



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(12): 1133-1138
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www.thepharmajournal.com
Received: 14-09-2023
Accepted: 19-10-2023

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Perception of respondents towards Pradhan Mantri Fasal Bima Yojana in North Eastern Karnataka

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Abstract

The Pradhan Mantri Fasal Bima Yojana (PMFBY) is an Indian agricultural insurance initiative aimed at safeguarding farmer's livelihoods against crop loss from natural calamities. The investigation was carried out in Bidar and Kalaburgi districts of Karnataka. Ex-post facto research design was employed. The sample comprised 120 respondents, with 80 being PMFBY insured farmers and 40 being non-insured farmers. Collected data was analysed using frequency, percentage and Mean Percent Score. It was revealed that in case of insured farmers, three fifth of insured farmers have medium level of perception followed by 23.75 percent have high perception and remaining 16.25 percent have low perception. In case of non-insured farmers it was revealed that, 67.50 percent have low level of perception followed by 27.50 percent have medium perception and only 05.00 percent have high perception. In case of insured farmers Mean Percent Score was highest in the statement scheme is an improvement over the previous crop insurance scheme (93.75%) and in case of non-insured farmers highest mean percent score (89.13%) was there is nothing new in the scheme it is just an old wine in a new bottle. It revealed a substantial and statistically significant contrast in the mean ranks when assessing the perceptions of the PMFBY (Pradhan Mantri Fasal Bima Yojana) crop insurance scheme between insured and non-insured farmers.

Keywords: Pradhan Mantri Fasal Bima Yojana, farmers, perception

Introduction

Agriculture stands as the cornerstone of the Indian economy, holding immense significance. Serving as the primary livelihood for approximately 47.00 percent of India's population (Anon., 2023) [1], it contributes significantly to the nation's well-being. The agriculture and allied sector's contribution to the overall Gross Domestic Product (GDP) stands at 18.60 percent (Anon., 2023) [1]. In the context of an agrarian nation like India, economic progress is intrinsically tied to agricultural development. However, Indian agricultural landscape is confronted with a range of challenges. These encompass the absence of advanced technologies, dearth of strategies to mitigate risks, inadequate access to irrigation facilities, erratic weather patterns, utilization of substandard seeds, prevalence of pests and diseases, volatile fluctuations in agricultural product prices and a heavy reliance on the monsoon, which is notoriously unpredictable and often characterized by late onsets and premature cessations, leading to crop failures. These losses can occur at various stages including failed sowing, standing crop deterioration, and post-harvest losses. To counteract such agricultural setbacks, the implementation of a robust crop insurance product emerged as a highly effective mechanism. Not only does it provide stability to farm incomes but it also empowers farmers to recommence their production activities following challenging agricultural years. Such a system acts as a safeguard, aiding in the recovery and resilience of the agricultural sector (Bhende, 2005) [2].

In India, the history of agricultural insurance dates back to 1947-48 when a study suggested the concept of a homogenous area approach. Subsequent developments include the introduction of the Crop Insurance Bill in 1965 and an expert committee led by Dharam Narian, which discouraged the implementation of a crop insurance scheme in 1971. A turning point came in 1976 with Dandekar advocating for crop insurance, leading to the implementation of the Pilot Crop Insurance Scheme (PCIS) in 1979. This initiative, in collaboration with the General Insurance Corporation (GIC), covered 13 states and 6.27 lakh farmers until 1984-85. The landscape evolved in 1985 with the introduction of the Comprehensive Crop Insurance Scheme (CCIS), which was eventually succeeded by the National Agricultural Insurance Scheme (NAIS) in 1999.

NAIS aimed to extend coverage to non-loanee farmers and remained operational until 2015-16. Under NAIS, premium rates ranged from 1.5 percent to 3.5 percent of the total sum assured for staple crops like pulses, oilseeds, cereals and the like. Conversely, for commercial crops such as cotton and horticultural produce, actuarial premium rates were levied. The geographical distribution of NAIS benefits was influenced by regions prone to frequent calamities. Addressing the limitations of NAIS, the Modified National Agricultural Insurance Scheme (MNAIS) was launched in 2010. MNAIS featured actuarial premium rates and sought to provide enhanced benefits to farmers by covering risks such as prevented sowing/planting and post-harvest losses. It aimed to offer a minimum indemnity level of 70 percent, utilizing more precise calculations for threshold yield. However, even with this adaptation, the anticipated impact and acceptance were not fully realized (Jamanal, 2019) ^[5].

