



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; SP-12(9): 2279-2282  
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[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 24-06-2023  
Accepted: 28-07-2023

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## Perception and constraints in adoption of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Tamil Nadu

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### Abstract

The Pradhan Mantri Fasal Bima Yojana (PMFBY) is a crop insurance scheme designed by the Indian government to safeguard farmers against unpredictable climate conditions and natural disasters. This study aims to examine the perceptions and constraints associated with the implementation of the Pradhan Mantri Fasal Bima Yojana (PMFBY) at the farm level. By analyzing the perspectives of farmers, this research seeks to provide light on the challenges and limitations faced by the PMFBY in its efforts to provide crop insurance coverage. Primary data was collected from 270 sample farms in Tamil Nadu, majorly cultivating Paddy and Groundnut from three indemnity zones i.e., high, medium and low. The study discovered that many farmers were not aware of the PMFBY scheme, did not have sufficient funds to pay premiums, faced difficulties in accessing banks and opening accounts, were unsatisfied with the indemnity amount, and were unaware of the cut-off dates. These factors contributed to the low adoption rate of the scheme. The study emphasizes the urgent need to overcome these challenges to maximize the scheme's outreach and enable farmers to access this economic safety net more efficiently as the success of schemes like PMFBY is essential to ensure the security and prosperity of farmers in India.

**Keywords:** PMFBY, crop insurance, indemnity, sum insured, rate of premium, claims settlement

### Introduction

Crop insurance is an important tool employed in developing nations to mitigate the volatility of farm income, in conjunction with other strategies such as minimum support prices, input subsidies, low-interest crop loans, and several other mechanisms (Stutley, 2010) <sup>[1]</sup>. It mitigates the impact of agricultural yield reduction by providing farmers with insurance coverage against uncontrollable natural disasters. The fundamental concept that underlies crop insurance is the equitable distribution of losses among individuals within a certain region who are involved in comparable agricultural activities. With the aid of crop insurance, losses experienced during unfavourable years are offset by resources that have been acquired during more prosperous years (Dandekar, 1976) <sup>[2]</sup>. The utilization of crop insurance has shown beneficial in mitigating the impact of seasonal variations in production and weather-related hazards on the consumption patterns of rural households. In addition to mitigating credit rationing, insurance schemes have the potential to facilitate the pre-emptive adoption of advanced production technologies, which are associated with higher expected returns (Ghosh *et al.*, 2000) <sup>[3]</sup>.

The provision of insurance assistance is deemed essential, particularly in developing nations, where the implementation of crop insurance initiatives has been shown to enhance the well-being of farmers by mitigating the financial burden associated with agricultural cultivation. Crop insurance has also demonstrated a significant risk reduction in farms. Some farmers perceive agricultural insurance as a balancing act between the potential indemnity they may receive and the premium they are required to pay. The risk-tolerant nature of producers has been observed to contribute to the stabilization of their future revenue. Furthermore, insured farms have found to exhibit higher levels of adoption of advanced technologies compared to non-insured farms.

The Pradhan Mantri Fasal Bima Yojana (PMFBY) is a crop insurance scheme established by the Government of India in 2016. The primary objective of this initiative is to safeguard farmers against potential production hazards arising from natural disasters and adverse climatic circumstances. The program has successfully increased India's financial infrastructure and provided financial inclusion to millions of farmers (Kaur *et al.*, 2021) <sup>[4]</sup>. The Pradhan Mantri Fasal Bima Yojana (PMFBY) has exhibited a greater extent of coverage for farmers

and has effectively safeguarded a substantial portion of agricultural land in comparison to preceding crop insurance initiatives in India. The Pradhan Mantri Fasal Bima Yojana (PMFBY) has demonstrated beneficial outcomes for Indian farmers, such as the stabilization of agricultural income, facilitating recovery from unfavourable agricultural seasons, and fostering financial inclusion through the provision of bank accounts for individuals with low incomes (Tankiwala *et al.*, 2022). This scheme employs a simplified and technology-driven strategy, incorporating remote sensing, smartphones, and satellite imagery to expedite and enhance the assessment of crop losses with greater precision. This characteristic distinguishes it from alternative approaches that may depend on conventional assessment methodologies (Kaur *et al.*, 2021) [4].

