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A Study on Exploring Farmers' Views on Crop Insurance: A Special Reference to Jamkhandi City, Karnataka, India

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A B S T R A C T

The 'farmers' perceptions of crop insurance – the case of Jamkhandi, Karnataka' is what investigates this work more in depth. The interesting part, one that motivated the research this work stems comes from a general observation of farmers in India, especially small and marginal ones. However, the study intends to fill the gap of literature and show cross-Cultural difference of sociocultural factors determining the use of crop insurance. Thus, the study will analyze how the sociocultural factors determine the use of crop insurance in Karnataka India with special focus on farmers' awareness, level of insurance literacy and attitudes towards the crop insurance schemes. The study employed descriptive research design and to obtain the desired data researcher sampled 120 farmers using structured questionnaire. The results indicated that the level of education, the size of land holding and satisfaction with insurance services are significant factors that impact crop insurance adoption. Other prominent barriers included high premiums, low level of understanding and claim issues perceived to be complex. This study concluded that the motivation to address accessibility and increase participations by decreasing required awareness and simplifying procedures on the scheme was found to overshadow other recommendations. At the same time, it is worth emphasizing that other recommendations stressed the need to develop specific insurance products for small farmers as well as to frequently check the relevance of the schemes. So this research can be considered one to come up with concrete proposals to policy makers, insurers, and ones providing agricultural extension services how to fill the gap inhibiting the soil-crop re.

Keywords: Crop Insurance, Farmers' Attitudes, Financial Commitment, Risk Management, Awareness & Agricultural Sustainability.

INTRODUCTION

Background

Crop insurance is an important tool to help farmers manage risks, protecting them from losses due to weather and unpredictable market fluctuations In India where agriculture is a major part of the economy, schemes like Prime have been developed Minister Fasal Bima Yojana (PMFBY) to help farmers avoid financial problems These schemes are not implemented due to issues such as lack of funds and uncertainty they have for the sake of getting paid while collecting money (Ghosh & S.G., 2021;Madasu, year 2019). Factors such as education, income, and farm size also affect whether farmers will use this program (Dhingra, 2018). Despite many efforts by the government, there are problems with how these policies work in real life, making them difficult to adopt widely (Jeyabalasingh & N., 2020).

Data analysis methods

The following statistical tools were used to analyze the collected data.

    A.   Descriptive statistics: To summarize the demographic and socio-economic characteristics of the respondents.

    B.   Graphical representation: To visualize key findings.

    C.   Chi-Square Test: To find out the relationship between categorical variables.

    D.   Independent samples t-test: To compare means across groups.

    E.   One-way ANOVA: To test for differences between groups.

Literature Review

Crop insurance is an important tool for protecting farmers against the adverse effects of natural disasters and market fluctuations. This is especially important in regions like Andhra Pradesh and other agro-based industries, where climate uncertainty is prevalent (Madasu, 2019).

Factors affecting adoption

Research has consistently shown that factors such as education, income and farm size significantly influence farmers' attitudes and acceptance of crop insurance schemes (Dhingra, 2018; Ghosh & S.G., 2021). For example, education enables farmers to better understand insurance products, while higher incomes reduce financial barriers to participation. The study also highlights the important role of government schemes such as the Prime Minister's Crop Insurance Scheme (PMFBY) in enhancing farmers' economic resilience (Jeyabalasingh & N., 2020).

Challenges and obstacles

Despite its benefits, crop insurance faces many challenges. Low awareness, uncertainty regarding the claims resolution process and complicated procedures are important barriers for many farmers, especially small and marginal farmers (Madasu, 2019; Amtul Wahab, 2024).). In addition, high fees and budget constraints further discourage adoption.

Research gap: There are still some unanswered questions about how crop insurance affects crop yields and income, how much farmers are willing to pay, and the efficiency of government crop insurance programs . . . . More research is needed to understand how technology can be used, its impact on small and marginal farmers, how literacy reforms relate to crop insurance, how crop insurance is linked to complex climate change and resilience in addition to more likely insurance solutions Currently, such it helps to explore the feasibility of diversifying options for farmers.