To address the critical issue of farmers grappling with crop losses, the Government of India took a significant step forward. Government of India started a flagship scheme, the Pradhan Mantri Fasal Bima Yojana (PMFBY). This initiative was developed with the objective of providing comprehensive and effective crop insurance coverage to farmers across the nation. This initiative aimed to supersede all prior insurance schemes, including the National Agriculture Insurance Scheme (NAIS), the Weather-Based Crop Insurance Scheme (WBCIS) and the Modified National Agricultural Insurance Scheme (MNAIS). PMFBY aimed to create a robust framework for safeguarding farmers from production risks associated with their agricultural endeavors.

Karnataka is considered the second driest state in India after Rajasthan with more than seventy-five percent of arable land in rainfed regions. Minimizing the impact of natural disaster related crop losses, particularly from drought, is therefore a major public policy for its government (Kalavakonda and Mahul, 2005) ^[6]. North Eastern Karnataka is prone to uneven rainfall patterns, which can lead to droughts or floods. These extreme weather events can have devastating effects on crops. Crop insurance provides a safety net for farmers, helping them recover from losses caused by such climatic fluctuations. Crop insurance is vital in North Eastern Karnataka to protect the livelihoods of farmers, stabilize the agricultural sector, and ensure food security in the region. It serves as a crucial tool in managing the risks associated with agriculture and contributes to the overall development of the area's rural economy.

Methodology

The study was conducted in Bidar and Kalaburgi districts of Karnataka during the year 2022-23. From these districts Bhalki, Aurad, Aland and Chincholi taluks were purposively selected for conducting research. From each selected taluk three villages were selected randomly. Thus a total of 12 villages from four taluks were selected randomly for this study. 10 respondents were selected from each village by using simple random sampling method. 30 respondents from selected taluks of the district were selected at random in different villages. Among these respondents, 20 were PMFBY insured farmers, while 10 were non-insured farmers. In total, the study's sample size comprised 120 respondents, with 80 being PMFBY insured farmers and 40 being non-insured farmers. By using detailed constructed interview schedule. The data was collected by employing personal interview method. Ex-post facto research design was used for this study.

Collected data was analyzed and tabulated using appropriate statistical tests and tools.

Perception is the process of understanding sensation or attaching meanings based on past experiences. For the research purpose effort has been made to investigate the farmer's views regarding PMFBY. To study this objective an attempt was made to examine the Perception of farmers towards Pradhan Mantri Fasal Bima Yojana, procedure was developed by Shinde (2018) ^[10]. For measuring the variable, an procedure was developed and the frequency was studied on three point continuum i.e. agree, undecided and disagree and the numerical value of 3, 2 and 1 was assigned to positive statements and 1, 2 and 3 was assigned to negative statement. There are 18 statements in the procedure out of which 13 statements are positive statements and 05 are negative statements. Further, each statement was categorized based on Mean and Mean Percent Score. In case of insured farmers, the maximum and minimum score obtained were 50 and 32 respectively. In case of non-insured farmers, the maximum and minimum score obtained were 44 and 32 respectively. The respondents were grouped into following three categories based on the exclusive class interval method.

Results and Discussion

It was revealed that in case of insured farmers, three-fifth of insured farmers have medium level of perception followed by 23.75 percent have high perception and remaining 16.25 percent have low perception. In case of non-insured farmers it was revealed that, 67.50 percent have low level of perception followed by 27.50 percent have medium perception and only 05.00 percent have high perception.

The probable reasons of the majority of insured farmers have medium level of perception and majority of non-insured farmers have low medium of perception was respondents generally demonstrated medium levels of farming experience, economic motivation, risk orientation, extension orientation, mass media utilization, innovativeness, and scientific orientation. Farmers perception may be influenced by their trust in the implementation of the scheme, including the efficiency and transparency of the administrative processes. Farmers may have a moderate level of perception due to limited awareness about the specific details and benefits of the crop insurance scheme. The outcomes aligned with the discoveries reported by Nishi (2019) ^[9].

