



An Empirical Study of Farmers' Perception and Satisfaction Towards Crop Insurance in Erode Rural, Tamilnadu

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Abstract: The main objective of this study is to examine farmers' perception towards purchasing crop insurance, aiming to help researchers understand how to mitigate or avoid risks faced by farmers through crop insurance subscriptions. The chosen location for this investigation is Erode District in the Western part of Tamil Nadu, as the attitudes and perceptions of farmers in this area are indicative of their behavior towards crop insurance. The researcher analyzed various factors that influence farmers' perceptions and attitudes towards buying crop insurance. For this study, a sample of 426 farmers from Erode District was selected using the convenience sampling method. To establish significant relationships between variables, the researcher utilized Cluster Analysis, Multiple Regression, Factor Analysis, Chi-Square Analysis, and Percentage Analysis. Additionally, Cronbach's alpha was used to assess the questionnaire's reliability.

Keywords: Attitude, Crop Insurance, Perception, Farmers' Risk, Natural Calamities, Government, Agro Economy, etc.

1.0 INTRODUCTION

1.1 AGRICULTURE IN INDIA

For over six decades, agriculture has been the backbone of the Indian economy, supporting around 78% of our population, and contributing 19% to our nation's GDP. However, agriculture heavily relies on natural factors like rainfall and climate, making it a high-risk venture compared to other businesses. To address these risks faced by farmers, the government and other agencies have introduced various methods and schemes.

One of the primary risks farmers face is financial risk, which arises from natural calamities and fluctuations in crop prices. To mitigate this risk, farmers have several options, and insurance stands out as a crucial tool. By purchasing insurance and paying a premium, farmers can protect themselves from financial losses. Moreover, this approach reduces the government's burden of compensating farmers for flood and drought damages. Crop insurance plays a significant role in providing relief to farmers, as the insurance company

steps in to provide compensation instead of the government. This not only supports farmers but also encourages the growth of the insurance business.

1.2 CROP INSURANCE IN INDIA

The Indian government took a significant step in crop insurance by introducing the Comprehensive Crop Insurance Scheme (CCIS) in 1985, which was later replaced by the National Agriculture Insurance Scheme (NAIS). Although the NAIS was considered an improvement over CCIS, it still falls short of being an efficient system. Globally, government crop insurance has been found to be ineffective, and India seems to have overlooked this fact and that of other countries as well. Some of the main shortcomings of NAIS include its emphasis on financial viability, mandatory nature, neglect of adverse selection, arbitrary premiums, and reliance on the area technique. On the other hand, private crop insurance programs, though less developed internationally, have shown effectiveness in various regions.

Farmers in India face a multitude of challenges due to natural disasters like droughts, pests, diseases, and floods. The unpredictable weather remains their most formidable adversary, and despite significant advancements in farming practices, Indian farmers remain heavily dependent on climate conditions. Since 1972, publicly funded insurance programs have been in place to provide coverage to farmers in India. Even any plan has proven ineffective, the Indian government is still working to support agriculture by shielding its farmers from the elements. The National Agriculture Insurance Scheme, the government's most recent crop insurance programme, has only been in place since the Rabi season of 1999–2000. The NAIS is expected to become financially self-sufficient in five years by collecting the premium from the farmers based on the risks and ministerial expenses.

- ❖ Encourage farmers to use cutting-edge agricultural technology and modern farming techniques.
- ❖ In the sad event of crop failure, the insurance will offer cash support. As a result, it will play a crucial role in the expansion of crop output.
- ❖ Crop insurance enables farmers to keep access to agricultural loans open.
- ❖ Crop insurance also helps to create an accurate database for crop production and accelerates the process of loss assessment.

Despite previous ineffective plans, the Indian government remains committed to supporting agriculture and protecting its farmers from the unpredictable elements. The most recent crop insurance program, the National Agriculture Insurance Scheme (NAIS), was implemented starting from the Rabi season of 1999–2000. The NAIS aims to achieve financial self-sufficiency within five years by collecting premiums from farmers based on the risks and administrative expenses. The NAIS serves several important purposes:

1. It encourages farmers to adopt cutting-edge agricultural technology and modern farming techniques.
2. In the unfortunate event of crop failure, the insurance provides cash support, which plays a vital role in expanding crop output.
3. Crop insurance ensures that farmers can maintain access to agricultural loans.
4. Additionally, crop insurance facilitates the creation of an accurate database for crop production and expedites the process of loss assessment.

