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An Evaluation of farmers perception towards the benefits PMFBY: A Study at Tumkur District

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Abstract:
Agriculture in India is inherently vulnerable to a variety of risks including climate variability, pest attacks, and market uncertainties, making crop insurance a crucial tool for farmers. This study evaluates the perception of farmers in Tumkur district towards the Pradhan Mantri Fasal Bima Yojana (PMFBY), a flagship crop insurance scheme launched by the Government of India in 2016. The scheme aims to provide comprehensive risk coverage from pre-sowing to post-harvest stages at minimal premium costs. A structured survey was conducted among 400 farmers, including both insured and non-insured participants, to understand their awareness, perception, and utilization of the scheme. The results reveal that while a majority of the farmers are aware of PMFBY and perceive it as beneficial, there is still a considerable gap in claim registration and disbursement. Regression analysis confirms that increased knowledge of PMFBY positively influences the perception of benefits, and this perception significantly affects the perceived effectiveness of the scheme. The findings highlight the need for improved awareness campaigns, simplified claim processes, and greater transparency to enhance the scheme's adoption and effectiveness.

Keywords:
PMFBY, Crop Insurance, Farmers' Perception, Agricultural Risk, Claim Process, Tumkur District, Insurance Awareness, Scheme Effectiveness, Government Policy, Risk Mitigation.

Introduction
Agricultural insurance or crop insurance is considered as one of the effective risk-coping methods to mitigate both covariate and idiosyncratic shocks encountered by farmers and to hedge against their income instability (Cole & Wentao Xiong, 2017; Bahinipati et al., 2021). Using this method farmers can overcome financial losses along with other disastrous effects due to natural hazards, low market prices or other unforeseen circumstances. Crop insurance not only aids in reducing income instability but also helps the farmers to restore agricultural output and make more investment following a poor agricultural year. Therefore, development and implementation of crop insurance schemes are required in order to withstand these risks and to smoothen the overall economic growth of a nation.

Numerous insurance plans on agriculture are being executed throughout the world. Presently, USA offers wage and earning protection. Since income security plays a significant role in USA, 73% of payments are gathered for this category of coverage. Whole-farm insurance is available in Japan and includes overall climate risks for all agricultural crops. The public insurance

organizations run by the provincial authorities are primarily in charge of the Canadian system (Bellundagi, 2020).

Pradhan Mantri Fasal Bima Yojna scheme

Pradhan Mantri Fasal Bima Yojna (PMFBY) was launched in the year 2016 to remove the flaws of previous insurance schemes. This powerful drive taken by the Ministry of Agriculture and Farmers Welfare; Government of India allows farmers to secure their crops against all unavoidable natural hazards from the pre-seeding to the post-harvest phases of crop cultivation. While the farmers have to pay the insurance premium at a very low rate, the state and central governments pay the balance premium in equal proportion (Tiwari et al., 2020; Kaur et al., 2021). Apart from this, this crop insurance is a web-based system that provides information related to this scheme along with administration assistance as well as resolves questions raised by farmers. It not only accelerates the process but also eliminates manual cycles. This online platform allows the farmers residing in various states to be aware of the plans and projects that are being implemented by the government. Various public and private insurance companies execute this scheme under the jurisdiction of the Ministry of Agriculture and Farmers' Welfare, Government of India.

Review of Literature

As revealed by Rai, (2019), Pradhan Mantri Fasal Bima Yojana (PMFBY) was introduced in 2016 and an amount Rs. 5500 crores was assigned for it. PMFBY provides insurance at the lowest premium rate, which is universally applied across India. According to Goverment of India, (2020), PMFBY covers all types of farmers and it replaced the NAIS and MNAIS insurance schemes, which had some evident problems. Its key component included 'one premium, one season', which covered the risk of every kind of crop (Kharif, Rabi, horticultural and commercial) from the pre-sowed period to the post-harvest period. PMFBY motivated farmers to use modern technologies, such as smartphones, global positioning systems (GPS) and drones, for the precise evaluation of crop production and for the occurrence of losses. Modern technologies are used for the speedy clearance of claims. The premium rates are different for Kharif (2%), Rabi (1.5%), horticulture and commercial crops (5%) and these are split equally between the state and the central governments. As reviewed by Tiwari et al., (2020), the government made PMFBY mandatory for loanee farmers and voluntary for non-loanee farmers at an earlier stage, but it was made voluntary for loanee farmers also in 2020. But this revision did not encourage the farmers to take up this scheme, thus lowering their participation by 30%.

