

Satisfaction Level of Insured Farmers about Crop Insurance Schemes in Northern Karnataka

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Authors' contributions

This work was carried out in collaboration among all authors. Author SKJ conducted the study, collected, analyzed and interpreted the data under the guidance of author KVN. Author SVH supervise the work and helps to author SKJ to interpret and analyzed the data. All authors read and approved the final manuscript.

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ABSTRACT

Universally agriculture is perceived to be synonymous with risk and uncertainty. Agricultural insurance is one of the risk management strategies to overcome risk to the greater extent. It helps in stabilization of farm production and income of the farming community. Crop insurance will not only helps the farmers to withstand the shock from uncertain situations but also acts as incentive to use the resources efficiently and achieve higher level of productivity. The study was conducted in Karnataka State during the year 2017-18 by using the "Ex-post- facto" research design. Belgavi, Dharwad, Haveri and Vijayapura districts were selected purposively based on more number of insured farmers. Further, two taluks from each district and from each taluk three villages (i.e. total 24 villages) were selected randomly. The sample size for the study was 240. The findings of the study revealed that fifty-one per cent (51.67%) of the insured farmers had low level of satisfaction with respect to crop insurance schemes followed by medium (32.92%) and high (15.41%). The variables such as education, land holding, annual income, extension contact and mass media exposure exhibited positive significant relationship at five per cent level of probability with the satisfaction level of insured farmers. The coefficient of determination (R^2) was 0.450 which indicated that 45.00 per

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cent of the variation in satisfaction level of insured farmers was together explained by all the independent variables. In the present study farmers satisfaction was found to be low. Thus, concerned officers should conduct awareness programmes, inform the farmers on or before conducting the Crop Cutting Experiment, make the loss assessment procedure flexible and hassle free and disperse the claim before starting of the next season.

Keywords: Satisfaction; crop insurance scheme; claim and crop cutting experiments.

1. INTRODUCTION

Agricultural sector in India has been accorded top priority since independence. A cursory look at the growth of agriculture in the past decades indicates that agricultural production has reached comfortable heights especially after the Green Revolution. India has reached a stage of self-sufficiency, but it is still dominated by nature, which means that the instability still haunts agricultural sector and seriously threatens the Indian farmers' ability to step up the agricultural output and their viability. It has been observed that in the Indian sub-continent, fluctuations in crop yields have mainly been due to the clemencies of weather. The presence of ups and downs in dry land agricultural production over the years bears ample testimony to the continuing instability in agriculture. Instability in the agricultural sector cannot be completely eliminated, but its adverse effects can be minimized through various measures.

In recent times, mechanisms like contract farming and future trading have been established which are expected to provide some insurance against price fluctuations directly or indirectly. But, agricultural insurance is considered as an important mechanism to effectively address the risk to output and income resulting from various natural and manmade events. Agricultural insurance is one financial tool available for farmers to mitigate the impact of unpreventable risks in agriculture. However, risk and insurance needs vary across agro-climatic zones as well as socio-economic parameters of farmers. Agricultural insurance is also considered as a desirable alternative to government provision of ex-post disaster assistance [1].

Agricultural insurance is one method by which farmers can stabilize farm income and 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. It

spreads the crop losses over space and time and helps farmers make more investments in agriculture [2].

Various strategies are adopted to provide relief to the affected farmers such as Crop Insurance Schemes, Calamity relief funds (National Disaster Response Fund and National drought and financial assistance), Input subsidies, MNREGS, diesel subsidies, cancellation of agricultural loans etc. Crop insurance in India has been in existence since 1979 with the implementation pilot insurance scheme in some states and then, Comprehensive Crop Insurance Scheme (CCIS), which was implemented at a national level in 1985. The National Agricultural Insurance Scheme (NAIS) replaced it in 1999. The Agriculture Insurance Company of India Limited (AIC) was given the responsibility of implementing NAIS. Based on the national and international experience, lot of research has taken place across the world in developing sustainable insurance products. Over a period, many modifications were tried and a weather index based insurance scheme WBCIS was introduced in 2007, especially for the horticultural crops. In 2010-11, a modified NAIS was implemented with an aim to replace NAIS [3].