Crop insurance programs have faced several issues in the past, including delayed payments, high premium rates, lack of transparency, and inadequate relief criteria. These challenges have hindered the effectiveness of such initiatives in providing prompt and satisfactory assistance to affected farmers. The recent crop insurance scheme, Pradhan Mantri Fasal Bima Yojana (PMFBY) has been introduced to address those issues in implementing districts of Tamil Nadu. In this context, the present study aims to assess the perception, constraints faced and farmer's expectations about PMFBY by the sample farmers.

**Data and Methodology**

The present study is based on primary data obtained from a total of 270 sample farms located in Tamil Nadu. These farms were carefully selected using a multi-stage purposive sampling technique, ensuring the representation of various districts, blocks, and farmers within the sample. The districts of Tamil Nadu were categorized into three distinct zones based on their indemnity level. These zones were identified as high-risk (70 per cent), medium-risk (80 per cent), and low-risk (90 per cent) zones. To further investigate the impact of these zones, one district with a higher number of insurers was selected from each indemnity level for the study. The chosen districts were Thiruvavur, Madurai, and Erode, representing the high-risk, medium-risk, and low-risk zones, respectively. The sample farmers were randomly selected from two distinct blocks within each district. The total number of farmers selected from each district amounted to 90. The study population comprises of farmers who are insured under the Pradhan Mantri Fasal Bima Yojana (PMFBY), including loanee and non-loanee and non-insured.

**Likert Scale**

The perception on PMFBY was assessed using Likert scale of eight different statements such as (1) Farmers can sustain safely during calamity year, (2) Premium amount is affordable (3) Simple and accessible procedures for availing PMFBY in the bank (4) Compensation is less compared to actual loss (5) Helps in adopting the modern technologies, (6) Settlement of claim amount is directly debited to insurers' bank account, (7) More awareness about the PMFBY and its provisions and (8) Involvement of private agencies for better assessment. Response to all the statements were recorded using (1) Strongly agree, (2) Agree, (3) Neither agree nor disagree, (4) Disagree and (5) Strongly disagree. The mean response to each statement was calculated using the formula:

$$X = \frac{\sum FX}{N}$$

Where,

F = number of respondents choosing a particular scale point; X = numerical value of the scale point; N=total number of respondents to the item.

**Garrett Ranking**

Garrett ranking method was used to identify the most significant constraint that hinders the adoption of PMFBY by non-insured farmers. Per cent position of each rank was found out by the following equation: Per cent Position = 100 (R<sub>ij</sub> - 0.5) / N<sub>j</sub>, where, R<sub>ij</sub> is Rank given for the i<sup>th</sup> items by the j<sup>th</sup> individual and N<sub>j</sub> is Number of items ranked by the j<sup>th</sup> individual. Garrett's table provided by Garret and Woodworth in 1969 was used to convert the estimated percentage position into scores. Then, the scores of each individual are summed for each constraint, and the total score value and mean score value are calculated. The constraint with the highest mean score value is considered the most important constraint.

**Results and Discussion**

**Farmers' Perception on Adoption of Crop Insurance Scheme**

Studying farmers' perception can raise awareness about crop insurance benefits, assess scheme effectiveness and improve farmer needs. The views of the insured farmers on different aspects of PMFBY and their suggestions for improvement in the implementation of the scheme were analyzed and presented in Tables below.

