and ministerial reports on applications, insured area, sum insured and claims under PMFBY/RWBCIS scheme on a state-wise basis.
- The Karnataka state specific document 'Uptake Analysis of Pradhan Mantri Fasal Bima Yojana in Karnataka' authored by Dr. I. Maruthi from the Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change.
- Published peer-reviewed studies on adoption, awareness, perception, and implementation of crop insurance in India and Karnataka.
- Research data based on nationally representative agricultural household surveys including NSSO 70th & 77th round data analyzed by Biswal and Bahinipati (2025).

4.3 Study Period

Regarding the administration period, the main period of comparison is between 2019-20 and 2023-24 since the official records available are consistent for farmers' claims for Karnataka over five years. For the financial indicators, the years 2018-19 and 2022-23 have been considered when there is an official record for the respective parliamentary period for area, sum insured, and claim payment values. The earlier evidence from Karnataka for 2015-16 to 2017-18 has been utilized for identifying the trajectory prior to PMFBY. Awareness/perception-related data have been taken from the year of publication and the study period.

4.4 Variables and Measures

Primary indicator for adoption includes number of farmer applicants taken under PMFBY/RWBCIS. Secondary indicators for adoption are insured area, sum insured, and claims paid. For awareness, the indicators include awareness of PMFBY scheme, premium deduction, terms and conditions of scheme, and sources of information. Perceptions include perceptions of usefulness of scheme, claim payment, transparency of process, and trust in procedure. In addition to this, institutional factors including borrower and non-borrower enrollment, credit linkages, and experience of claims are analyzed whenever mentioned in secondary sources.

4.5 Analytical Techniques

- Trend analysis of Karnataka farmer applications over 2019–20 to 2023–24.
- Percentage change between selected benchmark years.
- Compound annual growth rate (CAGR) for the five-year application series.
- Comparison of insured area, sum insured and paid claims between 2018–19 and 2022–23.
- Evidence synthesis across awareness, perception and adoption studies.
- Source triangulation to distinguish administrative facts from farmer-reported evidence.

The CAGR for the application series is calculated as $[(\text{Ending value}/\text{Beginning value})^{(1/n)} - 1] \times 100$, where n represents the number of annual intervals. The study does not apply regression, factor analysis, structural equation modelling or hypothesis testing because the available secondary sources do not provide one harmonised farmer-level dataset containing all study variables.

5. Results and Empirical Analysis

This section discusses the empirical findings obtained from the existing secondary data in relation to the trends in the awareness, perception, and adoption of crop insurance as well as agriculture risk management in Karnataka.

5.1 Evolution of Farmer Applications in Karnataka

Table 2 shows that according to official figures provided by the Government of India, there is a drop in the number of farmers' applications from 19.45 lakh in 2019-20 to 15.88 lakh in 2020-21, after

Table 2. Karnataka farmer applications under PMFBY/RWBCIS, 2019–20 to 2023–24

Financial year	Farmer applications enrolled	Annual change
2019–20	19,45,207	—
2020–21	15,87,801	–18.41%
2021–22	19,17,808	+20.77%
2022–23	26,84,781	+40.00%
2023–24	30,15,023	+12.30%

which there is an increase that remains steady at 19.18 lakh in 2021-22, 26.85 lakh in 2022-23 and 30.15 lakh in 2023-24. In total, during the five years, 2019-20 to 2023-24, the number of applications has grown by around 54.

5.2 Insured Area, Sum Insured and Claims

Table 3 shows that parliamentary figures reveal that the area under insurance in Karnataka grew from 17.41 lakh hectares in 2018-19 to 22.52 lakh hectares in 2022-23, while sum assured rose from ₹8,721.59 crore to ₹11,071.61 crore.

Table 3. Selected Karnataka PMFBY indicators: 2018–19 and 2022–23

Indicator	2018–19	2022–23	Change
Area insured	17.41 lakh ha	22.52 lakh ha	+29.35%
Sum insured	₹8,721.59 crore	₹11,071.61 crore	+26.95%
Paid claims	₹1,489.19 crore	₹1,109.36 crore	–25.50%

On the other hand, paid claims decreased from ₹1,489.19 crore to ₹1,109.36 crore during these benchmark years. Hence, all these three measures have varying trends — increase in geographical coverage, increase in monetary amount covered, but paid claims are lower during these benchmark years. It cannot be perceived as a decrease in risk in agriculture or good performance of insurance alone as these figures depend upon occurrence of loss.