The latest version of the crop insurance scheme, the 'Pradhan Mantri Fasal Beema Yojana' (PMFBY) was launched in April 2016 replacing the NAIS and MNAIS. It claims to address various shortcomings of the earlier versions of crop insurance schemes and efforts are made to implement it successfully and bring 50.00 percent of the farmers under insurance cover. Farmers have to pay a premium of only 2.00 per cent of the sum insured for Kharif crops, 1.50 per cent for Rabi crops and 5.00 per cent for horticulture and cash crops. The difference between the premium paid by the farmers and the premium fixed by the insurance companies will be subsidized and there will be no cap on the maximum subsidy paid by the Government. The subsidy has to be borne equally by central and the respective state Government. The coverage includes losses due to non-preventable risks (Natural Fire and Lightning, Storm, Hailstorm,

Cyclone, Typhoon, Tempest, Hurricane, Tornado. Risks due to Flood, Inundation and Landslide, Drought, Dry spells, pests/ Diseases), having intent to sow/plant and incurred expenditure for the purpose, and are prevented from sowing/planting crop due to adverse weather conditions, post-harvest losses (up to a maximum period of 14 days from harvesting) and certain localized problems [4].

In the present study, farmers satisfaction referred to the degree of farmers' satisfaction associated with Crop Insurance Schemes benefits. The main focus of the investigation was to study the satisfaction level of farmers on Crop Insurance Schemes and to find out the relationship with socio-economic characteristics of farmers.

2. METHODOLOGY

The study was conducted Karnataka State during 2017-18 by using "Ex-post- facto" research design. Belgavi, Dharwad, Haveri and Vijayapura districts were selected purposefully based on more number of insured farmers. Further, two taluks from each district and from each taluk three villages (i.e. total 24 villages) were selected. From each taluka three villages (i.e. total 24 villages) were selected. From each selected villages ten farmers who have at least three years of crop insurance experience were selected as respondents. Purposive sampling procedure was used for selection of the farmers. Sixty farmers were selected from each district making the sum of 240. The data collection tool was structured interview schedule and it was pre-tested in non-sample area for its practicability and relevancy. The data collected from respondents were tabulated and analyzed using appropriate statistical tools such as frequency, percentage mean, standard deviation correlation and regression. M.S. Excel and SPSS software were used to analysis the data. The respondents were asked to indicate the degree of satisfaction through their responses on three point continuum namely; satisfied, neutral and dissatisfied with scores 3,2,1 for positive statements respectively. The scale consists of 25 statements and the maximum and minimum score obtained by the individual on this scale were 75 and 25, respectively. Based on the scores obtained, satisfaction of the respondents is categorized as low, medium and high by using mean and standard deviation.

Correlation Co-efficient (r): This tool was used to find out the significant relationship, if any

between scores of the independent variables and the scores of the dependent variable of the sample respondents. By using the following formula:

$$r = \frac{\Sigma XY - (\Sigma X) (\Sigma Y) / n}{\sqrt{(\Sigma X^2 - (\Sigma X)^2 / n) (\Sigma Y^2 - (\Sigma Y)^2 / n)}}$$

Where,

r = Co-efficient of correlation between x and y

ΣX = Sum of scores of variable X

ΣY = Sum of scores of variable Y

ΣXY = Sum of product of X and Y variables

ΣX^2 = Sum of the squares of X variable

ΣY^2 = Sum of the squares of Y variable

n = Size of the sample

2.1 Multiple Regression Analysis

Multiple Linear Regression (MLR) analysis is generally considered as an efficient and powerful hypothesis testing and inference making technique. Since correlation analysis only gives the nature of relationship, Multiple Linear Regression analysis was used to know the influence of independent variables to the satisfaction level of farmers about Crop Insurance Schemes.