Similarly, Kaur et al., (2021) gave a detailed insights about this scheme to analyse its effect on the farmers of this country. The government of India incorporated several alterations in this scheme, aiming to give more benefits to the farmers. PMFBY was applied in all Indian states from 2018-2019. Simultaneously, several CI portals, such as www.agriinsurance.gov.in (March 18, 2021) and www.pmfby.gov.in, were launched where the latter can be accessed by all states. Crops that are damaged due to animals are included in this scheme. PMFBY underwent changes in 2021 as per the suggestions of policymakers. The changes incorporated the optional involvement of farmers, finite premium subsidy, and increment of subsidy (50% to 90%) for north- eastern states. The allotment of business to insurance organisations was extended from 1

year to 3 years. Further, it set deadlines within which the concerned governments had to disburse money for premium subsidies. Moreover, it provided autonomy to states for choosing the crop loss criteria and facilitating additional protection to insurance firms.

Pradeepika Gadai, (2017) conducted a study with a sample of 100 people on financial firms, regulatory agencies, and agrarian departments, that were familiar with the PMFBY scheme's operational procedures. The study aimed to examine the PMFBY programme in the state of Haryana and identify the perception of people about the scheme. The farmers' perceptions about their visits to banks and offices, their response to promotion materials, such as booklets and pamphlets, their understanding of the scheme's features and operational modalities, and the ideology behind the meetings held with farmers, were examined. It was determined that unfavourable publicity, lack of marketing, and lack of participation of agriculture department workers due to technical difficulties faced in gathering crop-cutting data were the main obstacles in implementing PMFBY.

Bhushan & Kumar, (2017) conducted research on the evaluation of PMFBY in Haryana, Tamil Nadu, and Uttar Pradesh, in addition to its involvement at the national scale with a variety of stakeholders, such as producers, agricultural organisations, insurance firms, and government agencies. PMFBY was reported to be better than earlier schemes, but its execution was fundamentally flawed. The report's main finding was that farmers in sensitive parts do not benefit from PMFBY. Due to variables including low compensation levels, low tolerance yields, low guaranteed sums, and credit loss, PMFBY was found to be a subpar programme in protecting farmers in sensitive parts, such as Bundelkhand and Marathwada. It was found that farmers in such regions were not eligible for any claims even if their crops were to be damaged.

Major objectives of PMFBY

The PMFBY scheme aims to:
Extend financial support to farmers who have encountered challenges in crop yield due to environmental abnormalities Stabilize fluctuating income of farmers and maintain their farming even after crop loss Secure farmers' ability to repay, yield assortment, encouraging the expansion and productivity of the farming sector, in addition to shielding the farmers from output threats. Provide modern resources for agricultural production and create awareness about them.

Objectives of the Study

- To analyze the influence of farmers knowledge on perceived benefits of PMFBY.
- To examine the impact of perceived benefits of PMFBY on the scheme's effectiveness.

Hypotheses of the study

- *Hypothesis 1: Farmers Knowledge of PMFBY has significant influence on the perception of benefits of the PMFBY scheme.*
- *Hypothesis 2: Farmers Perception of PMFBY benefits has significant influence on the effectiveness of the PMFBY scheme.*

Significance of the present study

One of the major challenges for smooth implementation of this scheme is lack of awareness and proper knowledge of farmers about the scheme. To change the behavior of farmers towards PMFBY, the central and state governments need to undertake certain modifications in some areas. The present study will shed light on the perceptions of farmers towards PMFBY that will help to increase its effectiveness and maximize the benefits of the scheme for farmers in Karnataka as well as in other states. This research work will also provide information that will raise the possibility of adoption of PMFBY and similar other crop insurance programs by working on those aspects. It also analyses the risks faced by the farmers that make the policymakers and the government more cautious while implementing crop insurance schemes in developing countries like India.

