Farmers Satisfaction of the Agricultural Crop Insurance in Tamil Nadu

Dr. K. Senthil Kumar**

Assistant Professor,

PG and Research Department of Economics, Government Arts College (Autonomous), (Affiliated to Bharathidasan University, Trichy) Karur- 639 005

P. ANANTHARAJ*

Ph.D Part-Time Research Scholar,

PG and Research Department of Economics, Government Arts College (Autonomous), (Affiliated to Bharathidasan University, Trichy) Karur- 639 005

ABSTRACT

India is one of the most disaster prone countries in the world owing to its physiological and climatic conditions. Since the last decade, India has suffered crop losses almost every year either due to flood or drought or frost/extreme temperatures. Agriculture is the mainstay of the rural the economy in India and is largely run by small and marginal farmers, who have no access to credit, are highly dependent on rainfall and the majorities do subsistence farming. The rising frequency of farmer suicides in India as a result of requiring crop losses owing to seasonal changes has prompted policy makers to priorities crop insurance. This insurance provides financial assistance for risk management in agriculture. This insurance scheme is a relief scheme for farmers whose crops were damaged during the natural calamity. The insurance amount that is offered to the farmers is equal to the loan amount that has been disbursed to them. A certain amount of premium is charged against the crop insurance.

Key Words: Capital, Sources, Income and Opinion

Introduction

Agriculture provides the principal means of livelihood for over 58.4 percent of India's population. It contributes approximately one-fifth of total gross domestic product (GDP). It is responsible for 10 percent of all experts and supplies raw materials to a large number of industries. For sustaining economic development, much emphasis has been laid in the planning process for accelerating the pace of agricultural development, by increasing both production and productivity, taking steps to remove regional imbalances in cropping pattern and agricultural practices, evolving new variety of seeds, expanding irrigation facilities, extending supply of institutional credit and also providing price support to farmers.

The objective of the Eleventh Plan (2007-12) is to achieve four percent sustainable annual growth in agricultural production through better management of natural resources and scientific management crops.

In India, agriculture has played an important role in economic development. Currently, at present 70 percent of the country's population is reliant on agriculture, but Indian agriculture has always been dependent on flexible monsoons. This poses a risk to the cultivation of a variety of crops. Natural disasters can affect the yield of the agricultural sector.

To offset future risks, some provisions are needed and crop insurance is the only way to protect against production risk in agriculture. To meet this demand, the Indian Government has implemented a number of crop insurance schemes, experiments and initiatives, including the First Individual Approach Scheme (1972-1978). Pioneer Crop Insurance Scheme (1979-1984) Comprehensive Crop Insurance Scheme (1985-1999) Experimental Crop Insurance Scheme (1997-1998), Preliminary Seed Crop Insurance scheme and National Agricultural Insurance Scheme-2099.

Crop Insurance

India is one of the most disaster prone countries in the world owing to its physiological and climatic conditions. Since the last decade, India has suffered crop losses almost every year either due to flood or drought or frost/extreme temperatures. Agriculture is the mainstay of the rural the economy in India and is largely run by small and marginal farmers, who have no access to credit, are highly dependent on rainfall and the majorities do subsistence farming. The rising frequency of farmer suicides in India as a result of requiring crop losses owing to seasonal changes has prompted policy makers to priorities crop insurance.

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 subsidy, cancellation of agricultural loans etc.

Crop insurance in India has been a pioneer insurance scheme implemented in some states since 1979, followed by the Comprehensive Crop Insurance Scheme **(CCIS)** launched nationally 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. 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 ensure that 50 percent of the farmers are covered by insurance. Apart from the major insurance schemes, numbers of crop specific and location specific insurance products are available to farmers.

Scope of the Study

The present study is significant for potential beneficiaries from those villages which have not much awareness of crop insurance scheme. It will also be helpful to small and marginal farmers to protect their interest in crop against natural calamities and getting benefits under this scheme.

It will also assist the insurers, bankers and policy makers for policy prescription and policy intervention. The present study is also confined to coverage of National Agricultural Insurance Scheme of Agricultural Insurance Company (AIC) of India, a specialized insurer of the General Insurance Company according to the IRDA.