The computed 'b' values (regression coefficients) were tested with 't' test for its significance.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_kX_k + u_i$$

Where,

Y = Satisfaction level of farmers

a = Constant

b1 = Regression coefficient

X1 = Age

X2 = Education

X3 = Land Holding

X4 = Framing experience

X5 = Annual income

X6 = Training recieved

X7 = Extension contact

X8 = Scientific orientation

X9 = Mass media exposure

X10 = Scientific orientation

X11 = Organisational participation

X12= Credit availed

X11 = Extent of climate variation

X12= Cropping pattern

Coefficient of determination (R^2) was calculated by

R^2 = Regression sum of squares (RSS)/ Total sum of squares (TSS)

Coefficient of determination (R^2) revealed percentage of variation in the dependent variable explained jointly by the independent variables. R^2 is unit less and expressed in percentage.

3. RESULTS AND DISCUSSION

3.1 Overall Satisfaction Level of Farmers towards Crop Insurance Scheme

The data presented in Table 1 depicted that, 51.67 per cent of the insured farmers belonged to low satisfaction level followed by medium (32.92%) and high (15.41%) satisfaction level about Crop Insurance Scheme. The probable reasons might be that, lack of detailed information, less publicity of Crop Insurance Scheme, low education level, dissatisfaction about terms and conditions of Crop Insurance Scheme, grievances handled on claim settlement, inadequate claim received and method of conducting the Crop Cutting Experiments. The results are in accordance with the findings of Kumar, et al. [5] and Sindhu and Ariff [6].

3.2 Statement Wise Satisfaction Level of Insured Farmers about Crop Insurance

It is observed from the Table 2 that, 70.83 per cent of farmers expressed dissatisfaction regarding 'Publicity and awareness programmes'. The reason could be that line department officials might not have done publicity work properly, due to their pre-occupied work. 'Coverage of crops' was satisfied by 46.67 per cent of insured farmers, as the scheme covers all the crops grown by these farmers. With regard to 'Coverage of farmers', 95.42 per cent of the farmers were satisfied. The reasons might be that, at present farmers who own the land can only avail the crop insurance and they were satisfied with the present procedure. Nearly seventy per cent of farmers (69.17%) were

dissatisfied to the statement of 'Premium rate' as they were demanding government should reduce the premium to be paid. About 60.84 per cent of the farmers were dissatisfied for 'Area approach'. Because in area approach, the Crop Cutting Experiments are being conducted at block level which will not represent the actual loss suffered at individual farmer level.

The Table 2 also revealed that, 60.83 per cent of the respondents were satisfied for 'Compulsory participation of loanee farmers' as evidenced by farmers received their claim during natural calamities. With regard to 'Claim amount received', 87.92 per cent of the farmers were dissatisfied as they had received inadequate claim as compared to the actual loss incurred. Seventy per cent of farmers were dissatisfied to the statement of 'Method of conducting Crop Cutting Experiments'. The reason might be that, while conducting Crop Cutting Experiments, line departments and bank officials did not participate regularly but only insurance agents were participating. Further, the plot selected by the officials might not be the actual representative of the whole area (Insurance Unit). Nearly fifty five percent of the insured farmers were dissatisfied to the statement of 'Mobile technology usage in the Crop Cutting Experiments'. The probable reason might be that, at ground level most of the Crop Cutting Experiments were not conducted by using mobile technology and also did not upload the Crop Cutting Experimental data in Crop Insurance (Samrakshane) portal. So, there were more chances of manipulating the actual data by insurance agents.

