ISSN Print: 2664-844X
ISSN Online: 2664-8458
NAAS Rating (2025): 4.97
IJAFS 2025; 7(7): 639-642
www.agriculturaljournals.com
Received: 14-05-2025
Accepted: 17-06-2025

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Impact of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Nagpur District

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DOI: https://www.doi.org/10.33545/2664844X.2025.v7.i7i.577

Abstract
The Pradhan Mantri Fasal Bima Yojana (PMFBY), launched by the Government of India in 2016, aims to provide financial protection to farmers against crop loss due to natural calamities, pests, and diseases. This study evaluates the implementation and impact of PMFBY in Nagpur district, Maharashtra, with a specific focus on cotton cultivation. Data were collected from 80 farmers (40 insured, 40 non-insured) in Kalmeshwar and Hingna tehsils through structured interviews. The results indicate that insured farmers experienced higher productivity (27.37 qtl/ha) and lower cultivation costs (₹45,986/ha) compared to non-insured farmers (25.68 qtl/ha and ₹47,130/ha). The Benefit-Cost ratio was also significantly better for insured farmers (1.67 vs 1.34). Despite these economic advantages, issues such as claim settlement delays, low awareness (50%), and dissatisfaction with compensation (75%) were prevalent. The study concludes that while PMFBY has a positive effect on farm income stability and input usage, addressing operational challenges is critical for broader success. Recommendations include enhanced farmer education, improved transparency in damage assessment, and the use of digital platforms for faster claim disbursement.

Keywords: Crop insurance, PMFBY, Nagpur, cotton, farm income stability, agricultural risk, policy impact

Introduction
Agriculture remains the cornerstone of the Indian economy, employing over 50% of the population and contributing significantly to national GDP. Despite its economic and social significance, Indian agriculture is highly susceptible to climatic variability, natural disasters, pest outbreaks, and fluctuating market prices. These risks disproportionately affect small and marginal farmers, particularly in rainfed areas such as the Vidarbha region of Maharashtra.

In response to these challenges, the Government of India launched the Pradhan Mantri Fasal Bima Yojana (PMFBY) on 13th February 2016. The scheme was designed to provide comprehensive crop insurance coverage at subsidized premium rates—2% for Kharif, 1.5% for Rabi, and 5% for commercial crops. PMFBY aims to stabilize farm incomes, promote the adoption of modern technologies, and enhance the flow of institutional credit by compensating farmers for crop losses due to natural calamities, pests, and diseases. It is implemented through a multi-agency framework involving state governments, insurance companies, and financial institutions.

In Maharashtra, PMFBY has been extensively promoted, especially in districts like Nagpur where cotton and soybean are major crops. However, the effectiveness of the scheme on the ground remains a subject of policy interest and academic scrutiny. Various studies have presented mixed results—some highlighting improvements in income security and input adoption, while others criticize operational inefficiencies like delayed claim settlements and lack of transparency in damage assessment.

This study investigates the implementation and real-world impact of PMFBY on cotton growers in Nagpur district. It compares insured and non-insured farmers in terms of input use, productivity, and profitability, while also capturing farmer awareness, satisfaction, and the challenges they face under the scheme.

Objectives of the Study

1. To study the present status of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Maharashtra.
2. To examine the impact of PMFBY on input use and productivity on farms.
3. To assess the farmers expectations and to identify the problems faced by them related to PMFBY.

Methodology

The present study was conducted to assess the impact of the Pradhan Mantri Fasal Bima Yojana (PMFBY) on farmers in Nagpur district, Maharashtra, with a focus on input use, productivity, and farmers' expectations and problems. The methodology outlines the study area, sampling techniques, data sources, and analytical tools used to meet the specific objectives of the research.

Study Area

Nagpur district was purposively selected due to its significant area under cotton cultivation and high enrollment under PMFBY. Two tehsils—Kalmeshwar and Hingna—were chosen based on the prevalence of PMFBY adoption.

Sample Selection: A total of 80 farmers were selected using simple random sampling. This included 40 insured farmers who were enrolled under PMFBY and 40 non-insured farmers who did not participate in the scheme. Equal representation was ensured from both tehsils.

Village-wise Farmer Distribution

Tehsil	Villages	Insured Farmers	Non-Insured Farmers
Kalmeshwar	Linga, Khairi, Nimboli, Uparwahi	20	20
Hingna	Mandwa, Takalghat, Khapri, Bhansoli	20	20
Total	8 villages	40	40

Data Collection

Primary data was collected through personal interviews using a pre-tested, structured schedule. The schedule included questions on input use, productivity, awareness, expectations, and problems faced under PMFBY.

Period of Study

The study was conducted during the agricultural year 2023–24, which includes the Kharif season when cotton is predominantly cultivated and insured under PMFBY.

Analytical Tools

1. Cost and return analysis was used to assess input use and productivity among insured and non-insured farmers under PMFBY. The following formulas were used:

- Gross Return = Yield (qtl/ha) × Price per quintal
- Net Return = Gross Return − Cost C
- B:C Ratio = Gross Return / Total Cost (A/B/C)

1. Percentage method was used to analyze farmers' expectations and problems related to PMFBY:
2. Tabular analysis was used to present and interpret awareness, adoption behavior, and constraints faced by farmers in a systematic format.

Results and Discussion

The results of the present study are presented as below. The results are arranged as per the objectives taken

1. present status of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Maharashtra.

To analyze the performance of the PMFBY scheme in Maharashtra, secondary data on enrolled farmers, premium collected, and claims paid was examined from 2019–20 to 2023–24.

