

Original Research Article

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Knowledge of Wheat Growers about Pradhan Mantri Fasal Bima Yojana

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ABSTRACT

Agriculture is the mainstay of Indian economy because about 56 per cent of our population depends directly or indirectly on agriculture for their livelihood. Agriculture and allied sector contributes approximately 13.9% of India's GDP but still Indian agriculture is facing many challenges, which hinder the potential of agricultural production. In these challenges natural calamities like hail, drought, floods, cyclone and typhoon are very severe because they are out of control for human being, but we can mitigate the loss from these calamities with the help of crop insurance. The present study was conducted in Jaipur district of Rajasthan as this district had highest number of registered farmers under Pradhan Mantri Fasal Bima Yojana (PMFBY) as compared to other districts of the state. Findings of the study revealed that majority of the beneficiary (67.78%), non-beneficiary (62.22%) and overall respondents (65.00%) had medium level of knowledge about PMFBY. There was significant association between education, annual income, mass media exposure and extension agency contact with the knowledge level of the respondents.

Keywords

Knowledge,
PMFBY and Wheat
Growers

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Introduction

Crop insurance is a method by which farmers can stabilize farm income, investment and guard against disastrous effect of losses due to natural hazards or low market prices. Crop insurance not only stabilizes the farm income but also helps the farmers to initiate production activity after a bad agricultural year. It cushions the shock of crop losses by providing farmers with a minimum amount of

protection. The idea of crop insurance in India was conceptualized as far back as 1920, when Chakravarti proposed an Agricultural Insurance Scheme based on rainfall approach (Vyas and Singh, 2006). The Pradhan Mantri Fasal Bima Yojana was launched by Hon'ble Prime Minister of India Sh. Narendra Modi Ji on 18 February 2016 which replaced the existing two schemes namely National Agricultural Insurance Scheme as well as Modified National Agricultural Insurance

Scheme. This new crop insurance scheme is in line with One Nation–One Scheme theme. PMFBY contributes to self-reliance and self-respect among farmers, since in cases of crop loss they can claim compensation as a matter of right. Therefore, realizing the importance of crop insurance as a tool for managing risk and uncertainties in the field of agriculture, the present study was conducted with the objective to measure the knowledge level of the wheat growers about PMFBY.

Materials and Methods

The present study was conducted in Jaipur region of Rajasthan as this region had highest registered farmers under Pradhan Mantri Fasal Bima Yojana as compared to other regions of the state. Jaipur region comprises of four districts namely i.e. Ajmer, Jaipur, Dausa and Tonk. The Jaipur district was selected purposely on the basis of highest number of registered farmers under Pradhan Mantri Fasal Bima Yojana among all the districts of the region. Three tehsils namely Chomu, Kotputli, and Kisangarh-renwal were selected purposely on the basis of highest registered farmers under Pradhan Mantri Fasal Bima Yojana. Further, two villages from each tehsil namely Nangal Bharda and Astikalan from Chomu; Nangal Panditpura and Rai Karanpura from Kotputli, Badhal and Itawa from Kisangarh renwal were selected purposely on the basis of highest number of registered farmers under PMFBY for the present investigation. The proportionate random sampling method was used to select the user respondents and they were called as beneficiary of PMFBY because they have benefited under PMFBY. Further, equal number of non-beneficiary respondents from the same villages were also selected randomly who have not benefitted under Pradhan Mantri Fasal Bima Yojana and they were called as non-beneficiary respondents. Total 180 respondents i.e. 90 beneficiary and 90 non-beneficiary respondents were selected

from selected villages for the present investigation. Thus, the total sample size from the selected six villages was 180 respondents. The data were collected with the help of pretested semi-structured interview schedule. Analysis of the data was done with the help of different statistical tools like frequency distribution, percentage, mean, standard deviation, mean percent score, correlation coefficient(r), rank correlation, 'z' test, t-test as well as multiple linear regression.