It was revealed that 71.67 per cent of the farmers were dissatisfied for 'Claim settlement procedures' because of the complex procedure and formalities. Nearly ninety two percent of the farmers were (91.66%) dissatisfied to the statement of 'Terms and conditions of Crop Insurance Scheme', as many of them were facing difficulty in understanding these insurance conditions since, they had low level of education. Eighty percent

Table 1. Overall satisfaction level of insured farmers about crop insurance scheme

n=240			
Sl. no.	Category	Frequency	Percentage
1	Low (<37.80)	124	51.67
2	Medium (37.81 to 42.20)	79	32.92
3	High (>42.20)	37	15.41
Mean = 40.00			
SD = 5.17			

Table 2. Statement wise satisfaction level of insured farmers about Crop Insurance Scheme

Sl. no.	Statement	n=240					
		Satisfied		Neutral		Dissatisfied	
		f	%	f	%	f	%
1	Publicity and awareness programmes	64	26.67	6	2.50	170	70.83
2	Coverage of crops	112	46.67	56	23.33	72	30.00
3	Coverage of farmers	229	95.42	2	0.83	9	3.75
4	Premium rate	74	30.83	0	0.00	166	69.17
5	Area approach	41	17.08	53	22.08	146	60.84
6	Announcement of cut-off dates for post-harvest losses	0	0.00	227	94.58	13	5.42
7	Compulsory participation of loanee farmers	146	60.83	7	2.92	87	36.25
8	Fixation of extent of Sum Insured	12	5.00	203	84.58	25	10.42
9	Insurance unit for major crops	162	67.50	67	27.92	11	4.58
10	Insurance unit for minor crops	9	3.75	55	22.92	176	73.33
11	Risk coverage for prevented sowing	7	2.92	223	92.91	10	4.17
12	Risk coverage for standing crops	46	19.17	69	37.08	101	52.08
13	Risk coverage for post-harvest losses	15	6.25	193	80.42	32	13.33
14	Localized risk coverage	28	11.67	90	37.50	122	50.83
15	Online registration process	61	25.42	0	0.00	179	74.58
16	Co-operation of Bank officials	173	72.08	11	4.59	56	23.33
17	Claim amount received	29	12.08	0	0.00	211	87.92
18	Method of conducting Crop Cutting Experiments	22	9.17	51	21.25	167	69.58
19	Mobile technology usage in the Crop Cutting Experiments	58	24.17	51	21.25	131	54.58
20	Claim settlement procedures	16	6.66	52	21.67	172	71.67
21	Terms and conditions of Crop Insurance Scheme	20	8.34	0	0.00	220	91.66
22	Direct online payment to farmers account	192	80.00	0	0.00	48	20.00
23	Handling of grievances with respect to claim settlement	14	5.84	0	0.00	94	39.17
24	Usefulness of "Samaraskhane" portal	32	13.33	180	75.00	28	11.67

f = Frequency; % = Percentage

of the farmers (80.00%) were satisfied with respect to '*Direct online payment to farmers account*' as it helped for immediate payment to their account without any delay and also reduced the corruption involved in it. Majority of the farmers were (94.16%) dissatisfied to the statement of '*Handling of grievances with respect to claim settlement*' as the office of the crop insurance agency was not even located at the district level. So, it was difficult for farmers to contact the concerned officers and agency to solve their claim settlement issues.

Majority of farmers were neutral to the statement of '*Announcement of cut-off dates for post-harvest losses*', '*Fixation of extent of Sum Insured*', '*Risk coverage for post-harvest losses*' '*Usefulness of Samaraskhane portal*' might be due to lack of detailed information and low education level. The previous studies inferred that, farmers were dissatisfied with benefits of crop insurance schemes. The results are in conformity with the findings of Kumar and

Breshnev [7], Jayathilaka and Abeynayake [8], Uvaneswaran and Mohanapriya (2014), Selvaraj [9], Sundar and Ramakrishnan [10] and Nayak [11].

