Original Research Article

A study on farmer's knowledge on *Pradhan Mantri Fasal Bima Yojana* in Tumkur district of Karnataka

Abstract

The current study was undertaken in Tumkur district of Karnataka. A total of 120 farmer beneficiaries of Pradhan Mantri Fasal Bima Yojana were selected by using the random sampling technique. About sixteen independent variables were selected based on judges' relevancy rating and were quantified using measurement devices. The data were collected using a pretested structured interview schedule and suitable statistical tools were used to analyze the data. The knowledge level of beneficiaries reported that, more than half of the farmers (53.33%) belongs to medium knowledge level, 25.00% belongs to high knowledge level and 21.67% belongs to low knowledge level. The variables like age, annual income, education, land holding, farming experience, extension contact, extension participation, scientific orientation, cosmopoliteness, achievement motivation, mass media exposure and crops cultivated had positive and significant association with knowledge level. Risk orientation, economic motivation and credit orientation had positive and significant at one per cent level. However, social participation was found to be non-significantly associated with the knowledge on Pradhan Mantri Fasal Bima Yojana. A comprehensive knowledge on scheme and an insurance of crops against natural disasters can become immense value to farmers. The government has to take new initiatives to help farmers thereby providing life security and make them confidence in their profession. Extension personnel working at gross root level should provide timely and complete information on Pradhan Mantri Fasal Bima Yojana by using suitable extension methods.

Keywords: Knowledge, Crop Insurance, *Pradhan Mantri Fasal Bima Yojana*, Tumkur.

INTRODUCTION

Agriculture is extremely important to India's economic development and it is the primary source of income for the majority of rural households. Agriculture, along with livestock and fisheries are major contributors to the Gross Domestic Product (https://farmer.gov.in). Agriculture being the function of physical, socio-institutional, techno-economic factors which are dynamic in nature keeps on changing with the basic objective of increasing production and generation of food grain surplus. Natural disasters and uncertainties in crop yield continue to be a part of farming. As a result, when a crop fails due

to natural calamities, assistance measures must be done. Due to outcome of such losses, crops not only deprive farmers for food but also liquidate their investments in terms of money and labour. Under such circumstances the insurance of crops against risk can be immense value to them. Government has taken steps to provide security by implementing a number of agricultural schemes around the country.

In India, agricultural insurance has its origins in 1947-48, recommending crop insurance bill in 1965. By incorporating the finest elements and eliminating the drawbacks of the previous schemes, *Pradhan Mantri Fasal Bima Yojna*, (PMFBY) has been launched during *kharif* 2016, which let farmers pay a very low premium to insure their crops. The coverage includes losses due to non-preventable risks like natural fire and lightning, storm, hailstorm, cyclone, typhoon, tempest, hurricane, tornado etc. Risks due to flood, inundation, landslide, drought, dry spells, pests/ diseases, having intent to sow/plant, incurred expenditure and are prevented from sowing/planting crop due to adverse weather conditions and post-harvest losses. Farmers have many insurance programs, only few of them are known to them. Farmers' mindset keeps them away from it. This thinking ultimately converts to attitude. So, it is required to have the farmers understanding and attitude towards such schemes. Keeping these aspects in view, the present study was conceptualized and conducted with specific objective of analysing the relationship between the profile characteristics of farmer beneficiaries and their knowledge on PMFBY.

METHODOLOGY

This study was conducted in Tumkur district of Karnataka state during the year 2020-2021. Ex-post facto research design was used for this study. Tumkur district was purposively chosen for the study as it is having highest number of farmers enrolment (1,55,247) and highest number of beneficiaries (67,057) of PMFBY in the central dry zone of Karnataka State (www.pmfby.gov.in). From Tumkur district, Pavagada and Sira taluks were selected based on the highest number of enrolment and beneficiaries of the PMFBY. The village-wise information relating to PMFBY was obtained from the Department of Agriculture, Tumkur. The six villages having the highest number of beneficiaries in Pavagada and Sira taluks were selected and sixty respondents from each taluk were randomly selected from six villages. Thus, the total sample constituted to 120 farmers. The data were collected from 120 respondents through personal interview by using well structured interview schedule. The data collected from the respondents were scored, tabulated and analysed using suitable statistical methods.