Results and Discussion

Knowledge is considered as those behaviour and test situations, which emphasize the remembering, either by recognition or recall of ideas, material or phenomena. In the present investigation, knowledge was operationalized as the amount of information gained and retained by the respondents regarding Pradhan Mantri Fasal Bima Yojana. Knowledge as a body of understood information possessed by an individual is one of the most important components of adoption behaviour. It is considered as a pre-requisite for adoption by many scientists. In order to increase the level of adoption, farmers must possess information about the recent schemes and technologies. On this ground, it is imperative to examine their level of knowledge about the recommended Pradhan Mantri Fasal Bima Yojana. In this regard, an effort was made to assess the knowledge level of beneficiary as well as non-beneficiary wheat growers regarding Pradhan Mantri Fasal Bima Yojana with the help of knowledge test. Based on the minimum and maximum knowledge scores obtained by the respondents, mean value and standard deviation were computed. The respondents were classified into three categories on the basis of mean value (24.55) and standard deviation (15.51). The data related to the knowledge level of both the category of farmers i.e. beneficiary and non-beneficiary

farmers indicate that the farmers' knowledge concerning Pradhan Mantri Fasal Bima Yojana had a wide dispersion. The data pertaining to the knowledge level of the respondents about Pradhan Mantri Fasal Bima Yojana are presented in Table 1.

The data presented in Table 1 reveals that a huge majority i.e. 67.78 per cent beneficiary respondents had medium level of knowledge followed by high 23.34 per cent and low 08.88 per cent, respectively. In case of non-beneficiary respondents, majority of the farmers (62.22%) possessed medium level of knowledge followed by low (30.00%) and high (07.78%) level of knowledge respectively. The data presented in Table 1 also indicates that sixty five per cent of the overall respondents had medium level of knowledge followed by low (19.44%) and high (15.56%) level of knowledge, respectively. Comparative view of data pertaining to these three categories of farmers clearly bring to light that there was high level of knowledge among beneficiary respondents, it means that there had been upward movement in the knowledge level of the farmers after receiving the benefits of PMFBY. The findings are supported by the findings of Roy and Bhagat (2012) and Jambuvant (2017) who reported that majority of the respondents had medium knowledge about crop insurance schemes.

Furthermore, the different aspect-wise knowledge level of beneficiary and non-beneficiary respondents was also measured separately. The relative importance of all the five aspects of knowledge about Pradhan Mantri Fasal Bima Yojana was highlighted by ranking them in descending order on the basis of Mean Percent Score (MPS) of knowledge level. The data in the Table 2 shows that beneficiary farmers' possessed highest knowledge about loan facility and sum insured (69.33 MPS) as this aspect was ranked first.

The second rank was assigned to premium (63.55 MPS) followed by general information regarding key features (56.52 MPS) and coverage of farmers, crops and risks (46.99 MPS) which were accorded ranked third and fourth, respectively. Whereas, advantages of PMFBY (43.88 MPS) was found in last position of knowledge level of beneficiary farmers about Pradhan Mantri Fasal Bima Yojana.

The data in Table 2 also indicates that the non-beneficiary farmers had very good amount of knowledge in two aspects i.e. loan facility & sum insured and general information regarding key features with 43.33 and 30.44 MPS. The non-beneficiary farmers possessed relatively less knowledge of premium, advantages of PMFBY and coverage of farmers, crops and risks with 23.96, 8.30 and 2.22 MPS. If we look at Table 2 irrespective of beneficiary and non-beneficiary respondents, data clearly reveals that overall respondents had very good amount of knowledge about loan facility & sum insured, premium and general information regarding key features with 56.33, 43.75 and 43.48 MPS, respectively. Respondents possessed least knowledge regarding advantages of PMFBY and coverage of farmers, crops and risks with 26.09 and 24.60 MPS, respectively. The findings are in line with the findings of Samota *et al.*, (2015) who found that the farmers possessed less knowledge of various aspects of crop insurance scheme such as risk covered, crop covered etc.

An effort was also made to determine the relationship between the ranks assigned by beneficiary and non-beneficiary respondents by applying rank correlation test. The value of rank correlation (r_s) was 0.8 which shows positive correlation. The significance of r_s was tested by 't' test and it was observed that calculated 't' value (2.30) was higher than its tabulated value. This leads to conclusion that

there was a similarity in the rank assignment pattern of knowledge possessed by beneficiary and non-beneficiary respondents about Pradhan Mantri Fasal Bima Yojana, though there was difference in magnitude of Mean Per cent Score of beneficiary and non-beneficiary farmers.