5.3 Early PMFBY Expansion in Karnataka

Table 4 shows that a substantial rise in Kharif enrollment in Karnataka is reflected in the official PMFBY Compendium for the period 2015-16 and 2017-18.

Table 4. Early crop-insurance enrolment in Karnataka

Season/year	Farmers enrolled (000s)	Insured crop area (million ha)	Amount insured (₹ million)	Share of crop-sown area insured
Kharif 2015–16	872	1.23	30,000	17.80%
Kharif 2016–17	944	1.20	56,090	17.40%
Kharif 2017–18	1,333	1.80	82,210	26.00%
Rabi 2016–17	1,168	1.68	43,030	—

Enrollment of Kharif farmers went up from 872 thousand in the old system to 1,333 thousand in 2017-18, while the insured area of crops went up from 1.23 million hectares to 1.80 million hectares. Insurance coverage of sown areas also grew from 17.8 percent in 2015-16 to 26.0 percent in 2017-18.

5.4 Awareness Evidence from Karnataka

Table 5 states that awareness evidence points out an important distinction in the context of this research. The problem is not just about whether the farmers know about the PMFBY or not; it is about whether the farmers know how it works.

Table 5. Secondary evidence on awareness of crop insurance in Karnataka

Evidence source	Location/context	Reported finding	Interpretation
Maruthi (official AER study)	Bidar	About 23% of the relevant loanee respondents reported that they were not aware of PMFBY	Enrolment did not necessarily imply detailed awareness
Maruthi (official AER study)	Kalaburagi	About 20% of loanee farmers reported non-awareness of PMFBY	Information gaps persisted even in a medium-uptake district
Maruthi (official AER study)	Bidar/Kalaburagi	Many loanee farmers did not know that premium was deducted from their agricultural loan	Administrative participation could occur without procedural knowledge
Nayak et al. (2020)	North Karnataka	The study reported low awareness of crop-insurance provisions	Awareness was identified as an implementation constraint

As shown by the Maruthi report, there are cases when the farmers were enrolled in the insurance under the institutional credit approach despite having no knowledge of how the deductions were made in their case or about the provisions of the scheme.

5.5 Perception and Barriers

Table 6 shows that the literature on perceptions suggests that crop insurance is assessed based on experience with the process. For instance, according to Cariappa et al. (2019), the factors that prevent the insured from taking part in crop insurance programs include low levels of awareness, inability to pay premiums, and distrust.

Table 6. Secondary evidence on perception and participation barriers

Perception/barrier dimension	Evidence from secondary literature	Implication for agricultural risk protection
Claim settlement	Studies identify delays and uncertainty in claim settlement as recurring concerns	Confidence in insurance depends partly on the visibility and timeliness of compensation
Procedural complexity	PMFBY assessments identify complexity in enrolment, loss assessment or claim processes	Complexity can weaken effective understanding even when formal access exists
Trust/faith	Karnataka farmer evidence reports lack of faith as a reason for non-participation	Perception of reliability is connected with participation decisions
Premium affordability	Karnataka evidence identifies limited premium-paying capacity among non-insured farmers	The subsidised premium structure reduces direct cost but does not remove all affordability constraints
Risk experience	Drought and previous crop loss are associated with interest in insurance in Karnataka studies	Perceived exposure to agricultural risk can increase the relevance of insurance

Santhoshkumar et al. (2021) name problems with the settlement of claims, complexities of the system, and insufficient awareness as some of the significant drawbacks of PMFBY. Thus, perceptions may be influenced not only by theoretical but also by institutional aspects of insurance.

5.6 Adoption and the Awareness–Perception–Participation Relationship

Adoption seems to be linked to some combination of information, risk exposure, credit linkages, farm characteristics, and institutional experience in the evidence base. It is not a deterministic process. Even when a farmer has information regarding insurance, he or she may choose not to participate in the program due to poor perception of its value, prior bad experiences, unaffordability, or procedural uncertainties. On the other hand, a loanee farmer can participate in the insurance scheme using the institutional mechanism without having information about it.

Evidence from national household surveys is another useful benchmark. Biswal and Bahinipati (2025) report that the level of crop insurance adoption in India is low, and there is wide cross-sectional variation across different states and farmer types. The use of NSSO agricultural household surveys in conjunction with AIC and PMFBY insurance data shows the usefulness of combining household survey data with administrative insurance records. The current study from Karnataka is similar in this sense but focuses specifically on awareness and perception linkages.