Mean ($\bar{X}$): The measure of central tendency of a probability distribution referring to expected value or average. It is the sum of observed values of a set divided by the number of observations (n) in the set.

Mean formula: $\bar{X} = (\Sigma Xi) / n$

where, $\bar{X}$= sample mean, Xi =all of the X-values n = number of items in sample

Frequency: It refers to the number of times the observation repeated or occurred in a study.

Percentage: It refers to a number or ratio expressed as a fraction of 100 with no unit of measurement.

Standard Deviation (s): It is referred to the measure of the amount of variation of a set of values. It was used to classify the respondents along with the mean value.

The chi-square test was applied to find out the association between independent (profile characteristics) and dependent variables (respondents knowledge level and attitude level). It is the difference between the observed and expected frequencies; same was squared and divided by the expected frequencies. Further, all the quantities obtained independently are added then the sum total obtained is chi-square ($\chi 2$) value.

$$\chi 2 = \Sigma (fo - fe)^2 / fe$$

Where, fo is Observed frequencies and fe is Expected frequencies

A total of sixteen independent variables were selected based on judges' rating for the study and these variables were quantified with the help of available measurement procedures.

Sl. No	Variables	Empirical measurement
Dependent variable		
Attitude of farmers towards PMFBY		Scale developed by Jamanal *et al.*, (2019) with slight modifications
Independent Variables		
1.	Age	Chronological age of the farmers
2.	Education	Procedure followed by Hiremath (2000)
3.	Annual income	Scale developed by Pandya (2010)
4.	Land holding	Scale developed by Pandya (2010)
5.	Farming experience	Procedure followed by Binkadakatti (2008)
6.	Extension contact	Scale developed by Hiremath (2007) with slight modifications
7.	Extension	Procedure followed by Nagesh (2006) with slight

	participation	modifications
8.	Cosmopoliteness	Procedure followed by Desai (1981)
9.	Mass media exposure	Procedure followed by Meti (1990) and Kiran Kumari (1991)
10.	Social participation	Procedure followed by Saravanakumar (1996) with suitable modifications
11.	Scientific orientation	Scale developed by Supe (1969)
12.	Achievement motivation	Scale developed by Reddy (1996)
13.	Risk orientation	Procedure followed by Nagaraja (1989)
14.	Economic motivation	Scale developed by Supe (1969) with suitable modifications
15.	Credit orientation	Scale developed by Beal and Sibley (1967)
16.	Crops cultivated	Procedure followed by Kerur (2014) with slight modifications

The dependent variable is knowledge of farmer beneficiaries on PMFBY. Knowledge refers to the quantum of information and functions related to PMFBY, possessed by respondents at the time of investigation. A teacher made test as suggested by Anastasi (1961) was developed to measure the knowledge about PMFBY. By consulting the previous studies, discussion with experts and with the research experience, 25 questions for PMFBY were framed. The answers obtained from the respondents for the knowledge test were quantified by giving a score of one and zero for correct and wrong answers, respectively. The knowledge index was calculated for each respondent with the help of following formula.

$$Ki = \frac{X_1+X_2+X_3+X_4\ldots\ldots..Xn}{N} X 100$$

Where,

Ki = Knowledge index

$X_1 + X_2 + \ldots\ldots + X_n$ = Total number of correct answers i.e. total score

N = Total number of items in the test.

Based on arbitrary scaling technique respondents were grouped into three categories as low, medium and high using mean and half standard deviation as measure of check.