Status of the farm

Majority of the farmer respondents were owner of the farm (66.5%) followed by tenant of the farms (23.8%). As owner of the farm, majority of the respondents need suitable crop insurance policies.

	Frequency	**Percent**
Owner	266	66.5
Tenant	95	23.8
Share cropper	39	9.8
Total	400	100.0

Size of the farm

The size of the farms of the respondents in the present study are widely ranged from less than 1 acre (20.3%), 1-4 acres (39%), 5-10 acres (23.5%) and more than 10 acres (17.3%). Therefore, the study was able to record perceptions of farmers having various farm sizes.

	Frequency	**Percent**
Less than 1 acre (Marginal)	81	20.3
1-4 acres (Small)	156	39.0
5-10 acres (Medium)	94	23.5
>10 acres (Large)	69	17.3
Total	400	100.0

Land holding

Majority of the farmers have irrigated land holding (90.8%) where most of them were owned (61.5%) and others were leased in (18.8%) or leased out (10.5%). Very few farmers have land holding in dry land (9.3%). Dry agricultural land requires less water (less than 750 mm) compared to irrigated land. In irrigated land, there are artificial means available to obtain water by diverting streams.

	Frequency	**Percent**
Irrigated (Owned)	246	61.5

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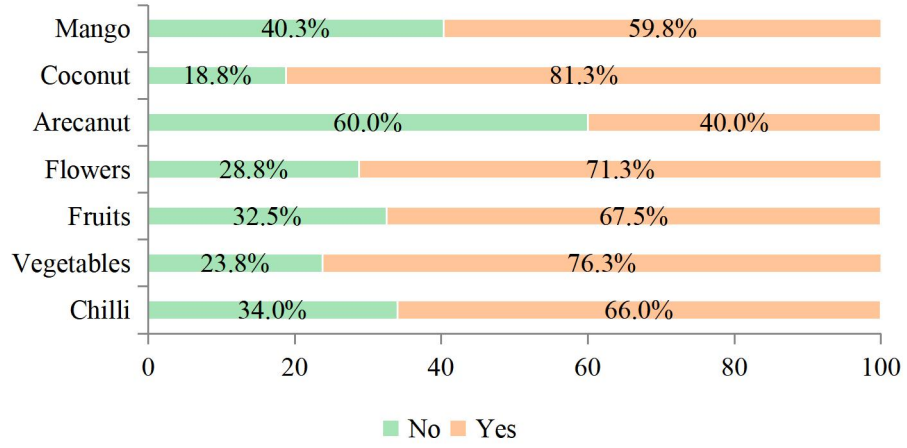
	Frequency	Percent
Irrigated (Leased in)	75	18.8
Irrigated (Leased out)	42	10.5
Dry land (Owned)	33	8.3
Dry Land (Leased in)	4	1.0
Total	400	100.0

Type of crops

Most of the farmers are engaged in farming with coconut, flowers, mango, fruits, vegetables and chillies.

	No (n (%))	Yes (n (%))
Mango	161 (40.3)	239 (59.8)
Coconut	75 (18.8)	325 (81.3)
Arecanut	240 (60)	160 (40)
Flowers	115 (28.8)	285 (71.3)
Fruits	130 (32.5)	270 (67.5)
Vegetables	95 (23.8)	305 (76.3)
Chilli	136 (34)	264 (66)