Distribution of the respondents according to their perception towards PMFBY

Based on the data presented in Table 2, distribution of insured farmers according to their perception towards PMFBY can be seen. Mean Percent Score was highest in the statement scheme is an improvement over the previous crop insurance scheme (93.75%) indicating a positive perception of the scheme's enhancements and benefits compared to its predecessors followed by an equal percent (93.33%) of insured farmers perceived that the low premium aspect is likely to attract many farmers to enroll, thereby covering a wide population and farmers feel secure and safe due to the added feature that the insurance scheme covers post-harvest losses, PMFBY increases resource-poor farmers' access to improved crop production (89.58%), individual farmers' knowledge, skills, and capacity to experiment are expected to increase with PMFBY (86.25%), PMFBY encourages farmers to get more yields and protects crops from damage (85.41%), the scheme provides prompt and easy settlement of claims

(80.83%), the use of technology for money transfer may restrict farmers from opting for crop insurance (78.75%), the scheme helps farmers take risks in farming and adopt new farming methods (78.33%), some farmers believe there is nothing new in the scheme it is just an old wine in a new bottle (58.75%), some farmers find it difficult to follow the procedures of crop insurance (70.83%), the scheme enables farmers to readjust their production strategies and improve economic performance (70.42%), the scheme does not cover the problems faced by farmers due to crop damage caused by wild animals (70.41%), Some farmers believe that PMFBY benefits only a specific group of farmers in the region (65.41%), the scheme helps in encouraging the enthusiasm of youths in the rural community towards pure farming (63.75%), an equal percent (59.58%) of respondents reported that the scheme dealing with weather fluctuations and using technology for claim settlement enhances transparency and some farmers believe there are still lacking aspects in the scheme (58.75%).

Based on the data we can observe the distribution of non-insured farmers' perceptions towards PMFBY. The statement with the highest mean percent score (89.13%) is "There is nothing new in the scheme it is just an old wine in a new bottle." This suggests that a significant majority of non-insured farmers perceive PMFBY as lacking innovation or novelty. A substantial portion, 79.17 percent perceives the low premium aspect as likely to attract many farmers to enroll, thereby covering a wide population. This highlights the importance of affordable premiums in encouraging participation. Approximately 78.33 percent of non-insured farmers believe that farmers feel secure and safe due to the added feature that the insurance scheme covers post-harvest losses. This aspect of coverage is seen positively. Around three-fourth of respondents reported that individual farmers' knowledge, skills, and capacity to experiment would increase with PMFBY. This suggests that non-insured farmers recognize the scheme's potential to enhance agricultural practices. 68.33 percent of non-insured farmers believe that the scheme helps farmers take risks in farming and adopt new farming methods, which is indicative of its potential to promote innovation in agriculture. 65.83 percent reported that the scheme is not of much benefit due to crop damage caused by wild animals, which is not addressed in the risk of crop damage. This indicates a concern among non-insured farmers regarding the scheme's coverage limitations. 62.50 percent

believe it is not possible to follow the procedures of crop insurance, highlighting potential barriers in the enrollment process. 58.33 percent of non-insured farmers perceive that PMFBY increases resource-poor farmers' access to improved crop production, indicating recognition of its potential benefits for marginalized farmers. 55.83 percent believe that the scheme deals with risks associated with weather fluctuations that are imperative for alleviating the distress caused to farmers, emphasizing the importance of weather-related coverage. 55.00 percent think that PMFBY encourages farmers to get more yields and protects crops from damage, showcasing the scheme's potential in enhancing agricultural productivity. 54.17 percent express concerns that the use of technology for money transfer may restrict farmers from opting for crop insurance, highlighting the need for user-friendly technology solutions. 52.50 percent perceive that the settlement of claims through the use of technology reduces delays and enhances transparency, indicating the importance of efficient claim processing. 50.83 percent believe that the scheme enables farmers to readjust their production strategies and improve economic performance, recognizing its potential for economic impact. About 45.00 percent perceive the scheme as providing prompt and easy settlement of claims, which is crucial for farmer satisfaction and trust in the program. 45.83 percent express dissatisfaction, stating that the scheme lacks coverage for farmers' problems, indicating areas where the scheme may need improvement. 43.33 percent believe that the scheme helps in instilling enthusiasm for farming among rural youth, highlighting a potential positive impact on the next generation of farmers. An equal percent (42.50%) of non-insured farmers perceive that PMFBY crop insurance is profitable for some farmers in the region, indicating some optimism regarding its economic benefits and believe that PMFBY is an improvement over the previous crop insurance scheme.

The mean weighted score of respective statements with more than 2 was perceived as a positive perception and less than 2 was perceived as a negative perception. It was also evident that in case of insured farmers, among all 18 statements 12 were perceived as a positive perception and remaining statements as negative perception about PMFBY. In case of non-insured farmers, among all 18 statements 08 were perceived as a positive perception and remaining statements as negative perception about PMFBY. The outcomes aligned with the discoveries reported by Shinde (2018) [10].