3.3 Relationship between Independent Variables with Satisfaction Level of Crop Insured Farmers

The results of correlation analysis presented in Table 3 revealed that, the following variables education, land holding, annual income, extension contact and mass media exposure exhibited positive significant relationship at five per cent level of probability with satisfaction level of insured farmers. Formal education enhances the farmer's satisfaction level. Generally families having larger size of land holding will have high income, high socio-economic status and help them to adopt all possible risk mitigating measures. An increase in annual income will increase the satisfaction level as the individual will try to adopt all possible ways and means of

increasing the production so as to get more income. The farmers might have had frequent contact with Bank officials and extension personnel's of developmental departments. This might have helped them to gain more information regarding benefits of Crop Insurance Scheme and also develops more satisfaction on Crop Insurance Schemes. Mass media contact enhances the ability of farmers to get more information about Crop Insurance Scheme and in turn widens the mental horizon of the farmers to accept and adopt the Crop Insurance Scheme. The results are in accordance with the findings of Nayak [11], Rajaram and Chetana [12] and Jitendra Kumar, et al. [13].

3.4 Multiple Regression Analysis of Independent Variables with Respect to Satisfaction Level of Crop Insured Farmers

The data presented in Table 4 indicates that, the independent variables together exerted significant influence on the satisfaction level of crop insured farmers. This was evidenced by co-efficient of determination (R^2) indicates that 45.00 per cent variation in the satisfaction level due to the combined effect of all the independent variables.

The results also pointed out that, six independent variables namely, land holding, annual income, extension contact, scientific orientation, mass media exposure and credit availed have contributed significantly towards influencing the satisfaction level of insured farmers. It could be implied from the significant regression coefficient

values of these variables that, one unit increase in land holding caused increase in the satisfaction level of crop insured farmers by 2.56 units, annual income caused increase by 2.22 units, extension contact caused increase by 3.96 units, scientific orientation caused increase by 2.07 units, mass media exposure caused increase by 2.18 units and credit availed caused increase by 2.37 units.

Table 3. Correlation coefficients of independent variables with Satisfaction level of insured farmers

Sl. no.	Independent variable	Correlation coefficients (r) Satisfaction level
1.	Age	0.064
2.	Education	0.238*
3.	Land Holding	0.184*
4.	Farming Experience	0.121
5.	Annual Income	0.214*
6.	Training Received	0.024
7.	Extension Contact	0.249*
8.	Scientific Orientation	0.124
9.	Mass Media Exposure	0.198*
10.	Risk Orientation	0.109
11.	Organisational Participation	0.132
12.	Credit availed	0.158
13.	Extent of climate variation	0.122
14.	Cropping pattern	0.113

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

Table 4. Multiple regression analysis of the independent variables with satisfaction level of insured farmers

Sl. no.	Independent variable	Regression coefficients (b)	S.E.	't' value
1.	Age	0.03	0.03	0.90
2.	Education	0.09	0.10	0.88
3.	Land Holding	-0.05	0.03	2.56*
4.	Farming Experience	-0.07	0.07	0.95
5.	Annual Income	0.00	0.00	0.22*
6.	Training Orientation	0.07	0.27	0.26
7.	Extension Contact	0.36	0.09	3.96**
8.	Scientific Orientation	0.23	0.11	2.07*
9.	Mass media	0.18	0.15	2.18*
10.	Risk Orientation	-0.01	0.10	0.11
11.	Organisational Participation	0.23	0.10	0.41
12.	Credit availed	0.34	0.15	2.37*
13.	Extent of climate variation	0.05	0.19	0.81
14.	Cropping pattern	0.04	0.05	0.34

Coefficient of determination (R^2) = 0.450; *: significant at 0.05 level

F value = 3.67**; **: significant at 0.01 level

4. CONCLUSION AND RECOMMENDATIONS

In the present study farmers satisfaction was found to be low. Majority of the farmers were dissatisfied with 'grievance handling with respect to claim settlement' (94.16%), 'terms and conditions of crop insurance scheme' (91.66%), 'claim amount received' (87.92%) and 'method of conducting the Crop Cutting Experiments' (69.58%). The following variables education, land holding, annual income, extension contact and mass media exposure exhibited positive significant relationship at five per cent level of probability with satisfaction level of insured farmers. The co-efficient of determination (R^2) was 0.450 which revealed that 45.00 per cent of the variation in satisfaction level of insured farmers was together explained by all the independent variables.