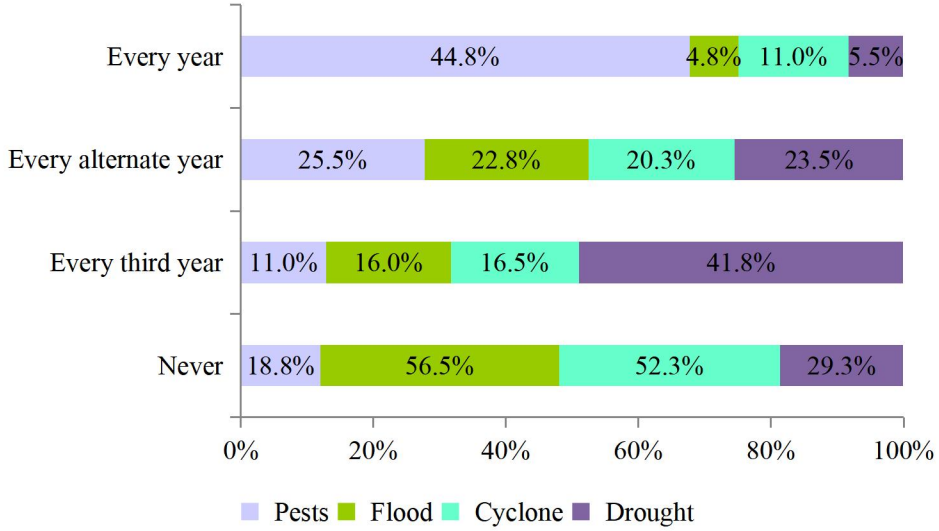


Frequency of farm risks

Most of the farmers responded that drought risk exists in every third year (41.8%) and some of the farmers agreed that the risks are there in every alternate year (23.5%). However, most of the farmers from these two districts of Karnataka were not afraid of flood risk (56.5%) or cyclone risk (52.3%) whereas few of the farmers anticipate the flood to occur (22.8%) or cyclone to hit (20.3%) in every alternate year. Most importantly, the farmers are afraid of pests which has a frequency of attacking in every year (44.8%) or every alternate year (25.5%).

	Never	Every third year	Every alternate year	Every year
Drought	117 (29.3)	167 (41.8)	94 (23.5)	22 (5.5)
Flood	226 (56.5)	64 (16)	91 (22.8)	19 (4.8)

	Never	Every third year	Every alternate year	Every year
Cyclone	209 (52.3)	66 (16.5)	81 (20.3)	44 (11)
Pests	75 (18.8)	44 (11)	102 (25.5)	179 (44.8)



Insurance details

Insured crops through Pradhan Mantri Fazal Bima Yojna

The study population for the present research has candidates both insured (54.3%) as well as non-insured (45.8%) in Pradhan Mantri Fazal Bima Yojna. Therefore, the study is able to understand the perceptions of both insured as well as non-insured farmers.

Insured crops through Pradhan Mantri Fazal Bima Yojna

	Frequency	Percent
Insured	217	54.3
Non-insured	183	45.8
Total	400	100.0

Claim for the damages through insurance

Among the farmers who were insured through Pradhan Mantri Fazal Bima Yojna, most of the them did not claim for the damages through insurance (35.3%). Very few insured farmers have claimed for the damages through insurance (19%). It is evident that despite the insurance, farmers are sceptical about claiming their insured money.

	Frequency	Percent
No	141	35.3
Yes	76	19.0
Non-insured	183	45.8
Total	400	100.0

Claim for the damages through insurance

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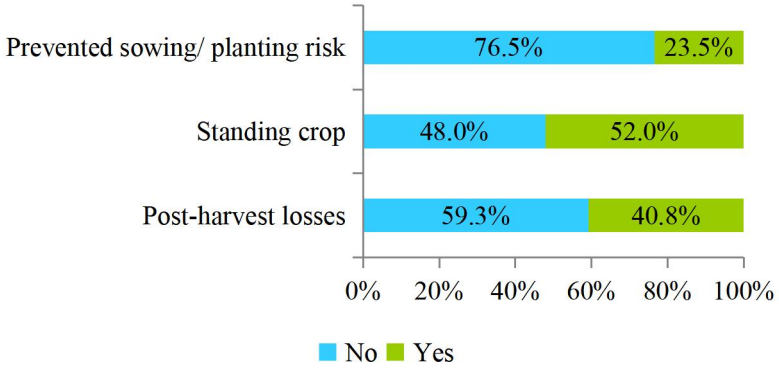
Kind of claims

For prevented sowing or planting risk, most of the farmers (76.5%) did not claim for insurance. For standing crop and post-harvest losses, both claiming and non-claiming the insured money has been witnessed. Therefore, it can be suggested that although farmers claim for standing crop or post-harvest loss, they are less interested to claim for prevented sowing or planting. To summarize, they do not majorly opt for claiming their insured money.

	No	Yes
Prevented sowing/ planting risk	306 (76.5)	94 (23.5)
Standing crop	192 (48)	208 (52)
Post-harvest losses	237 (59.3)	163 (40.8)



Among the people who claimed for post-harvest losses (23.6%), almost half of the population (12.8%) claimed within two weeks from harvesting while the others could not be able to claim within the given time period. Therefore, it can be observed that a minimal number of farmers (for this case, only 12.8%) in reality claim within the notified claiming period.