By implementing the NAIS, the Indian government seeks to bolster the agricultural sector and safeguard the livelihoods of farmers in the face of natural uncertainties.

Indian Government has dedicated a few unique crop insurance policies to the Indian farmers in recent past years like

- ❖ PMFBY - Pradhan Mantri Fasal Bima Yojana
- ❖ RWBCIS - Restructured Weather Based Crop Insurance Scheme
- ❖ NAIS - National Agricultural Insurance Scheme
- ❖ WBCIS - Weather Based Crop Insurance Scheme
- ❖ MNAIS - Modified National Agricultural Insurance Scheme

1.3 OBJECTIVES OF THE STUDY

1. To assess the level of awareness among farmers in Erode district regarding crop insurance.
2. To investigate the factors that influence farmers to participate in and effectively utilize crop insurance.
3. To explore the mediating role of risk perception and claim settlement experiences, as well as the direct service provided by insurance, in determining farmer satisfaction.
4. To propose appropriate recommendations for the successful implementation of crop insurance schemes and awareness programs, aimed at enhancing the utilization of crop insurance among farmers.

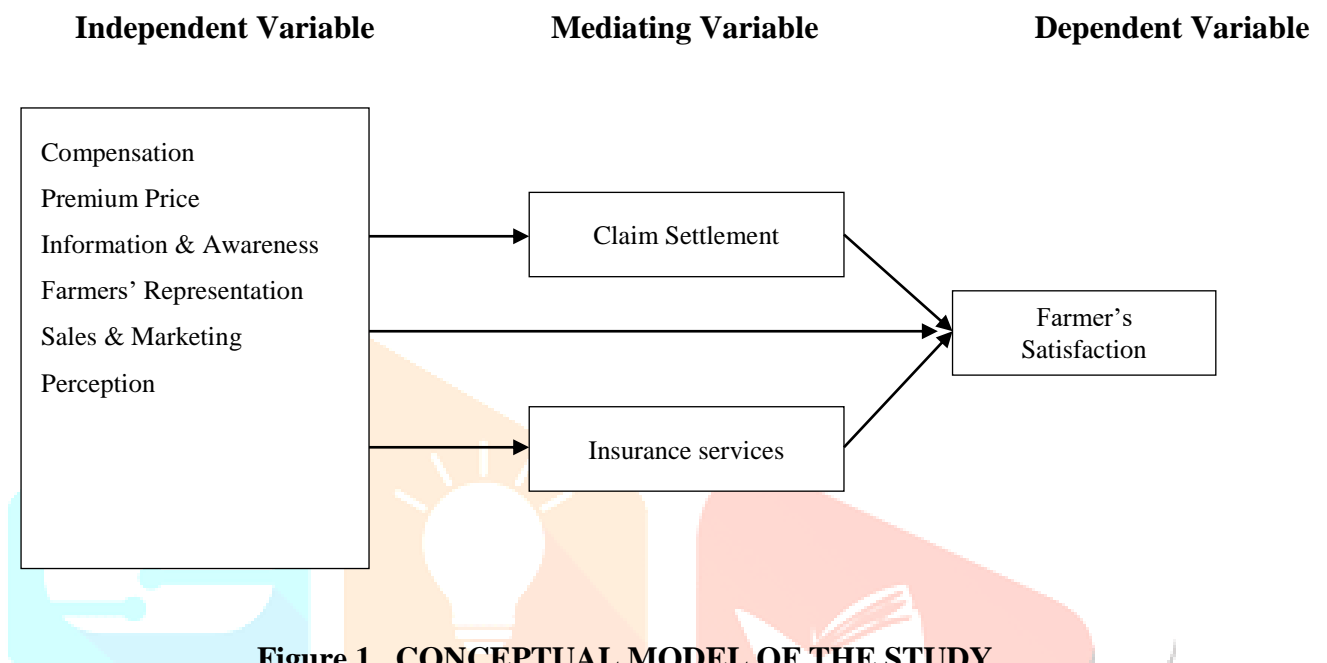


Figure 1 . CONCEPTUAL MODEL OF THE STUDY

2.0 RESEARCH METHODOLOGY

The researcher conducted a descriptive study to explore the characteristics of farmers or groups of farmers. To examine relationships and determine the significance between the variables, the researcher utilized various tools and instruments such as Chi-square, Factor Analysis, Regression, and Cluster Analysis. These analytical methods were employed to gain insights and draw meaningful conclusions from the data collected. Data was collected from 426 farmers residing in different Taluks of Erode district using the simple random sampling method. Erode district comprises 225 rural panchayat villages across 14 administrative blocks. The geographical distribution of the farmers is presented in the table below