Sl. No	Category	Criteria

1	Low	Less than (Mean – ½ SD)
2	Medium	Between (Mean ± ½ SD)
3	High	More than (Mean + ½ SD)

RESULTS AND DISCUSSION

Profile characteristics of farmer beneficiaries of PMFBY

Evidently the study depicted that more than two fifth of the farmers (41.67%) belongs to middle aged group, 30.00% had middle school education, 46.67% belongs to medium farmers and 43.33% belongs to medium farming experience. It was noticed that majority of them (53.33%) belongs to medium annual income, 45.00% belongs to medium mass media exposure and 63.33% belongs to high level of cosmopoliteness. About 48.33% had medium extension contact, 60.00% had medium extension participation and 46.67% had medium social participation. The study revealed that 51.67% belongs to the medium achievement motivation, 48.33% belongs to medium scientific orientation, 53.33% belongs to medium level of risk orientation. About 56.67% had medium economic motivation, half of the beneficiaries (50.00%) had medium credit orientation and 46.67% belonged to high crops cultivated category.

Table 1: Personal, Socio-economic and Psychological characteristics of farmer beneficiaries of PMFBY

(n=120)

Sl. No	Characteristics	Category	Frequency	Percentage
1.	Age	Young (<35 years)	38	31.67
		Middle (35-50 years)	50	41.67
		Old (>50 years)	32	26.67
2.	Education	Illiterate	12	10.00
		Primary school	26	21.67
		Middle school	36	30.00
		High school	20	16.67
		PUC	14	11.67
		Graduation	8	6.67
		Post-graduation	4	3.33
3.	Land holding	Small Farmers (up to 2 acres)	42	35.00
		Medium Farmers (2 acres – 4 acres)	56	46.67

		Big Farmers(>4 acres)	22	18.33
4.	Farming Experience	Low (up to 14 years)	28	23.33
		Medium (15–30 years)	52	43.33
		High (> 30 years)	40	33.33
5.	Annual Income	Low (Up to Rs. 50,000)	36	30.00
		Medium (Rs. 50,001– Rs.1,00,000)	64	53.33
		High (Above Rs.1, 00,000)	20	16.67
6.	Extension Contact	Low (6.72)	22	18.33
		Medium (6.72 -8)	58	48.33
		High (8)	40	33.33
7.	Extension participation	Low (9.79)	14	11.67
		Medium (9.79 – 11.51)	72	60.00
		High (11.51)	34	28.33
8.	Cosmopoliteness	Low (7.99)	16	13.33
		Medium (7.09 – 8.87)	28	23.33
		High (8.87)	76	63.33
9.	Mass media exposure	Low (7.06)	28	23.33
		Medium (7.06 – 8.66)	54	45.00
		High (8.66)	38	31.67
10.	Social participation	Low (1.24)	38	31.67
		Medium (1.24 – 2.22)	56	46.67
		High (2.22)	26	21.67
11.	Scientific orientation	Low (8.19)	36	30.00
		Medium (8.19-9.41)	58	48.33
		High (9.41)	26	21.67
12.	Achievement motivation	Low (13.63)	22	18.33
		Medium (13.63 – 14.69)	62	51.67
		High (14.69)	36	30.00
13.	Risk orientation	Low (8.01)	32	26.67
		Medium (8.01-9.35)	64	53.33
		High (9.35)	24	20.00
14.	Economic	Low (22.43)	24	20.00

	motivation	Medium (22.43-25.69)	68	56.67
		High (25.69)	28	23.33
15.	Credit orientation	Low (1.87)	32	26.67
		Medium (1.87-3.25)	60	50.00
		High (3.25)	28	23.33
16.	Crops cultivated	Low (3.60)	24	20.00
		Medium (3.60-4.66)	40	33.33
		High (4.66)	56	46.67

Knowledge level of respondents of PMFBY

Knowledge level on PMFBY revealed that 53.33% of the beneficiaries belongs to medium knowledge level, 25.00% of the beneficiaries belongs to high knowledge level, 21.67% belongs to low knowledge level (Table 2). The results showed that there is a considerable difference of knowledge in beneficiaries. The reason may be the beneficiaries get enrolled in the PMFBY, they are aware about the features of the scheme like premium rate, notified crops, commencement date and closing date of insurance application, conduct of cropping cutting experiments by insurance agents, bank officials and other line department officers. These findings are similar with Raghunandan (2004), Hemanth kumar (2002) and Sasidhar (2003).