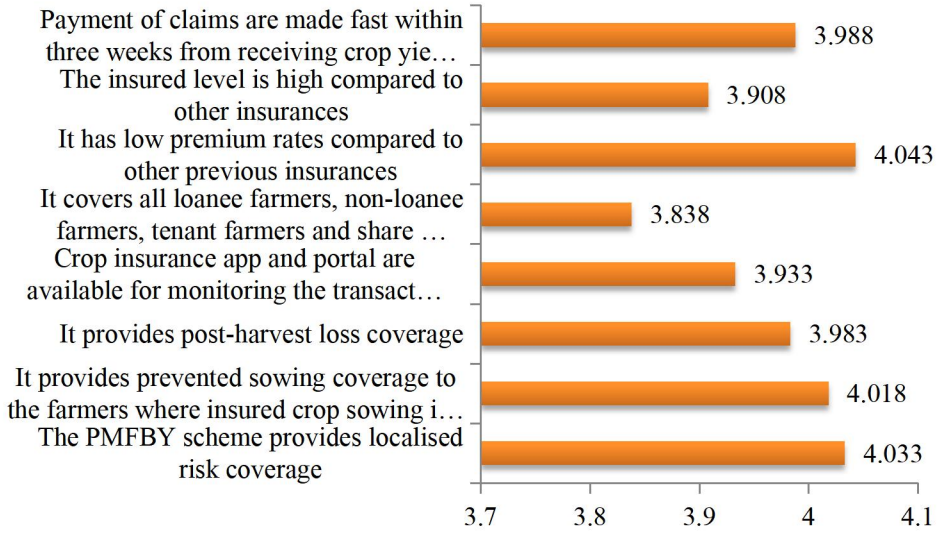
Testing of Hypotheses

Hypothesis 1: Farmers Knowledge of PMFBY has significant influence on the perception of benefits of the PMFBY scheme.

Farmers' perception regarding the benefits of PMFBY

	Mean	Std. Deviation
The PMFBY scheme provides localised risk coverage.	4.033	1.333
It provides prevented sowing coverage to the farmers where insured crop sowing in the notified area were prevented by adverse weather condition.	4.018	1.342
It provides post-harvest loss coverage.	3.983	1.335
Crop insurance app and portal are available for monitoring the transactions which makes the process easier.	3.933	1.387
It covers all loanee farmers, non-loanee farmers, tenant farmers and share croppers.	3.838	1.413
It has low premium rates compared to other previous insurances.	4.043	1.349

	Mean	Std. Deviation
The insured level is high compared to other insurances.	3.908	1.372
Payment of claims are made fast within three weeks from receiving crop yield data.	3.988	1.361



Therefore, the *Hypothesis 1: Farmers Knowledge of PMFBY has significant influence on the perception of benefits of the PMFBY scheme* is accepted. The regression equation can be expressed as the following.

Perception of benefits of PMFBY scheme = 0.223 (Knowledge of PMFBY)

Model summary for the impact of knowledge of PMFBY on the perception of benefits

R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
					F Change	df1	df2	Sig. F Change
0.570	0.325	0.323	0.275	0.325	191.360	1.000	398.000	0.000

Path coefficients for the impact of knowledge of PMFBY on the perception of benefits

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.000	0.014		0.000	1.000
Perception of benefits	0.223	0.016	0.570	13.833	0.000

Impact of perception of benefits on effectiveness of the scheme

Hypothesis 2: Farmers Perception of PMFBY benefits has significant influence on the effectiveness of the PMFBY scheme.

In order to find the impact of perception of benefits on effectiveness of the scheme, linear regression was conducted. The above table represents the model summary and path coefficients, respectively. Since R Square value is equal to 0.049, It implies that 4.9% variation in effectiveness of the scheme can be explained by the perception of benefits with F (1, 398) = 20.375. The adjusted R squared value of 0.046, indicates that 4.6% of the variance can be explained by the model. The result of regression represents that the perception of benefits significantly influences the effectiveness of the scheme among the farmers ($p<0.05$).