Literature Review Summary: Crop insurance has been discussed in the literature to address production and marketing risks due to factors such as weather shocks and market fluctuations in farmers growing areas because of the dangerousness of it. These farmers are likely to have a better knowledge of the available insurance schemes and therefore have a positive attitude towards insurance and therefore a higher rate of adoption. However, the literature suggests that there are several challenges that various authors identify to explain why adoption has not spread. Obstacles include; lack of knowledge, uncertainty about insurance payments, and perceived difficulty in processing claims. Smaller, more marginal farmers are less exposed to financial distress mainly due to premium costs. Most studies emphasize that insurance literacy requires encouragement through focused advertising and less complex insurance policies. Also, only appropriate support or insurance.

STATISTICAL ANALYSIS AND RESULT

A. Descriptive statistics (Table: 01)

	N (Number of samples)	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Gender	120	1.00	1.00	2.00	1.0167	.01174	.12856
Age	120	3.00	1.00	4.00	1.9667	.09610	1.05267
Educational level	120	5.00	1.00	6.00	3.8167	.09089	.99565
Income annual	120	3.00	1.00	4.00	1.9500	.10641	1.16569
Valid N (list wise)	120						

Descriptive statistics Table: 01 gives a summary measure including the measure of central tendency and variability of the data. The finding indicates that, the greater part of the participants are male, majority have their education as high school or some college education, and average monthly income as 19,500. Coefficient of variation shows that the ages are moderately different, as well as the educational level and income. In general, the data reported here present the demographic profile of the study participants and their background.

B. Graphical representations

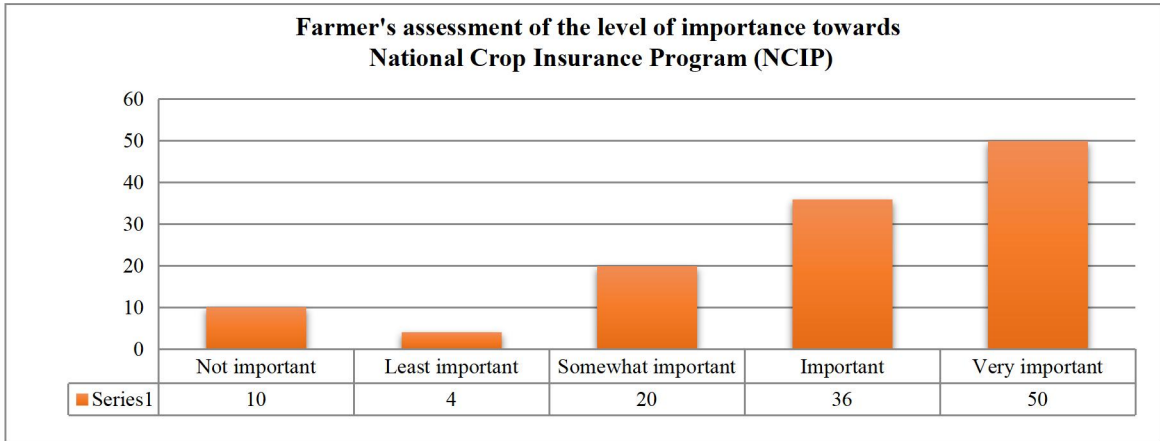**Figure: 01** showing Farmer's attitude towards various insurance schemes

Farmer's assessment of the level of importance towards National Crop Insurance Program (NCIP)

	Not important	Least important	Somewhat important	Important	Very important
Series1	10	4	20	36	50

Figure: 02 Showing number of Farmer's assessment of the level of importance towards Weather Based Insurance Program

Farmer's assessment of the level of importance towards Weather Based Insurance Program