Table 2: Knowledge level of farmer beneficiaries of PMFBY

(n=120)

Sl. No	Category	Frequency	Percentage
1.	Low	26	21.67
2.	Medium	64	53.33
3.	High	30	25.00
	Total	Mean= 13.96 SD= 4.72	

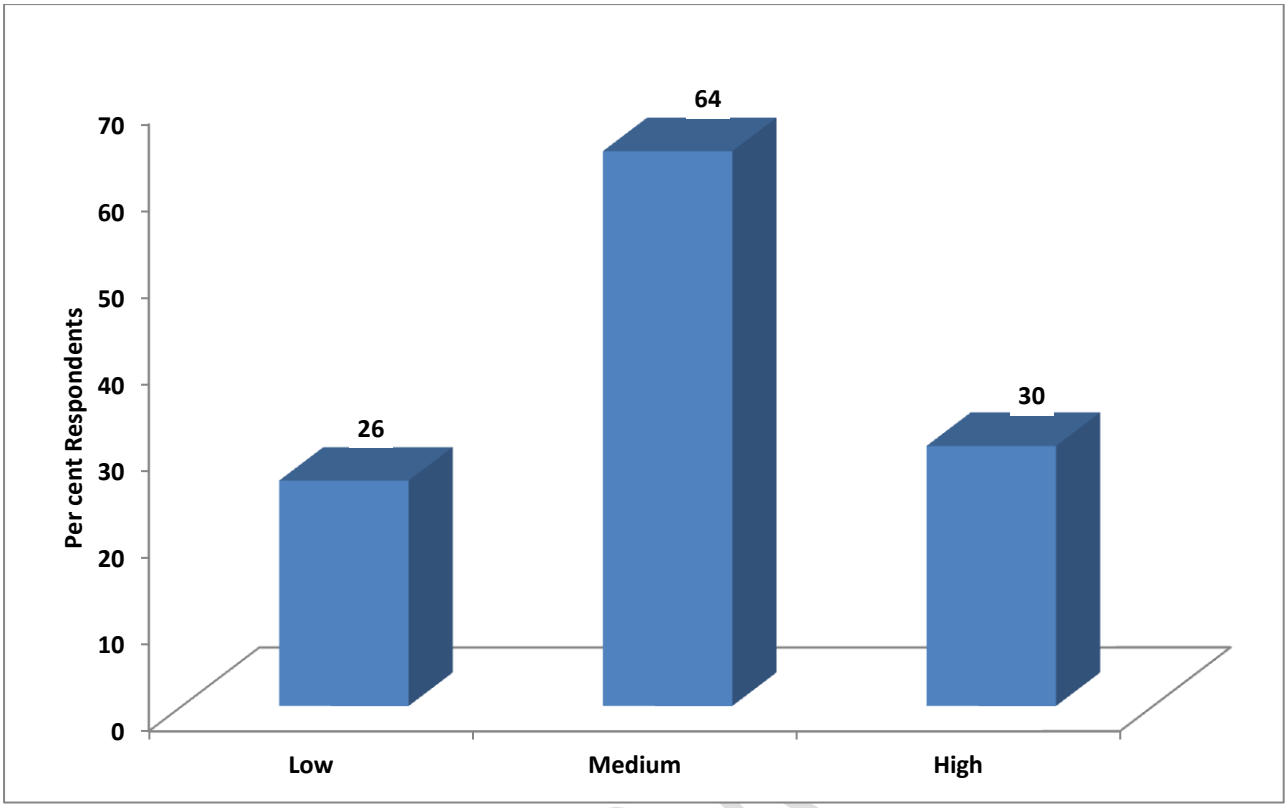

Fig. 1. Knowledge level of farmer beneficiaries of PMFBY

Association between Knowledge of farmer beneficiaries of PMFBY and their profile characteristics