5.7 Evidence Synthesis

The data from Table 7 show that the factors affecting the participation in crop insurance in Karnataka state include the joint effect of awareness, perception, adoption, risk protection and institutions. The information proves that awareness among farmers regarding the conditions of the schemes is unequal, and at the same time administrative registration does not necessarily entail awareness of all aspects of insurance including the premium amount, coverage and procedure.

Table 7. Integrated interpretation of awareness, perception and adoption

Dimension	What the secondary evidence shows	Overall empirical reading
Awareness	Detailed awareness is incomplete in parts of Karnataka; some enrolled loanee farmers do not know premium or scheme details	Administrative enrolment should not be treated as equivalent to informed awareness
Perception	Claim settlement, transparency, complexity, trust and risk experience recur in farmer-oriented studies	Perception is closely connected with implementation experience
Adoption	Karnataka applications increased from 19.45 lakh in 2019–20 to 30.15 lakh in 2023–24, with an intervening decline	Participation expanded over the longer period but fluctuated across years
Risk protection	Insured area and sum insured increased between 2018–19 and 2022–23	The financial scale of formal protection expanded
Institutional role	Credit linkage, banks, local administration and information channels affect how farmers encounter insurance	Institutional delivery is a central part of the adoption process

The perception of farmers relates to claim settlement, transparency, procedural complexities, trust and past risk experience. On the other hand, crop insurance applications rose from 19.45 lakh in 2019-20 to 30.15 lakh in 2023-24 despite fluctuations throughout the intervening period. The growth in both insured area and sum insured during 2018-19 to 2022-23 also demonstrates a growth in the financial scope of formal agricultural risk protection. In addition, it is necessary to emphasize the role of banks, credit links, local administration and information in helping the farmers interact with the crop insurance schemes.

6. Discussion

The empirical facts show the growth of crop insurance in Karnataka both quantitatively and qualitatively with respect to knowledge gaps. The growth of applications from 19.45 lakhs in 2019-20 to 30.15 lakhs in 2023-24 proves the significant growth of administrative participation. The growth in insured areas from 2018-19 to 2022-23 provides additional evidence that the crop-insurance coverage has become one of the essential aspects of risk management in agriculture in the region. Nevertheless, the awareness facts prove that enrolment should not be considered as a total indicator of farmers' involvement.

It becomes especially relevant in institutional credit conditions when the enrolment into insurance can take place because of loaning without having sufficient knowledge about the policy. The Maruthi evaluation proves this case in certain Karnataka districts. This means that it is necessary to assess the policy goal not only through the number of enrolments but also through the extent of farmers' knowledge of coverage, premium and claims process.

The next level of explanation is provided through perception. The criteria used by the farmers to assess the insurance include whether the insurance insures against the associated risks, whether the premiums paid are reasonable, whether the process of claims settlement is clear to them, and whether the payment of claims is prompt. The consistent reemergence of the issue of claims settlement and complicated procedures suggests that institutional insurance delivery system becomes an integral part of the product for the farmers. In this way, an insurance product that is technically well designed may lack value from a perception point of view.

The results also reveal that adoption reacts to risk situations in agriculture. Drought and loss experienced in previous crops have been identified in the Karnataka studies as significant reasons for insurance participation. This supports the economics of insurance where the more risk one is exposed to, the more valuable risk transfer becomes. However, it is important to note that risk exposure influences adoption only through awareness, access to finance and trust.

The above results also explain why only one indicator will not suffice in measuring agricultural risk protection. Farmer applications determine participation; area insured determines physical protection; sum insured determines the financial magnitude of protection; claim payments determine the compensation received, while awareness/perception studies determine the information and evaluation components.

6.1 Comparison with Existing Literature

Table 8 contextualizes the current research with existing literature related to crop insurance by synthesizing both Karnataka-specific studies and national level studies. Maruthi's Karnataka AER study outlined the linkage between insurance adoption, awareness, and information behavior, especially in highlighting the difference between insurance adoption and awareness of the insurance scheme.