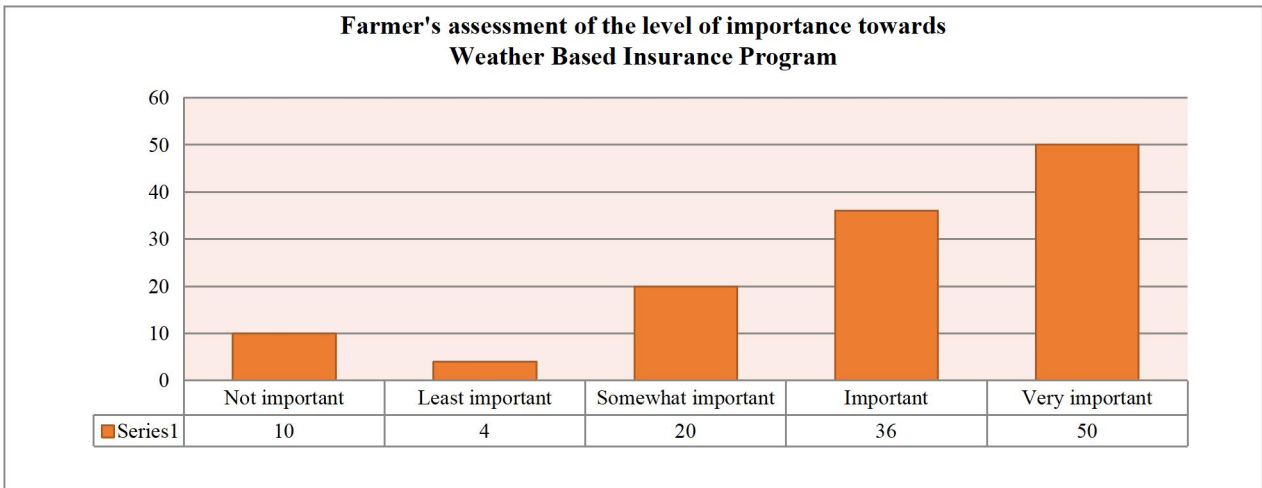|	Not important	Least important	Somewhat important	Important	Very important
Series1	10	4	20	36	50

Figure: 03 Showing number of Farmer's assessment of the level of importance towards Modified National Agriculture Insurance Scheme (MNAIS)

Farmer's assessment of the level of importance towards Modified National Agriculture Insurance Scheme (MNAIS)

	Not important	Least important	Somewhat important	Important	Very important
Series1	10	4	20	36	50
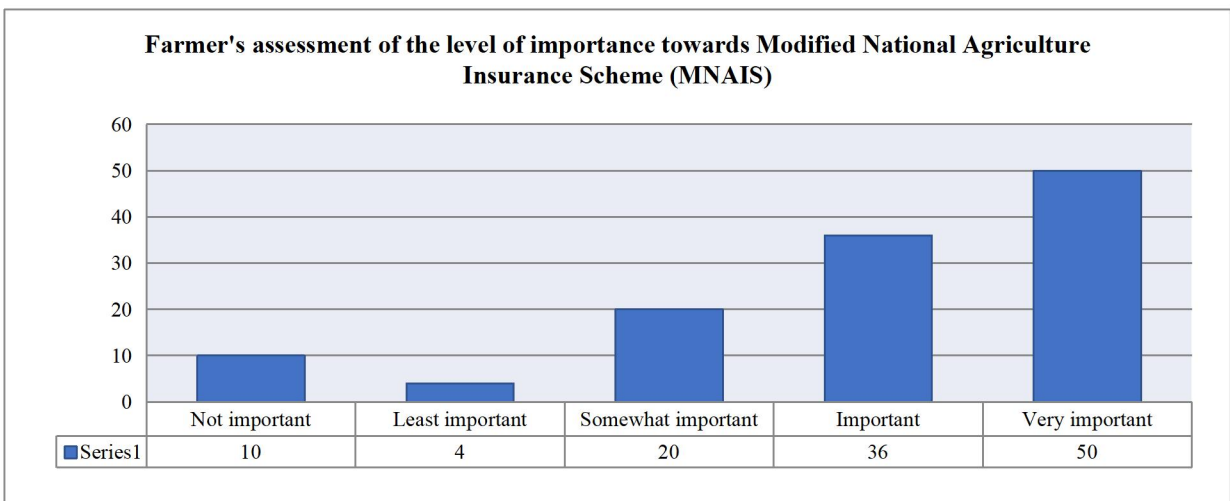
C.   Chi-Square Test

Test of Hypothesis 1

Research question: "Can crop insurance be adopted by female farmers as it is adopted by male farmers?"