The regression coefficient in a regression analysis represents the change in the dependent variable for each unit change in the independent variable. The statistical analysis shows that impact of perception of benefits on effectiveness of the scheme is positive and significant ($t = 4.514$, $p < 0.05$). The coefficient value (B) for knowledge of PMFBY is 0.221. This means that for every unit increase in perception of benefits, the effectiveness of the scheme among the farmers is expected to increase by 0.221 units.

Therefore, the *Hypothesis 2: Farmers Perception of PMFBY benefits has significant influence on the effectiveness of the PMFBY scheme* is accepted. The regression equation can be expressed as the following.

Effectiveness of PMFBY scheme = 0.571 (Perception of benefits)

Model summary for the impact of perception of benefits on effectiveness of the scheme

R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
					F Change	df1	df2	Sig. F Change
0.221	0.049	0.046	0.977	0.049	20.375	1	398	0.000

Path coefficients for the impact of perception of benefits on effectiveness of the scheme

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.000	0.049		0.000	1.000
Benefits of PMFBY	0.221	0.049	0.221	4.514	0.000

Findings

Most respondents were owners of their farm (66.5%), owned 1-4 acres of land (39%), had irrigated land holding with most of it owned (61.5%), and were engaged in farming with coconut, flowers, mango, fruits, vegetables and chilly. Most of the farmers believed that drought risk exists in every third year (41.8%) and were not afraid of flood risk (56.5%) or cyclone risk (52.3%).

Most farmers were insured (54.3%) under PMFBY, did not claim for the damages through insurance (35.3%), and did not claim for insurance for prevented sowing or planting risk (76.5%). for post-harvest losses, it was done within two weeks from harvesting.

There was good agreement on the following regarding PMFBY: (i) The program covers local risks, (ii) Farmers are covered for weather-prevented crop sowing in the notified region, (iii) It covers post-harvest losses, (iv) Crop insurance app and portal simplify transaction monitoring (v) All loanee, non-loanee, renter, and share croppers are covered, (vi) It has lower premiums than previous insurances, (vii) Compared to other insurances, insured level is high., and (viii) Claim payments are made within three weeks of crop yield data.

Recommendations

Enhance Awareness and Outreach: The government should conduct regular awareness campaigns and training programs in local languages to educate farmers about the benefits, claim process, and deadlines of PMFBY. Use of community radio, mobile vans, and farmer field schools can help disseminate information effectively.

Simplify the Claim Process: Many farmers, even after being insured, hesitate to claim due to complexity or delays. Simplifying documentation and using mobile apps with vernacular interfaces can reduce hesitation and increase participation in the claims process.

Timely Settlement of Claims: To build trust, insurance companies must ensure fast and transparent claim settlements. Technology such as satellite imagery and GPS-based crop assessments should be fully leveraged for rapid processing.

Incentivize Timely Enrollment: Provide small incentives or discounts to early enrollees to encourage timely participation in the scheme and prevent last-minute crowding.

Targeted Support for Non-Loanee and Marginal Farmers: Since a significant portion of small and marginal farmers remain outside the purview of formal credit institutions, focused strategies should be adopted to bring them into the fold of PMFBY.

Improve Collaboration: Better coordination between insurance providers, government agencies, banks, and agricultural extension officers is needed to ensure the scheme's objectives are met.

Periodic Review and Feedback Mechanism: Establish regular feedback loops with farmers to assess satisfaction and areas of improvement. This can be done through surveys, helplines, and interactive digital platforms.

Conclusion

The study in Tumkur district reveals that while the **Pradhan Mantri Fasal Bima Yojna (PMFBY)** has significantly increased awareness and enrollment among farmers, there remains a gap in the **actual utilization of benefits**, particularly in the **claims process**. The research confirms that **knowledge of PMFBY significantly influences the perception of benefits**, and

in turn, **perceived benefits influence the scheme's effectiveness**. However, despite high enrollment rates, the claim rate remains low, which indicates issues related to awareness, accessibility, or trust in the system. Addressing these issues through targeted policy interventions, streamlined processes, and farmer-centric approaches can greatly enhance the impact and success of PMFBY in securing agricultural livelihoods.

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