The topical scope of this study is limited to examine the growth and performance of National Agricultural Insurance Scheme from Rabi 2018-2019 to 2020-2021; awareness and attitude of farmers towards crop insurance schemes and their satisfaction levels. The scope of the study has also been restricted to cover the farmers of Pudukkottai District only.

Review of Literature

Kiyanoush *et al*. (2019) prepared a blueprint for introducing crop insurance as a risk management strategy for farmers in Iran. The study is based on both secondary and primary data and information. Survey was the research method, and data was collected by questionnaire and different instruments, such as survey questionnaire, FGDs, interview schedule, inception workshop and round table discussions with stakeholders at different levels. Three survey districts: the province of Colossae (a flash flood north of Iran), the province of Kuznetsov (as a drought zone, south of Iran) and the province of Kuznetsov (south of the country in a hurricane and flood prone area). The results revealed that four independent variables explain the acceptance of drought insurance. Consultation with other farmers is an important independent variable.

Boyd et al (2020) in 2007, data were collected from a survey questionnaire issued to farmers in Inner Mongolia and China. It includes two district areas, the first part covering the Talent area and the second part covering the Wuhan area. There are 220 farmers in the survey and the main groups of variables used for this study are knowledge and behavior information, risk level and crop insurance premium level, important sources of information for crop insurance, role of farmers in the village and Off-farm income. They conclude that these variables are found to influence purchase of insurance according to the explanatory model developed using profit regression.

Duhan, A (2020) an important part of Indian insurance programs is the study of farmers' perceptions of crop development in the Indian economy and the finding that population insecurity depends on agriculture for its livelihood, which must be eliminated, and knowledge of the better sector contributes to GDP. Farmers feel that the development expectations of these projects cannot be met without improving the agricultural sector says the premium is high and low. Farmers also want to increase this contribution so that it includes all crops, not just a select few. The growth of the country, the income from that sector they do not like the time and extent of the claim.

Kangle, Deshmukh et al (2020) shave done an empirical study on perception of farmers towards agriculture production is dependent on weather. They tried to weather conditions damage the production hence revenue establish a relationship between different demographic from the sector cannot be stable or enhance until the effects factors and perception and concluded that these factors

like of adverse weather are managed. Government has been age, education do affect perception of farmers.

Gaudappa, Reddy & Chandra shekhar (2020) efforts by researched farmers to mitigate these risks have not been successful because the perceived awareness of farmers about this sentiment and risk is uncertain and unpredictable. Agriculture Insurance Scheme and concluded that there is a one of such efforts, launched in India in 1972. Since then need for a separate wing of agriculture There are various agricultural insurance schemes in the field of agriculture. Inform farmers about implementation in India. These plans were started with the process and methodology of these insurance plans.

Statement of the Problem

90 percent of the farmers In Tamil Nadu are from the small and marginal sector and their working reserve is 56 total area. So the small and marginal farmers play a key role in overall development in agriculture and the adoption of scientific technologies by these farmers needs focused attention. In many countries the State provides aid or relief to the agricultural sector in the event of a natural catastrophe as a matter of Public Policy. In some countries this is done on an ad hoc basis while in others there are formal arrangements and even legislation for this purpose.

Agricultural insurance is a more efficient instrument and an effective institutionalized mechanism for dealing with the problem. 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.

The Government of India has introduced the innovative schemes on crop insurance but these schemes have failed to meet the expected results due to the low policy implications, awareness of farmers' lack of awareness, and unsatisfied performance of implementing agencies. National Agriculture insurance scheme has been introduced by Government of India from Rabi season 1999-2000. But it also failed to influence the farmers as well as work effectively.

Objectives of the Study

The present study is undertaken with the following specific objectives.

1. To assess the level of awareness of farmers about Crop Insurance Schemes and analyze the relationship between the socio-economic characteristics of farmers and their awareness levels.