The data related to knowledge level of both beneficiary and non-beneficiary respondents incorporated in the Table 3 depicts that calculated 'Z' value was higher than the tabulated value in all the five aspects of Pradhan Mantri Fasal Bima Yojana i.e. general information regarding key features, coverage of farmers, crops and risks, premium, loan facility and sum insured and advantages of PMFBY, significant at 0.01 level of probability. This shows that in all the five aspects of Pradhan Mantri Fasal Bima Yojana the beneficiary and non-beneficiary respondents had wide difference in their knowledge level. It means that beneficiary farmers possessed more knowledge as compared to the non-beneficiary respondents in the above mentioned five aspects as well as the overall knowledge of beneficiary and non-beneficiary farmers regarding Pradhan Mantri Fasal Bima Yojana.

The higher knowledge level of Pradhan Mantri Fasal Bima Yojana among the beneficiary

respondents in comparison to the non-beneficiary respondents might be due to the fact that beneficiary farmers had participated in trainings, demonstrations and other extension activities organized by Department of Agriculture, Rajasthan and had more contact with the extension personnels' whereas, the non-beneficiary respondents were not benefitted under PMFBY and thus got deprived of necessary guidance regarding crop insurance scheme.

This might have resulted in high level of knowledge of beneficiary farmers than that of the non-beneficiary farmers.

Association between socio-personal, socio-economic and communication pattern characteristics with knowledge level of respondents about PMFBY

As per the multiple regression analysis, the data presented in Table 4 reveals the regression relationship of dependent variable i.e. knowledge on 12 antecedent variables pertaining to the respondents.

Through multiple regressions, data were critically analyzed to work out the separates as well as combined relative influence of selected independent variables on the knowledge level of Pradhan Mantri Fasal Bima Yojana.

Table.1 Distribution of Respondents according to Knowledge Level about PMFBY

| S. No. | Categories | Respondents | | | | | |
|--------|-------------------------------|--------------------------------|-------|------------------------------------|-------|-----------------------------|-------|
| | | Beneficiary Respondents (n=90) | | Non-beneficiary Respondents (n=90) | | Overall Respondents (n=180) | |
| | | F | % | F | % | F | % |
| 1. | Low (<09.04 Score) | 08 | 08.88 | 27 | 30.00 | 35 | 19.44 |
| 2. | Medium (09.04 to 40.06 Score) | 61 | 67.78 | 56 | 62.22 | 117 | 65.00 |
| 3. | High (>40.06 Score) | 21 | 23.34 | 07 | 07.78 | 28 | 15.56 |

Mean: 24.55; S.D.: 15.51

Table.2 Aspect-wise knowledge level of respondents about PMFBY

| S. No. | Knowledge Aspects | Respondents | | | | | |
|--------|--|--------------------------------|------|------------------------------------|------|------------------------------|------|
| | | Beneficiary Respondents (n=90) | | Non-beneficiary Respondents (n=90) | | Overall Respondents (n =180) | |
| | | MPS | RANK | MPS | RANK | MPS | RANK |
| 1 | General Information regarding Key Features | 56.52 | III | 30.44 | II | 43.48 | III |
| 2 | Premium | 63.55 | II | 23.96 | III | 43.75 | II |
| 3 | Coverage of Farmers, Crops and Risks | 46.99 | IV | 2.22 | V | 24.60 | V |
| 4 | Loan Facility & Sum Insured | 69.33 | I | 43.33 | I | 56.33 | I |
| 5 | Advantages of PMFBY | 43.88 | V | 8.30 | IV | 26.09 | IV |
| | Pooled | 56.05 | | 21.65 | | 38.85 | |