**Table 1:** Perception of Insured (Loanee) Farmers towards PMFBY

Particulars	Frequency					Total	Mean Score (M)
	Strongly Agree (SA)	Agree (A)	Neither (N)	Disagree (D)	Strongly Disagree (SD)		
Farmers can sustain safely during calamity year	18 (20.00)	55 (61.11)	3 (3.33)	12 (13.33)	2 (2.22)	90 (100.00)	3.83
The premium amount is affordable	14 (15.56)	55 (61.11)	10 (11.11)	10 (11.11)	1 (1.11)	90 (100.00)	3.79
Simple and easy procedures for availing PMFBY in the bank	6 (6.67)	71 (78.89)	1 (1.11)	10 (11.11)	2 (2.22)	90 (100.00)	3.77
Compensation is less when compared to actual loss	13 (14.44)	55 (61.11)	3 (3.33)	18 (20.00)	1 (1.11)	90 (100.00)	3.68
Crop insurance helps to adopt modern agricultural practices	13 (14.44)	55 (61.11)	-	22 (24.44)	-	90 (100.00)	3.66
Settlement of claim amount is directly debited to insurers' bank account	12 (13.33)	54 (60.00)	5 (5.56)	16 (17.78)	3 (3.33)	90 (100.00)	3.62
Farmers were aware about the PMFBY and its provisions	8 (8.89)	49 (54.44)	3 (3.33)	25 (27.78)	5 (5.56)	90 (100.00)	3.33
Involvement of private agencies for better assessment	-	14 (15.56)	14 (15.56)	36 (40.00)	26 (28.89)	90 (100.00)	2.18

(Figures in the parentheses indicate the percentage to total)

The findings of the study indicate that 54.44% of farmers were aware of the PMFBY crop insurance scheme and its provisions (Mean = 3.33). About 60% of the farmers in the sample were aware that the claim amount is directly debited to the insurer's account. However, 28.89% of the farmers disagreed strongly with the involvement of private insurance companies for coverage under PMFBY.

### Perception of Insured (Non-Loanee) farmers' towards PMFBY

According to Table-2, approximately 74% of farmers found the process of availing PMFBY through the bank channel to be lengthy (with an average score of 3.78 out of 5). Around 69% of non-loanee farmers felt that the compensation received from insurance was less than the actual crop loss they incurred on their farms (with an average score of 3.76 out of 5).

**Table 2:** Perception of Insured (Non-Loanee) farmers' towards PMFBY

Particulars	Frequency					Total	Mean Score (M)
	Strongly Agree (SA)	Agree (A)	Neither (N)	Disagree (D)	Strongly Disagree (SD)		
Farmers can sustain safely during calamity year	12 (13.33)	67 (74.44)	2 (2.22)	9 (10.00)	-	90 (100.00)	3.78
The premium amount is affordable	15 (16.67)	62 (68.89)	4 (4.44)	9 (10.00)	-	90 (100.00)	3.76
Simple and accessible procedures for availing PMFBY in the bank	14 (15.56)	59 (65.56)	5 (5.56)	12 (13.33)	-	90 (100.00)	3.68
Compensation is less when compared to actual loss	10 (11.11)	63 (70.00)	3 (3.33)	13 (14.44)	-	90 (100.00)	3.64
Crop insurance helps to adopt modern agricultural practices	16 (17.78)	54 (60.00)	7 (7.78)	13 (14.44)	-	90 (100.00)	3.63
Settlement of claim amount is directly debited to insurers' bank account	5 (5.56)	58 (64.44)	6 (6.67)	20 (22.22)	1 (1.11)	90 (100.00)	3.46
More awareness about the PMFBY and its provisions	4 (4.44)	52 (57.78)	7 (7.78)	26 (29.89)	1 (1.11)	90 (100.00)	3.31
Involvement of private agencies for better assessment	4 (4.44)	43 (47.78)	1 (1.11)	37 (41.11)	5 (5.56)	90 (100.00)	3.00

(Figures in the parentheses indicate percentage to total)

Non-loanee farmers usually borrow money from non-institutional sources, such as money lenders, and expect more compensation as a claim. As a result, around 65.56% of non-loanee farmers believe that more crops should be included under PMFBY (with an average score of 3.68 out of 5). About 57.78% of farmers agree that PMFBY has helped in adopting modern technologies for crop production, while 28.89% disagree with this statement (with an average score of 3.31 out of 5). Non-loanee farmers, in particular, strongly disagree (23.33%) or disagree (60.00%) with the involvement of private insurance companies for insurance coverage under PMFBY, with an average score of 2.04 out of 5.