2. To analyze the attitude of farmers towards the Crop Insurance Scheme in Pudukkottai District.

Hypotheses of the Study

1. There is no significant difference in the overall mean opinion scores on agricultural insurance scheme among the respondents.

2. There is no significant difference in the overall mean opinion scores on Crop insurance among the respondents.

Universe and Sampling

This study is undertaken by making a survey of Pudukkottai district, Iluppur Taluk, Viralimalai Block has 85 villages. Among them 15 villages are selected for the lottery method. Thus totally 15 villages are selected from representing about 10% of the population in each village. The following villages are selected from the Iluppur Taluk of Viralimalai Block.

Table No. 1 Age Group and Satisfaction about Crop Insurance

Age group	Level of satisfaction			Total
	Low	Medium	High	
Below 30	24	48	18	90
31-40	84	42	36	162
41-50	54	120	78	252
Above 51	30	36	30	96
Total	**192**	**246**	**162**	**600**

$X^2_{CAL. VAL}$ = 25.09 ** $\qquad$ $X^2_{TAB. VAL FOR 6 DF}$ = 16.8

The significant Chi-square indicates that there is significant association between age group and satisfaction about crop insurance. Age group and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on the age group of the respondents.

Table No. 2 Education and Satisfaction about Crop Insurance

Education	Level of satisfaction			Total
	Low	Medium	High	
Illiterate	18	12	6	36
Up to 12th	72	54	18	144
Graduate	54	84	108	246
Post graduate	36	72	30	138
Others	12	24		36
Total	**192**	**246**	**162**	**600**

$X^2_{CAL. VAL}$ = 36.10 ** $\qquad$ $X^2_{TAB. VAL FOR 8 DF}$ = 20.1

The significant Chi-square indicates that there is significant association between education status group and satisfaction about crop insurance. Education and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on the marital status group of the respondents.

Table No. 3 Area of Living and Satisfaction about Crop Insurance

Area of living	Level of satisfaction			Total
	Low	Medium	High	
Rural	120	126	72	318
Urban	18	24	24	66
Semi Urban	54	96	66	216
Total	**192**	**246**	**162**	**600**

$X^2_{CAL.\ VAL\ =}$ 6.88 ** $\qquad\qquad$ $X^2_{TAB.\ VAL\ FOR\ 2\ DF\ =}$ 5.99

The significant Chi-square indicates that there is significant association between area of living group and satisfaction about crop insurance. Area of living and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on area of living group of the respondents.

Table No. 4 Marital Status and Satisfaction about Crop Insurance

Marital status	Level of satisfaction			Total
	Low	Medium	High	
Unmarried	12	36	42	90
Married	174	198	108	480
Divorced	6	6		12
Widow		6	12	18
Total	**192**	**246**	**162**	**600**

$X^2_{CAL.\ VAL}$ 12.65 * $\qquad\qquad$ $X^2_{TAB.\ VAL\ FOR\ 6\ DF\ =}$ 12.60

The significant Chi-square indicates that there is significant association between marital status and satisfaction about crop insurance. Marital status and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on the marital status group of the respondents.

Table No. 5 Community Group and Satisfaction about Crop Insurance

Community	Level of satisfaction			Total
	Low	Medium	High	
SC	48	42	36	126
ST	6	6		12
BC	78	114	66	258
MBC	60	84	60	204
Total	**192**	**246**	**162**	**600**

$X^2_{CAL.\ VAL\ =}$ 18.94 ** $\qquad\qquad$ $X^2_{TAB.\ VAL\ FOR\ 6\ DF\ =}$ 16.8

The significant Chi-square indicates that there is significant association between community group and satisfaction about crop insurance. Community group and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on the community group of the respondents.

Table No. 6 Religion and Satisfaction about Crop Insurance

Religion	Level of satisfaction			Total
	Low	Medium	High	
Hindu	174	222	138	534
Christian	6	18	18	42
Muslim	12	6	6	24
Total	**192**	**246**	**162**	**600**

$X^2_{CAL.\ VAL\ =}$ 6.16 ns $\qquad\qquad$ $X^2_{TAB.\ VAL\ FOR\ 4\ DF\ =}$ 11.1

The significant Chi-square indicates that there is no significant association between religion group and satisfaction about crop insurance. Religion and satisfaction about crop insurance concluded that the satisfaction about crop insurance is independent of the religion group of the respondents.