TABLE - 1 GEOGRAPHICAL & SAMPLE DISTRIBUTION OF THE RESPONDENTS

Sl. No	Name of the Taluks	No. of Rural Areas selected	Sample Distribution	S.No	Name of the Taluks	No. of Rural Area Selected	Sample Distribution
1	Modakurichi	22	50	6	Bhavani	12	33
2	Kodumudi	9	20	7	Gobichettipalaya m	19	56
3	Perundurai	25	64	8	Nambiyur	13	34
4	Chennimalai	18	54	9	Sathyamangalam	12	35
5	Ammapettai	19	45	10	Bhavani sagar	12	35
	Total	93	233			68	193
	Grand Total	Rural Areas	163	Sampl e	426		

3.0 DATA ANALYSIS

The main emphasis of this study is to explore the level of awareness among farmers in Tamil Nadu's Erode District regarding crop insurance. Furthermore, the researcher has investigated the farmers' contentment with crop insurance and analyzed the key challenges they faced while trying to avail crop insurance in the region. The study involved a selection of 650 farmers from the Erode district, and appropriate statistical methods were applied to analyze the data collected from these sampled farmers.

3.1 Demographic Analysis

TABLE - 2 DEMOGRAPHIC DATA OF THE RESPONDENTS

Gender	N	Per cent	Mean	Range		S.D.
				Min	Max	
Male	295	69	21.85	10	34	4.526
Female	131	31	21.97	10	33	4.239
Total	426	100				
Age	N	Per cent	Mean	Range		S.D.
				Min	Max	
26 years and below	25	6	190.01	10	30	5.703
27-36 years	49	12	23.05	10	31	4.299
37-46 years	101	24	21.96	12	32	4.156
47-56 years	168	39	23.01	10	34	4.381

Above 56 years	83	19	21.08	11	31	4.878
Total	426	100				
Marital status	N	Per cent	Mean	Range		S.D.
				Min	Max	
Married	345	81	20.62	10	32	4.596
Unmarried	81	19	22.12	11	31	4.238
Total	426	100				
Literacy Level	N	Per cent	Mean	Range		S.D.
				Min	Max	
No formal education	65	15	23.01	10	32	4.976
Primary level	58	14	22.76	13	32	4.722
Secondary level	179	42	20.87	10	32	4.454
Graduate	72	17	24.30	13	30	4.371
Postgraduate	54	13	21.62	11	31	4.369
Total	426	100				
Agriculture Land Size	N	Per cent	Mean	Range		S.D.
				Min	Max	
3 acre and below	159		21.70	12	33	4.579
4 -5 acres	182		22.94	10	33	4.487
Above 5 acres	85		21.39	10	31	4.685
Total	426	100				
Annual income of the Farmers	N	Per cent	Mean	Range		S.D.
				Min	Max	
Below 1 lakh	44	10	22.53	13	31	4.674
1.00-3 lakhs	142	33	21.80	10	32	4.430
3.01-5 lakhs	146	34	22.02	11	32	4.247
Above 5.0 lakhs	94	22	22.79	11	33	5.261
Total	426	100				
Residence	N	Per cent	Mean	Range		S.D.
				Min	Max	
Owned	375	88	22.46	10	33	4.538
Rented	51	12	20.38	11	29	4.392
Total	426	100				

Farmer's Land type	N	Per cent	Mean	Range		S.D.
				Min	Max	
Fertile	283		21.68	10	31	4.740
Non-fertile	84		22.71	10	30	4.138
Both	59		21.83	12	32	4.405
Total	426	100				

TABLE - 3 FACTORS INFLUENCING THE RESPONDENTS TOWARDS CROP INSURANCE

S. No	Factors	S. No	Factors
1	Easy accessibility	8	Advertisement on crop insurance
2	Crop security	9	Quick claim settlement
3	Previous experience on risk	10	Family members' opinion
4	Insurance returns & benefits	11	Improper water resources
5	rate of premium	12	Farmers' association
6	Avoiding risk	13	Sum insured
7	Bankers' approach	14	Premium fluctuations