### Constraints in Adoption of Crop Insurance

It is important to understand the reasons why farmers may not adopt crop insurance schemes, in order to improve their implementation and make them more effective. By identifying these constraints, it is possible to take necessary measures to increase farmer enrolment in the PMFBY scheme. The study used the Garette ranking method to analyze the opinions of selected respondents, and the results are presented in Table-3 & 4. Table-3 depicts the constraints in adoption by insured farmers whereas Table-4 describes the major reasons as to why non-insured farmers hesitate in adopting PMFBY.

**Table 3:** Constraints faced by the Sample respondents in the Adoption of Crop Insurance

Sl. No.	Particulars	Score	Rank
1.	Delayed receipt of claim	33	XI
2.	Lack of premium paying capacity	45	X
3.	Not satisfied with area approach claim	76	I
4.	Not aware of the insurance benefits	56	VII
5.	Lack of awareness about the cut off dates for enrolment of Crop Insurance	72	II
<b>Administrative Reasons</b>			
6.	Banks are not available nearby	68	III
7.	Lengthy Procedures/Complex Documentation	62	V
8.	Lack of service from the bank	50	IX
9.	Loan not received in time (As per Seasonality)	59	VI
10.	Is there any delay in Claim Settlement (Insurance Company / Bank)	53	VIII
11.	The indemnity assessment was not properly done by the Agents/ VAO	66	IV

Based on the results from Table-3, it is evident that farmers who participated in the PMFBY scheme were dissatisfied with the area approach claim assessment for crop loss. Another constraint was that farmers were not aware of the cut-off dates for enrolment in crop insurance. Additionally, in some locations, banks were not easily accessible to farmers

for financial support. The study also found that the indemnity assessment was not properly carried out by VAOs or insurance agents, which created procedural difficulties for farmers when applying for crop insurance. Furthermore, the farmers faced constraints in loan disbursement from banks, delays in claim settlements from insurance companies, and

lack of service by banks to farmers.

### Reasons for Not availing Crop Insurance in Study Districts

Table 4 depicts the reasons pointed out by the sample farmers for not availing crop insurance in the study districts.

**Table 4:** Reasons for Non-Adoption of Crop Insurance by Sample Farmers

Sl. No.	Particulars	Score	Rank
1.	Lack of awareness about the scheme	71	II
2.	Low premium paying capacity	60	V
3.	Difficulty in opening bank account	57	IV
4.	Not satisfied with the indemnity amount	73	I
5.	Lack of awareness about the cut off dates	69	III

The data from Table-4 shows that for sample farmers, the most common reason for not adopting insurance products is dissatisfaction with the indemnity amount. The second most common reason is a lack of awareness about the scheme. The main reason farmers do not adopt crop insurance is because they are not aware of the cut-off dates, followed by their low premium paying capacity.

### Conclusion

Understanding how farmers perceive crop insurance is crucial for several reasons. It helps policymakers and governments develop effective crop insurance schemes by identifying the factors that impact farmers' decisions to purchase insurance. Key factors that influence a farmer's willingness to buy crop insurance are their risk perception, specific knowledge, trust in the insurer, and farm characteristics. The adoption of crop insurance is hindered by area approach claim and non-awareness of cutoff dates, and the non-adoption of crop insurance by some farmers is a notable issue, stemming from limited awareness, capacity to pay premiums, and dissatisfaction with indemnity amounts. Therefore, enhancing awareness programs, reviewing policies, and potentially adjusting the scheme is necessary. An aggressive marketing strategy should be implemented to ensure that the crop insurance scheme reaches more farmers, particularly non-loanee farmers. This can be done by announcing cut-off dates ahead of the Kharif or Rabi season and by providing support services at the village level. It is also important to simplify the procedure of the crop insurance scheme and create awareness programs for farmers about it. Farmers need to be trained on how to file for insurance electronically. Moreover, the unique concerns of farmers in different districts emphasize the importance of implementing localized policies and strategies that cater to the specific needs of farmers within their respective regions. The involvement of local leaders, authorities, and agencies in providing insurance policies at the doorstep of loanee farmers can enhance their access to the scheme.

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