Table 1: Overall perception of respondents towards PMFBY

Si. No.	Category	Insured farmers n ₁ =80		Non-insured farmers n ₂ =40	
		f	%	F	%
1	Low perception	13	16.25	27	67.50
2	Medium perception	48	60.00	11	27.50
3	High perception	19	23.75	02	05.00

Note: f = frequency, % = Percent

Comparison of perception of insured and non-insured farmers towards PMFBY

The results from the Mann-Whitney U test, as outlined in Table 3, revealed a substantial and statistically significant contrast in the mean ranks when assessing the perceptions of the PMFBY (Pradhan Mantri Fasal Bima Yojana) crop insurance scheme between insured and non-insured farmers. Specifically, the mean rank for insured farmers' perceptions regarding PMFBY stands notably higher at 75.01. In stark contrast, non-insured farmers exhibit a considerably lower

mean rank of 31.48. The Mann-Whitney U statistic, calculated at 439.000, underscores the substantial divergence between these two groups. Furthermore, the Z-Score, with a value of -6.488, unequivocally indicates the high level of statistical significance. This finding holds true with a significance level at 0.01 percent (two-tailed). In essence, the Mann-Whitney U test underscores a stark difference in the mean ranks of insured and non-insured farmers' perceptions concerning the PMFBY crop insurance scheme. The negative Z-score (-6.488) highlights that insured farmers, on average,

hold significantly more favorable views of the scheme compared to their non-insured counterparts. This compelling evidence suggests that farmers who have enrolled in the

PMFBY scheme tend to harbor more positive opinions about it.

Table 2: Distribution of the respondents according to their perception towards PMFBY (n=120)

Si. No.	Statements	Insured farmers (n ₁ =80)		Non-insured farmers (n ₂ =40)	
		MPS	Mean	MPS	Mean
1	PMFBY encourages the farmers to get more yields and protects crop from damage.	85.41	2.56	55.00	1.65
2	PMFBY crop insurance is profit towards some farmers of the region.	65.41	2.00	42.50	1.28
3	Individual farmers' knowledge, skills and capacity to experiment would increase with PMFBY.	86.25	2.59	75.00	2.25
4	PMFBY increase resource poor farmer's access to improved crop production.	89.58	2.69	58.33	2.00
5	It is not possible to follow the procedures of crop insurance.	70.83	1.88	62.50	1.96
6	The scheme deals with risks associated with weather fluctuations are imperative for alleviating the distress caused to the farmers.	59.58	2.42	55.83	2.33
7	The scheme provides prompt and easy settlement of claims.	80.83	2.49	45.00	1.36
8	There is nothing new in the scheme, it is just an old wine in new bottle.	58.75	1.46	89.17	1.33
9	The scheme helps in dragging the attitude of youths of rural community to pure farming enthusiastically.	63.75	1.91	43.33	1.30
10	The use of technology for money transfer may restrict farmers to go for crop insurance.	78.75	2.36	54.17	1.63
11	The scheme is an improvement over previous crop insurance scheme.	93.75	2.81	42.50	1.28
12	The settlement of claims through use of technology reduces the delay in claim compensation and enhances the level of transparency.	59.58	1.79	52.50	1.58
13	The low premium aspect is likely to attract many farmers to enroll there by covering a wide population.	93.33	2.80	79.17	2.38
14	Farmers feel secure and safe due to the added feature that the insurance scheme covers post-harvest losses.	93.33	2.80	78.33	2.35
15	The scheme is not of much benefit as in most of the agricultural lands, crop damage occurs due to the destruction caused by wild animals which is not addressed in the risk of crop damage.	70.41	1.89	65.83	2.01
16	There is lacking in the scheme as the scheme does not cover the problems of farmers.	58.75	2.24	45.83	2.63
17	The scheme helps the farmers to take risks in farming and adopt new farming methods with the crop insurance scheme.	78.33	2.35	68.33	2.05
18	The scheme enables farmers to readjust their production strategies and thus improve the economic performance.	70.42	2.11	50.83	1.53

MPS= Mean Percent Score

It can be concluded that, there is a significant difference between perception of insured farmers and perception of non-insured farmers. These findings underscore the potential influence of direct experience, risk mitigation, access to information, financial impacts, and psychological factors on insured farmers' perceptions. As such, there is a clear imperative to enhance communication and outreach efforts

aimed at educating non-insured farmers about the potential benefits of PMFBY. Addressing their concerns and providing transparent information about the scheme's advantages could play a pivotal role in encouraging broader enrollment and, in turn, bolstering the scheme's effectiveness in supporting agricultural communities. The outcomes aligned with the discoveries reported by Suresh and Sreedaya (2022) [11].