3.2 CHI SQUARE ANALYSIS

3.2.1 ANNUAL INCOME OF THE FARMERS AND AWARENESS TOWARDS CROP INSURANCE

Income is a key determinant of farmers in their day-to-day farming activities and their life. Farmers' conditions depend upon the income of farmers that comes from different sources. However, the appropriate estimates of farmers' income are not available in our country. The Government has adopted several developmental programmes, schemes, reforms and policies that focus on higher incomes for the farmers of the country. Hence, the income level of the farmers was analysed with such options i.e. below 1 lakh, 1-3 lakhs, 3.01-5 lakhs and above 5 lakhs. The allotment of sample farmers according to the annual income and their awareness towards crop insurance is shown in table 2

Hence, the present analysis finds that the awareness towards crop insurance was high among the farmers who earn above 5 lakhs per annum. Chi-square analysis was employed to identify the association level between income level of the farmers and the awareness of farmers towards crop insurance. The following hypothesis was framed, and the result of the test is exposed in the following table.

HYPOTHESIS 1

Null hypothesis (H ₀)	Alternative hypothesis (H ₁)
No association between annual income and the awareness of farmers towards crop insurance	A close association between annual income and the awareness of farmers towards crop insurance.

TABLE 4**ANNUAL INCOME OF THE FARMERS AND AWARENESS TOWARDS CROP INSURANCE (CHI-SQUARE TEST)**

Variable	Pearson Chi-Square	Table Value	D.F	Result
Annual income	28.151	16.812	6	Significant at 1% level

It is understood from the table no.4 that the computed chi-square value of the study is higher than the table value. So, the result of the study is significantly associated at 1% level. Hence, the alternative hypothesis "A close association between annual income and the awareness of farmers towards crop insurance" is proved by the study

3.2.2 MAJOR CROP CULTIVATED BY THE FARMERS AND AWARENESS TOWARDS CROP INSURANCE

India is an important center of rice cultivation. Rice is cultivated in the largest areas in India. The multiplicity of cropping systems has been one of the main features of Indian agriculture and it is attributed to rain-fed agriculture and the prevailing socio-economic situations of the farming communities. Hence, the major crops cultivated by the farmers was analysed with such options i.e. paddy, banana, sugarcane, vegetables, turmeric and oil seeds. The allotment of sample farmers according to the literacy level and their awareness towards crop insurance is shown in the below table.

TABLE 5**MAJOR CROP CULTIVATED BY THE FARMERS AND AWARENESS TOWARDS CROP INSURANCE (CHI-SQUARE TEST)**

Major Crops	N	Per cent	Mean	Range		S.D.	Chi Square
				Min	Max		
Paddy	75	11.5%	22.79	13	33	4.563	Pearson Value
Banana	140	21.5%	21.69	10	30	4.909	10.945
Sugarcane	146	22.5%	22.37	10	31	4.756	D.F.
Vegetables	41	6.3%	22.61	13	32	5.171	
Turmeric	158	24.3%	21.76	13	32	4.193	Table Value
Oil seeds	90	13.8%	22.53	13	33	4.283	18.307
Total	650	100				Result	Not Significant

HYPOTHESIS 2

Null hypothesis (H ₀)	Alternative hypothesis (H ₁)
No association between major crops cultivated by the farmers and the awareness of farmers towards crop insurance	A close association between major crops cultivated by the farmers and the awareness of farmers towards crop insurance.

It is understood from the table no.5 that the computed chi-square value of the study is lower than the table value. So, the result of the study is not significantly associated at 5% level. Hence, the alternative hypothesis “A close association between literacy level and the awareness of farmers towards crop insurance” is not proved by the study. major crops cultivated by the farmers and the awareness of farmers towards crop insurance was analysed by a two-way table and the result is given in the underneath table.

3.3. GARRET RANKING

TABLE - 6

FACTORS INFLUENCING THE RESPONDENTS TOWARDS CROP INSURANCE

S. No	Factors	Rank	Factor Score	S. No	Factors	Rank	Factor Score
1	Easy accessibility	10	.706	8	Advertisement on crop insurance	4	.747
2	Crop security	3	.769	9	Quick claim settlement	14	.634
3	Previous experience on risk	4	.747	10	Family members' opinion	11	.703
4	Insurance returns & benefits	9	.715	11	Improper water resources	12	.677
5	Rate of premium	13	.659	12	Farmers' association	6	.742
6	Avoiding risk	8	.724	13	Sum insured	1	.829
7	Bankers' approach	7	.740	14	Price fluctuations	2	.823

The above table shows the most as well as the least factors affecting the farmers in availing crop insurance. Out of 14 variables, the factor “sum assured” has high influences on availing crop insurance and this factor is ranked one and the factor “Quick settlement” has low influences on availing crop insurance among the farmers and this factor is ranked in last place.