Table 8. Positioning the present study within existing evidence

Study/evidence	Primary focus	Key relevance to present study
Maruthi, Karnataka AER assessment	Uptake, awareness and information behaviour	Shows that enrolment and detailed awareness can diverge
Cariappa et al. (2019)	Insured vs. non-insured farmers in Karnataka	Identifies drought, education, farm size, credit and awareness-related barriers
Nayak et al. (2020)	North Karnataka implementation	Highlights coverage expansion alongside awareness and claim constraints
Santhoshkumar et al. (2021)	National PMFBY performance	Highlights claim delays, complexity and awareness
Biswal & Bahinipati (2025)	National representative adoption	Provides recent evidence on state variation and institutional capacity

Cariappa et al. (2019) conducted a study in Karnataka on insured and uninsured farmers and recognized drought exposure, education, farm size, access to credit, and awareness-related variables as pertinent in determining crop-insurance adoption. Nayak et al. (2020) conducted a study in North Karnataka and emphasized the interplay between increased insurance coverage and the lack of awareness and other claim-related barriers. Santhoshkumar et al. (2021) contributed evidence at the national level regarding the PMFBY implementation and pointed out delays in claims settlement, procedural complexities, and awareness issues. Biswal and Bahinipati (2025) have studied crop-insurance adoption based on nationally representative data and illustrated variations among different states and role of institutional capacity. These studies form the empirical basis for studying awareness, perceptions, and adoption of crop insurance by rural farmers in Karnataka.

7. Policy and Institutional Implications

- Awareness programmes should distinguish general scheme publicity from procedural literacy. Farmers require information on covered crops, insured risks, premium deductions, insurance units, claim reporting and grievance channels.
- Information should be delivered through multiple institutional channels, including banks, cooperatives, extension agencies, local government institutions and digital platforms, because the secondary Karnataka evidence shows that farmers encounter PMFBY through different routes.

- Administrative enrolment statistics should be accompanied by indicators of informed participation wherever such data are available. This would reduce the risk of interpreting automatic or credit-linked enrolment as evidence of complete farmer awareness.
- Claim-related communication should be strengthened. Farmers need accessible information about claim status, loss assessment, eligibility and grievance mechanisms so that uncertainty does not become a persistent negative perception of insurance.
- Non-loanee farmers require specific attention because voluntary participation depends more strongly on direct information, perceived value and transaction convenience. Administrative systems that work primarily through institutional credit do not automatically create the same level of outreach among non-loanee households.
- State-level monitoring should combine participation, insured area, claims and farmer-information indicators. A multidimensional monitoring framework provides a more meaningful assessment of agricultural risk protection than application numbers alone.

8. Limitations and Future Research

- The study uses only secondary data and thus does not contribute to the creation of new farmer-level observations.
- The available awareness and perceptions data are derived from various studies, different places and different study periods; they should not be considered as a consolidated statewide survey estimate.
- The statistics on state-level applications of the PMFBY/RWBCIS and survey-based findings come from different units of analysis and are analysed separately.
- State-level application figures cannot determine whether participation is voluntary, credit-related or recurring for the same households without farmer-level observations.
- The secondary data available for the study does not create a harmonized dataset that covers awareness, perceptions and adoption across all the rural districts of Karnataka within the same time period.
- Secondary data in the future can help develop a panel of district-years, including PMFBY administrative data, agriculture credit information, losses of crops and surveys at the district level farmer, if data availability permits.
- Secondary data can also help analyse differentiations between loanee and non-loanee farmers, women farmers, small and marginal farmers and sharecroppers/tenant farmers.

9. Conclusion

The research offers an empirical examination on awareness, perception and adoption of crop insurance schemes by farmers of Karnataka through secondary data. The study illustrates that Karnataka has seen a considerable growth in the adoption of crop insurance schemes under PMFBY/RWBCIS. As per the official statistics, the number of farmer applications under PMFBY/RWBCIS increased from 19.45 lakh in 2019–20 to 30.15 lakh in 2023–24, while the insured area increased from 17.41 lakh hectares in 2018–19 to 22.52 lakh hectares in 2022–23.

Simultaneously, the study based on secondary evidence indicates that even though there is a rise in the adoption of crop insurance, it is not necessarily associated with perfect knowledge or positive perception of the farmers about the scheme. The Karnataka-specific evidence shows that there are some farmers who are enrolled in the crop insurance schemes but lack knowledge and awareness regarding the premium deduction and schemes. The published articles also show claim settlement, process complexity, trust, affordability and risk experience as key aspects of the perception of farmers.

The key inference, therefore, is that an analysis of the crop insurance program in Karnataka should consider awareness, perception, and adoption, and not just enrollment figures. Coverage in administrative terms shows extent, but awareness and perception provide insights into the nature of farmer involvement with the insurance mechanism. A robust agricultural risk protection system depends on all these factors working in tandem because, without coverage, adequate knowledge, and confidence in the process of protection, farmers will not be able to benefit from insurance.