H0: It is established that there is equal distribution of crop insurance among males and female farmers.

H1: Crop insurance enrolment has a gender difference with male demonstrating higher enrolment than female.

Table: 2

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N (Number of samples)	Percent	N (Number of samples)	Percent	N (Number of samples)	Percent
Incentives encouragement to adopt crop insurance	120	100.0%	0	0.0%	120	100.0%

Incentives encouragement to adopt crop insurance				
Count				
		GENDER		Total
		Male	Female	
Incentives encouragement to adopt crop insurance	High Premium Cost	46	0	46
	Lack of Awareness	30	0	30
	Complexities of process	16	0	16
	other reasons	26	2	28
Total		118	2	120

Chi-Square Tests			
	Value	Degrees of Freedom	Asymptotic Significance (two-sided)
Pearson Chi-Square	6.683[a]	3	.083
Likelihood Ratio	5.934	3	.115
Linear-by-Linear Association	4.572	1	.033
N of Valid Cases	120		
a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .27.			

Symmetric Measures		Value	Asymptotic Significance (two-sided)	Approximate T-value	Approximate Significance
Interval by Interval	Pearson's R	.196	.068	2.171	.032ᶜ
Ordinal by Ordinal	Spearman Correlation	.181	.063	1.998	.048ᶜ
N of Valid Cases		120			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Result analysis & conclusion (Table: 02): Chi-Square test results mean that there is no significant relationship between Chi-Square and gender with reference to crop insurance adoption (t = 39.87; p = 0.083). The null hypothesis is not rejected despite analysis showing that gender does not affect crop insurance decision. Nonetheless, results from the Linear-by-Linear Association test reveal a statistically significant relationship between gender and adoption of crop insurance (p = 0.033) which implies that somehow gender could be related to crop insurance adoption in the study area.

Test of Hypothesis 2:

Research question: Is crop insurance an informed choice by a farmer, or is it determined by the level of education of the farmer involved?

H0: The level of education also had no effect on crop insurance uptake.

H1: Education level determines the level of adoption of crop insurers.

Table: 03

Case Processing Summary							
		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Incentives encouragement to adopt crop insurance		120	100.0%	0	0.0%	120	100.0%

Constraints of adopting crop insurance educational level Cross tabulation								
Count								
		Educational level						Total
		Illiterate	School Level	High School Level	Degree Level	Post Graduate	Above Pg	
Constraints of adopting crop insurance	high premium cost	0	6	8	26	6	0	46
	lack of awareness	2	2	2	14	6	4	30
	complexities of process	0	0	8	4	4	0	16
	other reasons	0	2	8	12	6	0	28
Total		2	10	26	56	22	4	120

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.689[a]	15	.003
Likelihood Ratio	34.315	15	.003
Linear-by-Linear Association	.046	1	.830
N of Valid Cases	120		
a. 14 cells (58.3%) have expected count less than 5. The minimum expected count is .27.			

Symmetric Measures					
		Value	Asymp. Std. Error	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.020	.079	.213	.831[c]
Ordinal by Ordinal	Spearman Correlation	.022	.088	.236	.814[c]
N of Valid Cases		120			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Result analysis & conclusion (Table: 03): We also used Chi-Square test to determine the relationship between the education level of the farmers and crop insurance adoption and the results were Chi-square cal = 18.62, df = 4, at p < 0.003. The null hypothesis is rejected with significant of 0.000, which supports the statement that education level has a bearing in crop insurance adoption. From these results, it is inferred that crop insurance uptake is associated with the level of education in a positive way.

Test of Hypothesis 3:

Research question: Does satisfaction with crop insurance explain whether farmers will adopt it or not? H0: The perceived satisfaction level towards crop insurance does not influence crop insurance adoption.