Table No. 7 Annual Income of House Hold Farming and Satisfaction about Crop Insurance

Annual income of household farming	Level of satisfaction			Total
	Low	Medium	High	
Below 1,00,000	24	72	24	120
1,00,000-2,00,000	102	138	120	360
2,00,000-3,00,000	24	18	18	60
3,00,000-4,00,000	18	6		24
Above 4,00,000	24	12		36
Total	**192**	**246**	**162**	**600**

$X^2_{CAL. VAL}$ = 23.59 ** $X^2_{TAB. VAL FOR 6 DF}$ = 16.8

The significant Chi-square indicates that there is significant association between annual income of house hold farming group and satisfaction about crop insurance. Annual income of house hold farming and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on the annual income of house hold farming group of the respondents.

Table No. 8 Land Holdings and Satisfaction about Crop Insurance

Land holdings	Level of satisfaction			Total
	Low	Medium	High	
Less than 5 acres	96	114	84	294
5-10 acres	72	96	54	222
10 and above	24	36	24	84
Total	**192**	**246**	**162**	**600**

$X^2_{CAL. VAL}$ = 28.88 ** $X^2_{TAB. VAL FOR 6 DF}$ = 16.8

The significant Chi-square indicates that there is significant association between land holding group and satisfaction about crop insurance. Land holding and satisfaction about crop insurance concluded that the satisfaction about crop insurance dependents on the land holding group of the respondents.

Opinion

Null Hypothesis:

There is no significant difference in the overall mean opinion scores on agricultural insurance scheme among the respondents.

Table No. 9 ANOVA

SOURCE	DF	S S	M S	F
Between groups	3	1899.165	633.055	1542.687**
Within groups	2396	983.220	0.410	

**- Significant at 1 % level

Anova the F is significant the null hypothesis of no difference in the overall mean scores on the type of risks is rejected and there is significant difference in the mean scores on type of risks among respondents. The mean scores among the respondents are furnished below.

Table No. 10 Opinion

Sl. No	Statement	Mean Score	Rank
1	Payment terms for the products are flexible	2.67	2
2	Complaints are solved quickly to the satisfaction of farmers	1.72	3
3	Farmers are provided with current details of the policy	3.64	1
4	Very prompt and courteous answering	1.28	4

The above table no. 10 it is seen from that among 4 opinions, the mean score ranged from 1.28 to 3.64 and the score for Farmers are provided with current details of the policy secured higher mean score and stood at top, followed by the 'Payment terms for the products are flexible' secured next higher mean score and stood at second, the score for 'Complaints are solved quickly to the satisfaction of farmers' secured next higher mean score and stood at third and finally the score for 'Very prompt and courteous answering' secured least score and stood at last.

Opinion on Crop Insurance

Null Hypothesis:

There is no significant difference in the overall mean opinion scores on Crop insurance among the respondents.

Table No. 11 ANOVA

SOURCE	Df	S S	M S	F
Between groups	19	5348.266	2881.488	298.72**
Within groups	11980	11289.660	0.942	

**- Significant at 1 % level

Anova the F is significant the null hypothesis of no difference in the overall mean scores on the type of risks is rejected and there is significant difference in the mean scores on type of risks among respondents. The mean scores among the respondents are furnished below:

Table No. 12 Opinion

Sl. No	Statement	Mean Score	Rank
1	Protects against loss or damage of crops	2.36	14
2	Gives financial security	2.07	17
3	Provides guarantee for the banker	1.72	19
4	It helps in reducing the risks	3.64	3
5	Premium rate is reasonable	1.28	20
6	Served by the Agricultural Insurance Company	2.43	12
7	Schemes are modified by the Central Government	2.45	10