References

1. Biswal, D., & Bahinipati, C. S. (2025). Demand for crop insurance in India: Evidence from national representative surveys. *The Indian Economic Journal*. <https://doi.org/10.1177/00194662251334801>

2. Cariappa, A. G., Lokesh, G. B., Joshi, A. T., Reddy, B. S., & Hulagur, B. (2019). Why do farmers opt for crop insurance? A discriminant analysis. *Indian Journal of Economics and Development*, 15(4), 525–532. <https://doi.org/10.5958/2322-0430.2019.00068.4>
3. Government of India, Ministry of Agriculture and Farmers Welfare. (2023). Pradhan Mantri Fasal Bima Yojana: Operational guidelines.
4. Government of India, Ministry of Agriculture and Farmers Welfare. (2024). State-wise and year-wise details of farmer applications enrolled under PMFBY & RWBCIS.
5. Government of India, Ministry of Agriculture and Farmers Welfare. (2024). State-wise details of area insured, sum insured and claims paid under PMFBY.
6. Maruthi, I. (2018–19). Uptake analysis of Pradhan Mantri Fasal Bima Yojana in Karnataka. Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change.
7. Nayak, N. S., Billava, N., & Ashalata, K. V. (2020). Agriculture insurance's outreach constrained by procedural delays and norms: Reflections from North Karnataka, India. *Research on World Agricultural Economy*, 1(1), 39–49. <https://doi.org/10.36956/rwae.v1i1.242>
8. Santhoshkumar, H., Srinivasan, R., & HemRaj. (2021). Crop insurance policies in India: An empirical analysis of Pradhan Mantri Fasal Bima Yojana. *Risks*, 9(11), 191. <https://doi.org/10.3390/risks9110191>
9. Ministry of Agriculture and Farmers Welfare. (2021). Agricultural Situation in India, April 2021. Directorate of Economics and Statistics.
10. Pradhan Mantri Fasal Bima Yojana. (2026). Administrative dashboard: State and district statistics. Ministry of Agriculture and Farmers Welfare, Government of India. <https://www.pmfby.gov.in/adminStatistics/dashboard>
11. Pradhan Mantri Fasal Bima Yojana. (2026). State-wise farmer details. Ministry of Agriculture and Farmers Welfare, Government of India. <https://www.pmfby.gov.in/stateWiseDataPage>
12. Institute for Social and Economic Change. (n.d.). Performance evaluation of Pradhan Mantri Fasal Bhima Yojana (PMFBY)/Prime Minister Crop Insurance Scheme. Projects completed.
13. Aditya, K. S., Khan, M. T., & Kishore, A. (2023). Adoption of crop insurance and impact: Insights from India. *Agricultural Economics Research Review*, 36(2), 1–12.
14. Suresh, N., & Sreedaya, G. S. (2022). Perception of farmers towards crop insurance schemes in Kerala, India. *Asian Journal of Agricultural Extension, Economics & Sociology*, 40(11), 437–447. <https://doi.org/10.9734/ajaees/2022/v40i111729>
15. Kumari, S., Amit, & Shilpa. (2025). Assessment of awareness, adoption behavior and impact of the crop insurance scheme (PMFBY) in Kangra District of Himachal Pradesh. *Annals of Arid Zone*, 64(1). <https://doi.org/10.56093/aaz.v64i1.154023>
16. Agale, S. B., Patel, D. B., & Deshpande, A. R. (2023). Knowledge of farmers regarding Pradhan Mantri Fasal Bima Yojana. *Gujarat Journal of Extension Education*, 36(1). <https://doi.org/10.56572/gjoe.2023.36.1.0020>
17. Biswal, D., & Bahinipati, C. S. (2025). Demand for crop insurance in India: Evidence from national representative surveys. *Indian Economic Journal*. <https://doi.org/10.1177/00194662251334801>
18. **Protecting land and livelihood under climate risks: What hinders crop insurance adoption? (2023).** *Land Use Policy*, 131, 106711. <https://doi.org/10.1016/j.landusepol.2023.106711>
19. **National Institute of Agricultural Extension Management (MANAGE).** (2023). *Report on Evaluation of Pradhan Mantri Fasal Bima Yojana (PMFBY)*. Ministry of Agriculture & Farmers Welfare, Government of India.
20. **Ministry of Agriculture & Farmers Welfare, Government of India.** (2021). *Pradhan Mantri Fasal Bima Yojana: An Evaluation—29th Report*. Government of India. — PMFBY implementation, farmer experience, awareness aur institutional performance ke liye official evidence.