H1: Perceived satisfaction of crop insurance does not determine crop insurance adoption.

Table: 04

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Crop Insurance satisfaction level * have you ever purchased crop insurance	120	100.0%	0	0.0%	120	100.0%
Subsidy satisfaction level * have ever purchased crop insurance	120	100.0%	0	0.0%	120	100.0%
Claims satisfaction level * have ever purchased crop insurance	120	100.0%	0	0.0%	120	100.0%

Crosstab				
Count				
		Have ever purchased crop insurance		Total
		yes	No	
Crop Insurance satisfaction level	highly dissatisfied	2	4	6
	dissatisfied	2	8	10
	Neutral	18	12	30
	Satisfied	38	12	50
	highly satisfied	18	6	24
Total		78	42	120

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.590[a]	4	.004
Likelihood Ratio	15.260	4	.004
Linear-by-Linear Association	11.436	1	.001
N of Valid Cases	120		
a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.10.			

Symmetric Measures					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-.310	.089	-3.542	.001[c]
Ordinal by Ordinal	Spearman Correlation	-.291	.090	-3.302	.001[c]
N of Valid Cases		120			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Result analysis & conclusion (Table: 04): This work revealed the use of Chi-Square tester which shows the relationship between the independent variable, satisfaction level towards crop insurance and the dependent variable Crop Insurance Adoption (p-value = 0.004). The null hypothesis is rejected and we have proof that satisfaction level towards crop insurance is a determinant of crop insurance adoption. The paper findings indicate that perceived satisfaction correlates with higher levels of crop insurance acquisition.

D.   Independent Samples t-test

Test of Hypothesis 4:

Research question: Does the farming experience affect a farmer's decision to adopt crop insurance?

H0: There is no a significant difference in willingness of insurance premium among participants with or without farming experience.

H1: Farming experience determines level of willingness of insurance premium.

Table: 05

Group Statistics					
	Willing to pay premium for crop insurance	N	Mean	Std. Deviation	Std. Error Mean
Farming experience	Yes	92	2.2391	1.18942	.12401
	No	28	2.1429	1.14550	.21648

Independent Samples Test										
		Levine's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Farming experience	Equal variances assumed	.925	.338	.378	118	.706	.09627	.25458	-.40786	.60041
	Equal variances not assumed			.386	46.152	.701	.09627	.24948	-.40586	.59841

Result analysis & conclusion (Table: 05): The findings from the independent samples t-test show that farmers with or without farming experience are equally willing to pay the premium for crop insurance (t (34.464) = 0.490; p = 0.706). Thus, the null hypothesis is not also refuted Notably, there are no significant differences in willingness to pay for the premium between the farmers with or without farming experience.

E.   ONE WAY ANNOVA

Test of Hypothesis 5: Research question: What is degree of association between land holding status and the amount which one gets from crops insurance.

H0 (Null Hypothesis): No less important, the percent of those who hold the status of land and receive the benefit of crop insurance has not changed.

H1 (Alternative Hypothesis): Where it would come down to land holding status and benefit of crop insurance, no major disparity can be seen.

Table: 06

ANOVA					
Land holding position					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.794	3	.598	12.228	.000
Within Groups	5.673	116	.049		
Total	7.467	119			

Multiple Comparisons						
Dependent Variable: Land holding position						
Taman						
Benefits crop insurance	Benefits crop insurance	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Financial protection	Risk management	-.18182	.08417	.229	-.4261	.0625
	Increases confidence	.00000	.00000	.	.0000	.0000
	Others	-.40000	.16330	.201	-.9472	.1472
Risk management	Financial protection	.18182	.08417	.229	-.0625	.4261
	Increases confidence	.18182	.08417	.229	-.0625	.4261
	Others	-.21818	.18371	.829	-.7800	.3437
Increases confidence	Financial protection	.00000	.00000	.	.0000	.0000
	Risk management	-.18182	.08417	.229	-.4261	.0625
	Others	-.40000	.16330	.201	-.9472	.1472
Others	Financial protection	.40000	.16330	.201	-.1472	.9472
	Risk management	.21818	.18371	.829	-.3437	.7800
	Increases confidence	.40000	.16330	.201	-.1472	.9472

Result analysis & Conclusion (Table: 06): Overall one way ANOVA of land holding status and crop insurance adoption is also significant at p-value = 0.000. The null hypothesis is rejected therefore implying that the variable land holding status has an effect on crop insurance adoption. The findings imply that crop insurance is more available to large farmers than to the small ones due to the purchase of land by bank loans.