8	Follows simple formalities	2.45	11
9	Easily accessible through bank	2.95	8
10	Motivation from banks/financial institutions	2.96	4
11	Adequate publicity	2.15	16
12	Covers wide range of crops	4.01	1
13	Covered by the National Agricultural Insurance Scheme	2.28	15
14	Crop insurance schemes are well defined	2.60	8
15	Quick settlement of claims	2.60	9
16	Premiums are shared by Government	2.92	6
17	Structured compensation payouts	2.91	7
18	Compulsory coverage for loaned farmers	2.03	18
19	Voluntary coverage for non-loaned farmers	3.94	2
20	Rainfall variations reduce crop yields	2.40	13

The above table no. 12 showed that among 20 opinions on Crop insurance, the mean score ranged from 1.28 to 4.01 and the score for 'Covers wide range of crops' secured higher mean score and stood at top, followed by the 'Voluntary coverage for non-loaner farmers' secured next higher mean score and stood at second, the score for 'It helps in reducing the risks' secured next higher mean score and stood at third and finally the score for 'Premium rate is reasonable' secured least score and stood at last.

Table No. 13 Economic Condition has improved

Sl. No		Respondents	Percentage
1	Stopped borrowing	18	3.0
2	Reduced borrowing	66	11.0
3	Children Education	186	31.0
4	Owned house improved	240	40.0
5	Gold purchased	36	6.0
6	Acquired land	30	5.0
7	Added land area	24	4.0
Total		**600**	**100.0**

Source: Primary

Your economic condition has improved from the above table no.13 explains that 40% of the respondents reported that their own house has been improved, followed by 31% reported that their children educated. Your economic condition has improved concluded that most (40%) of the respondents have reported that their own house has been improved.

Other Sources of Investment

Garret Rank Technique:

This technique was used to rank the reasons for preferring particular organic food store by the respondents. In this method, the respondents were asked to give ranks according to the magnitude of

the reasons. The order of merit given by the respondents were converted into % position by using the formula

Percentage position = $\sum\sum 100*(Rij- 0.5)/ Nj$

$$i=1\ j=1$$

Where, Rjj = Rank given for i th factor by j th individual

Nj = Number of factors ranked by j th individual

The percentage position of each rank thus obtained is converted into scores by referring to the Table no.4 given by Henry Garrett. Then for each factor the scores of individual respondents are added together divided by the total number of respondents for whom scores were added. These mean scores for all the factors are arranged in the descending order, ranks are given and most important problems are identified.

Table No. 14 Sources of Investment

Sl. No	Sources of Investment	Score		Rank
		Total	**Mean**	
1	Loans from banks	2925	58.5	1
2	Loans from private institution	2700	54.0	2
3	Venture capital investments	1975	39.5	4
4	Public fixed deposit schemes	2100	42.0	3

Source: Computed data

Sources of investment from the above that among the four other sources of investment, the 'Loans from banks' has secured higher mean score and stood at top, followed by the source 'Loans from private institution' has secured next higher score and stood at second, the source 'Public fixed deposit schemes' has secured next higher mean score and stood at third, and finally 'Venture capital investments' has secured least mean score and stood at last.

Sources of Information

Garret Rank Technique:

This technique was used to rank the reasons for preferring particular organic food store by the respondents. In this method, the respondents were asked to give ranks according to the magnitude of the reasons. The order of merit given by the respondents were converted into % position by using the formula

Percentage position = $\sum\sum 100*(Rij- 0.5)/ Nj$

$$i=1\ j=1$$

Where, Rjj = Rank given for i th factor by j th individual

Nj = Number of factors ranked by j th individual

The percentage position of each rank thus obtained is converted into scores by referring to the Table given by Henry Garrett. Then for each factor the scores of individual respondents are added together divided by the total number of respondents for whom scores were added. These mean scores for all the factors are arranged in the descending order, ranks are given and most important problems are identified.