Table 3: Comparison of perception of insured and non-insured farmers towards PMFBY

Si. No.	Particulars	n	Mean Rank
1	Insured farmers	80	75.01
2	Non-insured farmers	40	31.48
A	Mann-Whitney U		439.000
B	Wilcoxon W		1259.000
C	Z		-6.488**
D	Asymp. Sig. (2-tailed)		0.000

Relationship between profile characteristics of PMFBY with the Perception

To test the relationship between selected profile characteristics of farmers towards PMFBY and the Perception, correlation coefficient values (r) were calculated and are presented in the Table 4. Relevant null and empirical hypotheses were then tested to understand the nature of this relationship between the respondents' profile characteristics and the extent of utilization of PMFBY.

The analysis revealed that the correlation co-efficient (r) between the perception and the variables of social participation and extension participation was found to be

significantly correlated at the 1% level of significance. Moreover, the perception was significantly correlated with livestock possession and extension contact at the more stringent 1% level of significance. However, regarding the variables of land holding showed a negative correlation at the 5% level of significance and risk orientation showed negative correlation at 1% level of significance.

On the other hand, there was no significant correlation between the perception and the variables of age, education, farming experience, annual income, innovativeness, economic motivation, scientific orientation and mass media utilization.

Table 4: Correlation between profile of respondents with Perception of PMFBY

Sl. No.	Profile	r value
1.	Age	0.038
2.	Education	0.047
3.	Farming experience	0.024
4.	Family size	0.024
5.	Land holding	-0.242*
6.	Annual income	0.076
7.	Extension participation	0.326**
8.	Extension contact	0.2468*
9.	Innovativeness	0.098
10.	Economic motivation	0.100
11.	Risk orientation	-0.317**
12.	Scientific orientation	-0.118
13.	Social participation	0.328**
14.	Livestock possession	0.241*
15.	Mass media utilization	0.052

Table 5: Multiple regression analysis of selected independent variables with perception about PMFBY

Sl. No.	Profile characteristics	Unstandardized Coefficients		t value
		Regression coefficient	Standard error	
1.	Age	0.041	0.039	1.051
2.	Education	0.155	0.235	0.659
3.	Farming experience	0.055	0.047	1.170
4.	Family size	0.265	0.360	0.736
5.	Land holding	-0.116	0.099	-1.172
6.	Annual income	-0.076	0.065	-1.169
7.	Extension participation	0.791	0.260	3.042*
8.	Extension contact	0.798	0.298	2.679*
9.	Innovativeness	0.918	0.268	3.427*
10.	Economic motivation	0.235	0.251	0.936
11.	Risk orientation	-0.963	0.327	-2.947*
12.	Scientific orientation	-0.297	0.262	-1.135
13.	Social participation	0.642	0.209	3.067*
14.	Livestock possession	0.368	0.316	1.165
15.	Mass media utilization	0.693	0.229	3.029*

$R^2 = 0.656$ $F=2.47$

Multiple regression analysis of selected independent variables with Perception of insured farmers towards PMFBY

An analysis was conducted to determine the contribution of various profile characteristics in explaining the variation in the dependent variable, i.e., the perception of beneficiaries. The regression coefficients presented in the Table 5 showed that among the selected profile characteristics, extension participation, innovativeness, mass media utilization, extension contact and social participation had a positive and significant impact at a five percent level of probability, while risk orientation availed had a negative and significant impact at a five percent level of probability. However, the remaining selected profile characteristics, including age, education, land holding, farming experience, family size, annual income, scientific orientation, economic motivation, and livestock possession, were found to be non-significant in this analysis. The calculated "R²" value of 0.656 indicates that the combined effect of all the selected fifteen profile characteristics of beneficiaries accounted for approximately 65.60 percent of the variation in farmers' perception towards PMFBY. The remaining 34.40 percent of the variation can be attributed to other factors not included in the analysis. In conclusion, the selected profile characteristics contributed significantly to explaining the variation in farmers' perception of PMFBY, but a substantial portion of the variation is still influenced by external or unaccounted factors. The outcomes

aligned with the discoveries reported by Nagesh (2019) [8].

Conclusion

In conclusion, the findings suggest that PMFBY has been perceived positively by the majority of insured farmers, with recognition of its improvements over previous schemes, affordability, and its potential to enhance farming practices and livelihood security. However, there are also areas of concern, such as the need for simplification of procedures, addressing selectivity perceptions, and expanding coverage to include more types of losses. Policymakers and stakeholders can use these insights to refine and improve the scheme for the benefit of all farmers. Addressing these perceptions and concerns can be crucial for promoting wider adoption of the scheme among non-insured farmers.

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