r_s = rank correlation

MPS= Mean Percent Score

*Significant at 0.05 level of probability

$r_s = 0.8$
 $t = 2.30^*$

Table.3 Aspect-wise comparison of knowledge level of respondents about PMFBY

| S. No. | Knowledge Aspects | Beneficiary Respondents (n=90) | | Non-beneficiary Respondents (n=90) | | 'Z' Value |
|--------|--|--------------------------------|-------|------------------------------------|-------|-----------|
| | | Mean | SD | Mean | SD | |
| 1. | General Information regarding Key Features | 13.00 | 03.69 | 05.51 | 02.69 | 15.44** |
| 2. | Coverage of Farmers, Crops and Risks | 09.53 | 03.44 | 04.56 | 01.93 | 11.82** |
| 3. | Premium | 03.51 | 02.80 | 00.17 | 00.62 | 10.80** |
| 4. | Loan Facility & Sum Insured | 03.46 | 00.78 | 02.16 | 00.72 | 11.36** |
| 5. | Advantages of PMFBY | 07.98 | 04.29 | 01.41 | 01.85 | 13.24** |
| | Pooled | 07.49 | 03.00 | 02.76 | 01.56 | 12.53** |

SD=Standard deviation

**Significant at 0.01level of probability

Table.4 Association between Socio-personal, Socio-economic and Communication Pattern Characteristics with Knowledge of Respondents about PMFBY

| S. No. | Variables | Beneficiary Respondents (n=90) | | | Non-beneficiary Respondents (n=90) | | | Pooled (n=180) | | | |
|--|------------------------------|--------------------------------|----------------|-----------------------------|------------------------------------|----------------|--------------------|-----------------------------|----------------|--------------------|--|
| | | b value | Standard error | t value | b value | Standard error | t value | b value | Standard error | t value | |
| A. Socio-personal Characteristics | | | | | | | | | | | |
| 1. | Age | 0.09 | 0.13 | 0.69 ^{NS} | 0.06 | 0.04 | 1.05 ^{NS} | 0.07 | 0.08 | 0.87 ^{NS} | |
| 2. | Caste | 2.42 | 2.28 | 1.06 ^{NS} | 1.10 | 0.91 | 1.21 ^{NS} | 1.76 | 1.59 | 1.10 ^{NS} | |
| 3. | Education | 1.97 | 0.49 | 4.02 ^{**} | 1.31 | 0.57 | 2.29 [*] | 1.64 | 0.53 | 3.09 ^{**} | |
| 4. | Social participation | 2.66 | 1.62 | 1.64 ^{NS} | 0.17 | 1.60 | 0.11 ^{NS} | 1.41 | 1.61 | 0.87 ^{NS} | |
| B. Socio-economic Characteristics | | | | | | | | | | | |
| 5. | Occupation | 2.91 | 1.18 | 2.46 [*] | 0.73 | 2.29 | 0.32 ^{NS} | 1.82 | 0.95 | 1.39 ^{NS} | |
| 6. | Annual income | 3.30 | 1.37 | 2.40 [*] | 1.94 | 1.15 | 1.68 ^{NS} | 2.62 | 1.26 | 2.07 [*] | |
| 7. | Land holding | 2.13 | 1.54 | 1.38 ^{NS} | 0.70 | 0.80 | 0.87 ^{NS} | 0.74 | 1.16 | 0.63 ^{NS} | |
| 8. | Source of Irrigation | 0.74 | 3.00 | 0.24 ^{NS} | 0.24 | 1.71 | 0.14 ^{NS} | 2.96 | 2.31 | 1.27 ^{NS} | |
| C. Communication Pattern | | | | | | | | | | | |
| 9. | Mass media exposure | 2.13 | 0.62 | 3.44 ^{**} | 0.66 | 0.24 | 2.75 ^{**} | 1.39 | 0.41 | 3.09 ^{**} | |
| 10. | Information seeking behavior | 0.35 | 0.53 | 0.66 ^{NS} | 0.17 | 0.21 | 0.80 ^{NS} | 0.69 | 0.36 | 1.90 ^{NS} | |
| 11. | Information sharing behavior | 0.48 | 1.22 | 0.39 ^{NS} | 0.15 | 0.62 | 0.25 ^{NS} | 0.86 | 0.91 | 0.94 ^{NS} | |
| 12. | Extension agency contact | 1.41 | 0.33 | 4.27 ^{**} | 0.50 | 0.18 | 2.78 ^{**} | 0.95 | 0.25 | 3.52 ^{**} | |
| R² = 0.71 | | | | R² = 0.70 | | | | R² = 0.67 | | | |

R²=Coefficient of multiple determinations
 NS=Non significant
 **=Significant at 0.01 level of probability
 *=Significant at 0.05 level of probability

All the twelve selected independent variables viz. age, caste, education, social participation, occupation, annual income, land holding, source of irrigation, mass media exposure, information seeking behaviour, information sharing behaviour and extension agency contact fitted with the knowledge level of the respondents in Multiple Regression equation. The findings have been presented in Table 4.