Thus, concerned officers, policy makers, administrators and the agencies who are involved in crop insurance scheme should take into consideration about satisfaction level of farmers for improving the implementation of crop insurance scheme and devote their attention with regard to the recommendations from the present study as listed below: Awareness programmes should be conducted from time to time on crop insurance schemes by using different extension teaching methods like trainings, workshops, distribution of pamphlets, road shows, advertisement through television, newspaper, radio, mobile SMS etc. Insured farmers must be informed before deducting the premium by the concerned officials through providing policy document in local language. Loss assessment procedure should be made flexible and hassle free. The sum insured under crop insurance scheme should not be less than scale of finance or cost of cultivation. Non-loanee farmers also should be encouraged by simplifying the online registration process and making the 'Samrakshane Portal' farmer friendly. Farmers should be well informed on or before conducting the Crop Cutting Experiment while doing Crop Cutting Experiments, all the concerned officials should be involved. Crop loss assessment should be made at Panchayat level by covering all the crops instead of doing at block level. The insurance company should have permanent office at block / taluk level for effective planning, monitoring and handling of grievances with respect to claim settlement. Claim should be dispersed every year before starting of the next season.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Barnett Barry. Multi-peril crop insurance: Successes and challenges. *Agricultural Finance Review*. 2014;74(2):200-216.
2. Archana Singh. *Agricultural Insurance in India*, Bimaquest. 2016;16(2):69-95.
3. Anitha Govindaraj and Vinita Rai. *Crop insurance models and relief measures in India and Madhya Pradesh*. Project Report, Centre for Governance-Atal Bihari Vajpayee Institute of Good Governance & Policy Analysis; 2018.
4. Anonymous. *Pradhan Mantri Fasal Bima Yojana-An Assessment*, Centre for Science and Environment, New Delhi; 2017.
5. Kumar DS, Barah BC, Ranganathan CR, Venkatram R, Gurunathan S, Thirumoorthy S. An analysis of farmers' perception and awareness towards crop insurance as a tool for risk management in Tamil Nadu. *Agri. Econ. Res. Rev.* 2011;24(2):37-46.
6. Sindhu C, Ariff UT. A study on farmers preference towards crop insurance. *Int. J. Interdisciplinary Res. Arts Humanities*. 2017;2(2):138-143.
7. Kumar FR, Breshnev. Current issues on crop insurance in cauvery delta region of Tamil Nadu-An overview. *Int. J. World Res.* 2014;1(11):73-80.
8. Jayathilaka DP, Abeynayake NR. Assessing farmers' perception, awareness and influential factors to purchase a crop insurance as a tool for risk management. *Proc. 12th Agric. Res. Symp.* 2013;394-398.
9. Selvaraj A. Crop insurance: A study with farmers' awareness and satisfaction. *Int. J. Curr. Res.* 2015;7(7):18680-18687.
10. Sundar J, Ramakrishnan. A study on awareness, purchase benefits and satisfaction level towards crop insurance. *Pac. Bus. Rev. Int.* 2015;7(11):38-45.
11. Nayak Y. Socio-economic profile and perception of farmers on crop insurance in Odisha: A case study of selected villages of Keonjhar District. *Shrinkhla Ek Shodhparak Vaicharik Patrika*. 2016;8(8): 74-79.
12. Rajaram Y, Chetana B. A study on current crop insurance schemes with a special

- reference to Pradhan Mantri Fasal BhimaYojana (PMFBY) and restructured Weather Based Crop Insurance Scheme, Int. J. Combined Res. & Dev. 2016;5(7): 1678-1683.
13. Jitendra Kumar, Singh S, Singh A, Rashmi. Factors affecting adoption and level of satisfaction among dairy owners towards livestock insurance. Agric. Rural Dev. 2017;4:25-28.

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