Findings:

The findings reveal several reasons for the adoption of crop insurance by farmers in Jamkhandi. Little knowledge of interest rates, premiums, and collection methods creates uncertainty, many farmers doubt the reliability of collection, and consider the methods too complicated Education play an important role, because higher education farmers take out crop insurance than those with little or no education of the investment They are uncertain about the returns. Despite the positive attitude towards crop insurance, adoption rates are still low due to barriers such as high premiums, lack of understanding of how insurance schemes work Experiences a past affect farmers' satisfaction and loyalty to these programs significantly. In addition, large landowners can opt for crop insurance, providing greater financial flexibility and value appreciation compared to small farmers

Suggestions:

1. Enhance Awareness and Simplify Processes: Actionable Steps: Related to crop insurance, people's awareness should be increased employing local agricultural extension services, workshops, and community meetings. For example, the government could involve local non-governmental organizations in compiling popular brochures and delivering awareness-raising training for people to explain how insurance works. It also means that the use of effective user guides and leveraging digital platforms improves participation in the claims process.

3. Subsidized Premiums or Financial Support: Actionable Steps: Facilitate subsidies for crop insurance premium among farmers and especially small holder and marginal farmers. For instance, establishment of premium costs' scale that depends on income or farm size will may help to reduce the cost of insurance. Also, creating a pool of money for a farmer to pay for the initial costs a farmer has to pay to join an insurance program will also go a long way to ease a farmer's burden.

4. Improve Customer Satisfaction: Actionable Steps: Insurance companies should major on increasing the level of service delivery through timely processing of claim approvals and quick response to claims. Stakeholder feedback regarding experiences, along with a proposed means to submit

feedback for improving insurance, is valuable for insurance providers. For instance, the implementation of the specific hot line or on-line chat helps farmers who have questions in connection with their policies.

5. Target Small-Scale Farmers with Tailored Products:Actionable Steps: Design unique insurance products that would specifically target farmers operating on small scale farms, products that give flexible choices regarding options of insurance cover as well as low premiums. The government could wonder insurance providers to develop small-scale implementations of these focused products before an extensive release to multiple districts. Also, establishing methods of sharing risks that farmers can work together to pay for premiums can bring out affordability and compliance.

6. Regular Evaluation and Improvement of Insurance Schemes: Actionable Steps: Suggest the methods on how crop insurance schemes should be frequently reviewed in total or in part in regard to its performance and suitability to the gradual altering agricultural situations. This could be through development of a Farmer-Scientist-Policy Maker Task Force to analyse feedback or any data collected during a given financial year. For instance, collecting farmers opinions on the existing products increases the relevance of insurance by improving on continuous feedback.

With these measurable interventions, stakeholders that involve in crop insurance can overcome the mentioned hitches thus improve insurance programmes for providing financial security among farmers.

CONCLUSION

This paper reveals a knowledge gap of the farmers regarding crop insurance, their attitude towards it and the financial stake they are willing to put into it in Jamkhandi, Karnataka. Although the majority of the interviewed farmers have positive attitudes towards insurance, the major challenges include: low awareness, cost and perceived risks associated with insurance compensation. These styles therefore, depend on; education levels and sizes of the land holding among others. To increase engagement, targeted awareness creation and rationalization of the insurance procedures is highly required. Further, using subsidies to increase the level of targeted populations' financial literacy simplifies the issue of insurance solutions. Improved knowledge and availability of this product require cooperative approaches between policy makers and representatives of agriculture. In turn, these strategies allow for higher sales and supporting the economic basis of the farming countries of the region.

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