Table 1: PMFBY Status in Maharashtra (2019–2024)

Year	Farmers Enrolled (Crore)	Premium Collected (₹ Crore)	Claims Paid (₹ Crore)	Claims: Premium Ratio (%)	YoY Growth in Enrolled Farmers (%)
2019-20	1.45	5,500*	4,200*	76.36%	—
2020-21	1.24	5,300*	3,700*	69.81%	-14.48%
2021-22	0.99	5,179	3,484	67.26%	-20.16%
2022-23	1.07	4,691	2,908	61.97%	8.08%
2023-24	2.42	10,141	3,551	35.01%	126.17%

*Note: Data marked with * is provisional or rounded.

The data indicate that although the enrollment of farmers has increased significantly in 2023–24 (by over 126%), the claim settlement ratio has dropped to 35.01%**,** which is a serious concern for farmer confidence in the scheme. The premium collection has doubled, but corresponding payouts have not kept pace. This gap could lead to dissatisfaction and mistrust, despite increased participation.

2. Impact of PMFBY on Input Use and Productivity

The impact of PMFBY was evaluated by comparing insured and non-insured farmers in terms of their input use, crop productivity, and overall profitability. The results are presented in the table below:

Table 2: Input Use and Productivity Comparison

Sr. No	Particulars	Insured (₹/ha or qtl/ha)	Non-Insured (₹/ha or qtl/ha)
1	Main Produce (Qtl/ha)	27.37	25.68
2	Value of Main Produce (₹)	1,87,352	1,75,884
3	Gross Return (₹/ha)	1,87,352	1,75,884
4	Cost of Cultivation (₹/ha)	1,12,190	1,31,106
5	Net Return (₹/ha)	75,162	44,778
6	B:C Ratio	1.67	1.34

The insured farmers obtained higher yields (27.37 qtl/ha) as compared to non-insured farmers (25.68 qtl/ha). The cost of cultivation was also lower for insured farmers

(₹1,12,190/ha) than for non-insured farmers (₹1,31,106/ha), which could be attributed to better risk management and timely investment in quality inputs.

The B:C ratio of insured farmers (1.67) was notably higher than that of non-insured farmers (1.34), showing improved profitability and return on investment due to the security offered by PMFBY. These results validate that crop insurance not only protects against losses but also encourages farmers to adopt better technologies and practices.

3 Farmers expectations and to identify the problems faced by them related to PMFBY

Table 3 (a): Farmers' Expectations Related to Pradhan Mantri Fasal Bima Yojana

Sr. No	Expectation	Number of Selected Insured Farmers (N=40)	Percent to Total Selected Farmer (%)	Rank
1	Timely claim settlement	32	80	1
2	Prompt crop damage assessment	31	77.5	2
3	Hassle-free enrollment process	30	75	3
4	Transparent information sharing	23	57.5	4
5	Increased compensation amount	19	47.5	5

The majority of insured farmers prioritized timely claim settlement and quick crop damage assessment as their key expectations from PMFBY. This indicates the importance of efficient service delivery in sustaining trust in the scheme. Hassle-free enrollment and better transparency were also expected by more than half of the respondents.

Table 3 (b): Problems Faced by Insured Farmers Related to PMFBY

Sr. No	Problem Faced	Number of Selected Insured Farmers (N=40)	Percent to Total Selected Farmer (%)	Rank
1	Low compensation vs. loss	30	75	1
2	Difficulty in documentation	28	72	2
3	Delay in crop cutting experiments	28	70	3
4	Lack of awareness about PMFBY	20	50	4
5	Delay in claim settlement	19	47.5	5

The findings reveal that a significant number of farmers were dissatisfied with the amount of compensation received, citing it as inadequate in proportion to the crop loss. Additionally, delays in the crop cutting process and complexity in documentation were major bottlenecks, discouraging timely settlement and transparency.

Conclusion

The Pradhan Mantri Fasal Bima Yojana (PMFBY) was introduced with the vision of providing comprehensive risk coverage to farmers against crop loss arising from natural calamities, pests, and diseases. The present study aimed to evaluate the actual performance and impact of the scheme in Nagpur district, focusing on three core aspects: present status in Maharashtra, its influence on farm productivity and input use, and the expectations and problems faced by insured farmers.

The analysis revealed a positive correlation between crop insurance and farm performance. Insured farmers demonstrated higher yields, improved gross and net returns, and a better benefit-cost ratio compared to their non-insured counterparts. These improvements were largely attributed to the confidence and security that insurance provided, encouraging greater investment in quality inputs, timely operations, and risk-taking capacity among farmers.

However, despite these benefits, the scheme is hindered by several critical challenges. The claim-to-premium ratio has shown a declining trend, with claims paid not keeping pace with premium collection, especially in recent years. Moreover, the survey highlighted that insured farmers continue to face issues such as delayed claim settlements, complexity in documentation, low compensation amounts, and inadequate transparency in the claim processing system. The lack of awareness among non-insured farmers further restricts the potential outreach and adoption of the scheme.

Farmers expressed clear expectations from the scheme timely settlement of claims, prompt crop damage assessment, and a more transparent, farmer-friendly enrollment and compensation process. It is evident that although PMFBY has brought about measurable economic benefits, these gains could be significantly enhanced if systemic bottlenecks are addressed through policy refinement and operational improvements.

For the scheme to become truly transformative, the following actions are recommended:

- Strengthening the IT-based infrastructure for real-time claim tracking and automated assessments.
- Simplifying documentation and claim procedures through village-level facilitation centers or mobile apps.
- Enhancing awareness programs, especially among marginal and small farmers in remote regions.
- Ensuring transparency in damage assessment and timely disbursal of claims through third-party audits and independent grievance redressal mechanisms.

In conclusion, PMFBY holds immense potential to protect and empower the farming community. With timely reforms and greater institutional accountability, the scheme can evolve into a sustainable pillar of India's agricultural risk management system, securing farmer livelihoods and contributing to national food security.

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