Knowledge and personal characteristics of beneficiaries

Table 3 reveals that the results of chi-square test applied to ascertain the association of personal characteristics with the knowledge level of beneficiaries towards PMFBY. The variables like age, education, land holding, farming experience had a positive and significant association at 5% level is seen between knowledge and personal characteristics of beneficiaries. The reason might be that most of the beneficiaries were medium to young age, were having good education level and their annual income was quite comfortable. The landholding and longer period of farming experience made them to expose themselves and to know the features and benefits of PMFBY. These findings are similar with Singh *et al*., (2014) and Jamanal *et al*., (2019).

Knowledge and socio–economic characteristics of beneficiaries

The results presented in Table 3 reveal that, when chi-square test was applied to ascertain the association of socio-economic characteristics with the knowledge of beneficiaries towards PMFBY. Out of six variables such as annual income, extension contact, extension participation, cosmopoliteness and mass media exposure had a positive and

significant association at 5% level with knowledge and socio-economic characteristics of beneficiaries. The variable such as social participation had non-significant association with knowledge on PMFBY. The reason might be that most of the beneficiaries had good extension contact which lead to more participation in extension activities like training, demonstrations, their main purpose of visit is to agriculture or relating to agriculture, they had mass media exposure like T.V., mobile, WhatsApp etc. Beneficiaries had been less time member and position held in any organizations, as a result their social participation is low. These findings are similar with Singh and Yadav (2012) and Subhash (2018).

Knowledge and psychological characteristics of beneficiaries

The results presented in Table 3 reveal that, when chi-square test was applied to ascertain the association of psychological characteristics with the knowledge of beneficiaries towards PMFBY. Out of six variables such as scientific orientation, achievement motivation, risk orientation and crops cultivated had a positive and significant association at 5% level with knowledge, variables like risk orientation, economic motivation and credit orientation had a positive and significant association at 1% level. The reason might be the beneficiaries had more knowledge on scientific practices, they believe that farming involves risk taking, they were not fear of taking risks, they grow the crops which were suitable to them, they think that to achieve more one has to work more, they were economically motivated and they think it was no wrong in taking credit from the financial institutions when the need arises. These findings are similar with Chitra (2010) and Chahande (2012).

Table 3: Association between profile characteristics of the respondents with their knowledge regarding PMFBY (n=120)

Sl. No.	Characteristics	Chi-square value
1	Age	11.74*
2	Education	23.47*
3	Annual income	10.02*
4	Land holding	9.74*
5	Farming experience	11.25*
6	Extension contact	12.09*
7	Extension participation	9.91*
8	Cosmopoliteness	12.37*
9	Mass media exposure	11.53*
10	Social participation	4.12NS

11	Scientific orientation	13.02*
12	Achievement motivation	12.42*
13	Risk orientation	27.53**
14	Economic motivation	17.60**
15	Credit orientation	23.40**
16	Crops cultivated	11.46*

NS=Non-significant, *=Significant at 5% level, **=Significant at 1% level

CONCLUSION

The Study reveals that most of the beneficiaries had medium knowledge level on *Pradhan Mantri Fasal Bima Yojana*. Risk orientation, economic motivation and credit orientation variables found highly positive and significant association with the knowledge level of the farmers on PMFBY. A comprehensive knowledge on scheme and an insurance of crops against natural disasters can become immense value to farmers. The government has to take new initiatives to help farmers thereby providing life security and make them confidence in their profession. Extension personnel working at gross root level should provide timely and complete information on *Pradhan Mantri Fasal Bima Yojana* by using suitable extension methods.

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