Table No. 15 Sources of Information

Sl. No	Sources of Information	Score		Rank
		Total	**Mean**	
1	Fellow farmers	32228.57	53.71	4
2	Bank/financial institutions	22114.29	36.86	6
3	News paper	31285.71	52.14	5
4	TV	32485.71	54.14	3
5	Radio	36857.14	61.43	1
6	Agriculture Department Officials	33171.43	55.29	2
7	NGOs	19628.57	32.71	7

Source: **Computed data**

Sources of information from the above that among the seven sources of information, the 'Radio' has secured higher mean score and stood at top, followed by the source 'Agriculture Department officials' has secured next higher score and stood at second, the source 'TV' has secured next higher mean score and stood at third, and finally 'NGOs' has secured least mean score and stood at last.

Not Satisfied With Crop Insurance

Garret Rank Technique:

This technique was used to rank the reasons for preferring particular organic food store by the respondents. In this method, the respondents were asked to give ranks according to the magnitude of the reasons. The order of merit given by the respondents were converted into % position by using the formula

Percentage position = $\sum\sum 100*(R_{ij}- 0.5)/ N_j$

$\quad\quad\quad\quad\quad i=1 \; j=1$

Where, R_{jj} = Rank given for i th factor by j th individual

$\quad\quad N_j$ = Number of factors ranked by j th individual

The percentage position of each rank thus obtained is converted into scores by referring to the Table given by Henry Garrett. Then for each factor the scores of individual respondents are added together divided by the total number of respondents for whom scores were added. These mean scores for all the factors are arranged in the descending order, ranks are given and most important problems are identified.

Table No. 16 Crop Insurance

Sl. No	Categories	Score		Rank
		Total	Mean	
1	Venture capital investments	5550.00	35.58	4
2	Delay in settlement of claims	7650.00	49.04	3
3	Certain crops only covered under insurance scheme	9600.00	61.54	1
4	Crop insurance scheme is available only in certain areas	8400.00	53.85	2

Source: Computed data

Crop insurance from the above that among the four categories, the 'Certain crops only covered under insurance scheme' has secured higher mean score and stood at top, followed by the source 'Crop insurance scheme is available only in certain areas' has secured next higher score and stood at second, the source 'Delay in settlement of claims' has secured next higher mean score and stood at third, and finally 'Venture capital investments' has secured least mean score and stood at last.

Findings of the Study

- The overall agreeability mean score on crop insurance among age groups of the respondents ranged from 2.60 to 2.72 and it is higher among above 50 years group of respondents.
- The overall agreeability mean score on crop insurance ranged from 2.54 to 2.68 and it is higher in illiterate.
- The overall agreeability mean score on crop insurance ranged from 2.53 to 2.65 and is on par among marital group of respondents.
- The overall mean agreeability score on crop insurance ranged from 2.43 to 2.68 and it is higher among SC group of respondents.
- The overall mean agreeability score on crop insurance ranged from 2.41 to 2.69 and it is higher in Christian group of respondents.
- The overall agreeability mean score on crop insurance ranged from 2.58 to 2.66 and is higher in urban area of living group of respondents.
- The overall agreeability mean score on crop insurance ranged from 2.59 to 2.64 and it is on par among total land holding group of respondents.

Suggestions of the Study

To protect farmers against various kinds of climatic risks, a comprehensive risk mitigation strategy needs to be planned rather than just focusing on crop insurance as a silver bullet. The different strategies of agriculture risk mitigation need to be:-

1. Awareness on risk, risk mitigation strategies and crop insurance.

3. Developing suitable crop insurance product and effective implementation strategies and Infrastructure.

5. Substituting relief payments with crop insurance system.

Conclusion

The penetration of crop insurance is still very poor in India despite the huge premium subsidies from the farmers. The major reason is the lack of awareness and lack of trust in the insurance system among the farmers due to faulty design of the insurance products and its implementation challenges. PMFBY has been designed taking note of the various constraints of earlier schemes and the empahsis is being given on use of technology such as remote sensing, Satellite images, mobiles, drones etc. at various stages. Improved productivity and active involvement of private sector insurance markets are expected to have significant benefits for farmers, including a quick claim settlement, a more equitable allocation of subsidies and a lower fundamental risk. If technology is used effectively, crop insurance in India can change.