TABLE 7
PROBLEMS IN AVAILING CROP INSURANCE

S. No	Problems	Total score	Mean Score	Rank
1	High amount of policy rates	28958	48.2633	5
2	Limited coverage of risks	28954	48.2567	6
3	Long procedures	29995	49.9917	4
4	Delayed compensation	30240	50.4000	3
5	Poor indemnity level	33516	55.8600	1
6	Lack of awareness on various schemes	31843	53.0717	2
7	Lack of bankers' service	26494	44.1567	7

It is observed from the above table that the problem “Poor indemnity level” was ranked first with the mean value of 55.8600 points and following it was the problem “Lack of awareness on various schemes” ranked second with the mean value of 53.888 points. The third rank was secured by “Project-based learning” with the mean value of 53.0717 points. Delayed compensation is another problem in availing crop insurance opined by the sample farmers in the study area which was ranked fourth with the mean value of 49.9917 points. Therefore, it could be renowned that “Poor indemnity level” was given the top priority among the various problems of farmers in availing crop insurance.

3.5 MULTIPLE REGRESSION ANALYSIS

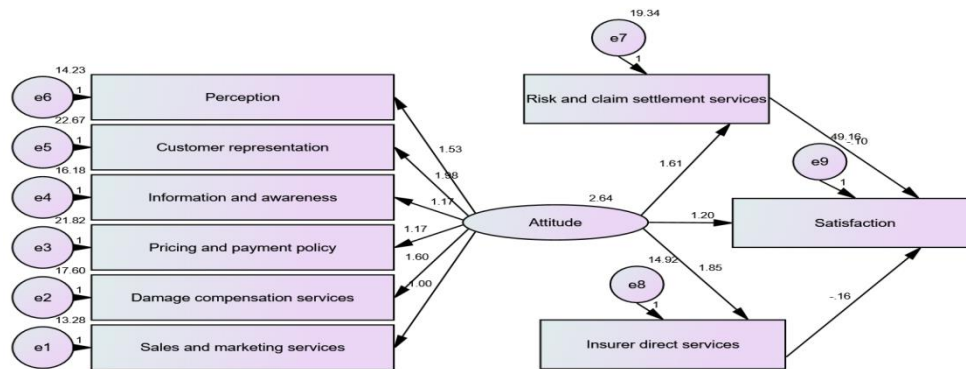
Multiple regression analysis is a statistical process used to forecast the value a dependent variable based on the values of two or more independent variables. Multiple regression analysis is used to know the significant relationship between sets of variables. The general form of the multiple regression model is $y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_px_p + \epsilon$. This multiple regression analysis shows the relationship between awareness of farmers towards crop insurance and selected eleven independent variables. In order to measure the interdependence of independent factors and their total contribution to the awareness of farmers towards crop insurance, the results of the analysis were put into multiple regression analysis, and detailed results are revealed in the following table. The Multiple linear regression components are found statistically a good fit as R^2 is 0.096. It shows the five independent variables contribute on the awareness of farmers towards crop insurance and statistically significant at 1% and 5% level.

TABLE 8
AWARENESS OF FARMERS TOWARDS CROP INSURANCE (MULTIPLE REGRESSION ANALYSIS)

Variables	B	Std. Error	Beta	T	P	R Value
(Constant)	20.427	1.855		11.012	.000	R
Gender	-1.583	.388	-.156	-4.084	.000	.310 ^a
Age	.348	.167	.080	2.082	.038	
Marital status	1.740	.474	.140	3.671	.000	R Square
Literacy level	.018	.144	.005	.123	.902	.096
Size of the family	.185	.243	.029	.763	.446	
Annual income	.222	.189	.044	1.173	.241	Adj.R ²
House type	-1.942	.523	-.148	-3.712	.000	.081
Land type	.233	.242	.037	.962	.336	
Land size	.046	.231	.008	.200	.842	Std. Error
Experience	.632	.225	.107	2.815	.005	4.413
Type of major crop cultivated	-.053	.095	-.021	-.560	.576	

3.6 STRUCTURAL EQUATION MODELING

Farmers favour is insurance because they understand its value and how it affects their income. In order to understand the relationship between farmer attitudes, risk and claim settlement services, insurer direct services, and farmer satisfaction with crop insurance, Structural Equation Modelling was used.