The value of coefficient of determination (R^2) in case of beneficiary respondents has been found as 0.71. The value of (R^2) shows that 71 per cent variation in the dependent variable was due to twelve antecedent variables taken for the present investigation, remaining 29 per cent variation in the knowledge was due to other factors outside the purview of this investigation. Hence, the dependency relationship of knowledge on each selected characteristics can now be studied with the help of 't' value. A critical examination of the data presented in Table 4 reveals that in case of beneficiary farmers, knowledge had positive and significant relationship with education (4.02**), mass media exposure (3.44**) and extension agency contact (4.27**) at one per cent level of significance, whereas, occupation (2.46*) and annual income (2.40*) was significantly associated with knowledge level of the beneficiary respondents at five per cent level of significance. Thus, the regression analysis in Table 4 depicts that education, occupation, annual income, mass media exposure and extension agency contact emerged as the most important predictors of knowledge level of the beneficiary respondents. It was also prominent to note that some socio-personal, socio-economic and communication characteristics such as age, caste, social participation, land holding, source of irrigation, information seeking behaviour and information sharing behaviour have not shown significant contribution to the multiple regression analysis and were non-significantly associated with the knowledge level of beneficiary respondents. This indicates that there was no association found with knowledge level of the beneficiary respondents with these selected characteristics

about Pradhan Mantri Fasal Bima Yojana. In case of non-beneficiary respondents the value of coefficient of determination (R^2) was calculated as 0.70 which means seventy per cent variations in the dependent variable due to the 12 independent variables taken for the present investigation, remaining 30 per cent variation in the knowledge was due to other factors outside the purview of this investigation. The data in Table 4 shows that there was significant association found between the knowledge level of non-beneficiary farmers with mass media exposure (2.75**) and extension agency contact (2.78**) at one per cent level of significance. While education (2.29*) was significantly associated with knowledge level of the non-beneficiary respondents at five per cent level of significance.

Therefore, regression analysis suggested that the dependent variable knowledge level in case of non-beneficiary farmers mainly persuaded by the contributing factors like education, mass media exposure and extension agency contact whereas some other factors like age, caste, social participation, occupation, annual income, land holding, source of irrigation, information seeking behaviour and information sharing behaviour had shown non-significant association with the knowledge level of non-beneficiary respondents.

Further, in case of overall respondents the coefficient of determination (R^2) was calculated as 0.67 which means sixty seven per cent variations due to these 12 independent variables selected for the present investigation and remaining 33 per cent variation in the knowledge was due to other factors outside the purview of this investigation. The data in Table 4 also illustrates that there was significant association found between the knowledge level of overall respondents with education (3.09**), mass media exposure (3.09**) and extension agency contact (3.52**) at one per cent level of significance. Whereas annual income (2.07*) was found significant at five per cent level of significance.

The variables such as age, caste, social participation, occupation, land holding, source of irrigation, information seeking behaviour and information sharing behaviour were non-significantly associated with the knowledge level of overall respondents. Thus, from the above findings it can be concluded that education, occupation, annual income, mass media exposure and extension agency contact were the important predictors of knowledge level of the beneficiary, non-beneficiary and overall respondents. The findings are in conformity with the findings of Ali (2013) and Duhan and Singh (2017) who reported that education had positive and significant relationship with the knowledge of the farmers willing to pay for index based crop insurance.

On the basis of major findings of the study, it can be concluded that majority of the wheat growers in the study area had medium level of knowledge about Pradhan Mantri Fasal Bima Yojana and they had highest knowledge about the aspect of “loan facility & sum insured” and least knowledge about “coverage of farmers, crops and risks”. There was significant association found between education, annual income, mass media exposure and extension agency contact with knowledge level of the respondents. Hence, in order to convert medium knowledge in to high knowledge, there is a need to establish single window system by Department of Agriculture and Crop Insurance Provider Companies to provide the knowledge regarding PMFBY to the farmers. This will help to get easy access of the information about PMFBY.

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