References

1. Bharat Ramaswami, Shamika Ravi and S.D. Chopra (2003), Risk Management in Agriculture, Discussion Paper No. 03-08 submitted to Indian Statistical Unit, Delhi, June.
2. Bhende, M.J. (2002), An Analysis of Crop Insurance Scheme in Karnataka, Report submitted to Agricultural Development and Rural Transformation Unit – Institute for Social and Economic Change (ISEC), Bangalore.
3. Bhende, M.J. (2005), Agricultural Insurance in India: Problems and Prospects, Occasional Paper No. 44 submitted to Department of Economic Analysis and Research, National Bank for Agriculture and Rural Development.
4. Bhise, V.B., S.S. Ambhore and S.H. Jagdale (2007), Performance of Agriculture Insurance Schemes in India, Paper presented at the 101st EAAE Seminar on Management of Climate Risks in Agriculture held at Berlin, Germany on July 5-6.
5. Bill Fischer (2010), "Changes to the SRA Good for Farmers and Taxpayers?", Crop Insurance Today, Vol.43, No.1, February, Pp.4-6.
6. Boyd and Milton (2020), Factors affecting crop insurance purchases in China: the Inner Mongolia region, China Agricultural Economic Review, Vol. 3 No. 4, Pp. 441-450.
7. Duhan, A. (2020), Farmer's Perception towards Crop Insurance, *International Journal of Research in Applied*, Natural and Social Sciences, 6(8), India Pp. 1-6.
8. Goudappa, Reddy, Chandrashekhar, S.B., 2020), Farmers Perception and Awareness about Crop Insurance in Karnataka, *Indian Research Journal of Extension Education*, (2), India.
9. Gurdev Singh (2010), Crop Insurance in India, Working Paper No.2010-06-01 submitted to the Indian Institute of Management, Ahmedabad, June.
10. Hazell, P. (1992), "The Appropriate Role of Agricultural Insurance in Developing Countries", *Journal of International Development*, Vol.4, No.6, Pp.567-181.
11. Horowitz, J.K. and E. Lichtenberg (1993), "Insurance, Moral Hazard and Chemical Use in Agriculture", *American Journal of Agricultural Economics*, Vol.75, No.4, Pp.926-935.

12. Jagendra Kumar (2006), "Agriculture Insurance Still a Far Cry in India". The Chartered Accountant, February, Pp.1192-1196.

13. Jain, R.C.A. (2004), "Challenges in Implementing Agriculture Insurance and Re-insurance in Developing Countries", *The Journal,* January-June, Pp.14-23.

14. Jayakumar, S. and A. Subbiah (2009), "Agricultural Insurance in India – Problems and Suggestions", *The Insurance Times*, Vol. 29, No. 4, April, Pp.23-26.

15. Jennifer Ifft (2001), "Government Vs Weather: The True Story of Crop Insurance in India", *Centre for Civil Society*, Pp.1-7.

16. Kangale, Deshmukh, Deshmukh, P.D., (2020), Farmers Perception towards Crop Insurance Scheme, *International Research Journal of Agricultural Economics and Statistics*, 7(2), India.

17. Kiyanoush Ghalavand, Karim.MH (KarimKoshteh) and Abolhassan Hashemi (2019),"Agriculture Insurance as a Risk Management Strategy in Climate Change Scenario: A study in Islamic Republic of Iran", *International Journal of Agriculture and Crop Sciences*. Available online at www.ijagcs.com_,IJACS/2012/4-13/831-838, ISSN 2227-670X ©2012 IJACS Journal

18. Malini, R. (2011), "Attitude of Farmers toward Agriculture Insurance: A Study with special reference to Ambasamudram of Tamil Nadu", *The IUP Journal of Agricultural Economics,* Vol. 8, No.3, July, Pp.24-37.

19. Mallikarjun S. Hasanabadi (2005), An Economics Analysis of Crop Insurance for Onion in Dharwad District, Master of Science (Agricultural Economics) Thesis submitted to the University of Agricultural Sciences, Dharwad, September.

20. Mathivanan, R. and D. Sasikala Devi (2012), "Crop Insurance in India", Kisan World, Vol. 39, No.3, March, P.44.