4. RESULTS OF THE STUDY

4.1 MAJOR FINDINGS

- ❖ Homeownership was found to be positively associated with farmers' knowledge of crop insurance, indicating that farmers who owned their homes tended to be more informed about crop insurance.
- ❖ The study revealed a high level of awareness regarding crop insurance among farmers with non-fertile land.
- ❖ The results of the Chi-square test demonstrated a strong correlation between the extent of land ownership and farmers' knowledge about crop insurance. Specifically, farmers who possessed between 6 and 10 acres of land exhibited a higher level of understanding.
- ❖ Factor analysis was employed to identify the key factors influencing farmers' decisions to avail crop insurance. The analysis grouped 14 variables into three component factors named evading, reimbursements, and artlessness. These factors significantly influenced farmers' choices to purchase crop insurance, with "sum assured" being the most impactful factor.
- ❖ The researcher investigated the challenges faced by farmers while obtaining crop insurance, and "Poor indemnity level" emerged as a prominent issue.
- ❖ The survey findings revealed that farmers growing oilseeds expressed the highest level of satisfaction with crop insurance among the six categories of key crops studied. The structural equation modelling (SEM) further established a significant association between farmers' attitudes towards crop insurance and various determinants, such as sales and marketing services, damage compensation services, pricing and payment policy, information and awareness, customer representation, risk and claim settlement services, and insurer direct services.

4.2 SUGGESTIONS

- ❖ Female farmers exhibited a high level of knowledge about crop insurance. Consequently, the study recommended that banks and insurance companies conduct awareness programs at the village level, focusing particularly on male farmers, to enhance their understanding of crop insurance.
- ❖ Farmers in their twenties and thirties demonstrated a lack of awareness regarding crop insurance. Thus, it is advised that relevant authorities disseminate information about crop insurance schemes to young farmers through easily understandable written materials and publications.
- ❖ The study found that farmers belonging to the low-income category had limited knowledge about crop insurance. To address this, specialized products catering to small and marginal farmers and lessees should be developed.
- ❖ Small farmers expressed dissatisfaction with crop insurance. Therefore, any redesign of the crop insurance program should prioritize inclusivity to address the concerns of small-scale farmers.
- ❖ Farmers with over 10 years of experience displayed a high level of awareness about crop insurance. Hence, it is vital to educate new farmers that insurance is not an additional expense and that excessive use of pesticides and fertilizers may not necessarily lead to higher yields.
- ❖ The sum assured amount significantly influenced farmers' decisions to purchase crop insurance. Thus, service providers should consider this factor and optimize distribution routes to ensure efficient coverage of crop insurance for all farmers and various risks.
- ❖ Farmers with high incomes expressed discontent with crop insurance, indicating that indemnity payments should be adequate and cover the actual damages suffered, especially for farmers with substantial incomes.
- ❖ The majority of farmers held a negative view towards crop insurance, emphasizing the need for efforts to change this perception. Raising awareness that insurance is a necessary input rather than an investment with returns is crucial. Additionally, resolving the issue of poor indemnity levels should be a priority for insurance companies.
- ❖ Leveraging technology can significantly enhance premium handling and settlement processes for insurance companies. Strengthening the connection between insurer direct services and farmer attitudes towards crop insurance can prove beneficial.

5. CONCLUSION

Poor farmers worldwide often suffer significant losses due to natural calamities. Crop insurance serves as a protective measure, shielding farmers from financial burdens caused by fluctuations in agricultural market prices and crop damage resulting from severe weather events or natural disasters. With crop insurance, farmers facing difficulties in their farming endeavors can have some assurance of compensation in the event of a catastrophe.

In the Erode District, where farmers heavily rely on weather conditions for their crop cultivation, it becomes crucial to safeguard them from agricultural uncertainties. National institutions should take responsibility for supporting, overseeing, and improving insurance services in the region. However, the low uptake of crop insurance raises concerns, indicating that farmers might either lack access to insurance or fail to recognize its benefits. To address these challenges, the claim settlement process must be efficiently streamlined to provide timely assistance to affected farmers. Regular orientation programs and counseling camps hosted by banks and insurance authorities can play a vital role in enhancing community awareness of the crop insurance program. Moreover, there is a pressing need to change the mindset of rural farmers, helping them understand that paying premiums is an investment in securing their crops rather than a mere obligation.

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