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AN OVERVIEW OF THE FOOD CROPS INSURANCE SCHEME'S PAST EVENTS, CURRENT STATE, AND PERFORMANCE EVALUATION IN INDIA

Pooja Kumari
Research Scholar, Department of Commerce (Accounts & Law), K. R. (PG) College Mathura, Affiliated to DBRAU, Agra (UP).

Dr. Anil Saxena
Associate Professor, Department of Accounts & Law, Faculty of Commerce, K. R. (PG) College Mathura, Affiliated to DBRAU, Agra (UP).

ABSTRACT

In India, one of the most important instruments that protect the farmer from agricultural variability is agriculture insurance. It is the valuable risk management tool that can offer financial security to those who engage in agricultural activity. Agriculture insurance is the only mechanism for coping with natural hazards. The study aimed to know regarding the effectiveness of Indian agricultural insurance. When assessing the efficacy in crop insurance & programs, the research has attentive on enrolment coverage, claim settlement, and financial implications. It is basically focused on PMFBY (Pradhan Mantri Fasal Bima Yojana) along with the RWBCIS (Restructured Weather Based Crop Insurance Scheme); the study period had been considered from 2018 to 2022. It also explores the historical context of crop insurance development, examines the key features and implementation of existing schemes, and analyses their effectiveness in mitigating agricultural risks. One of the main finding is noticeable rise Participation of farmers in the PMFBY. These increases demonstrate that farmers are

aware of and willing to use agriculture insurance to mitigate risk. Although the claim settlement is high, it means that the government has to pay more amount as a subsidy in comparison to farmers. Therefore, the challenge remains in terms of government subsidy. This indicates that a significant amount is collected as a premium to settle claims to the farmers. A higher ratio means that a more substantial portion of premiums compensates farmers for their losses.

Keywords: Crop insurance, Pradhan Mantri Fasal Bima Yojana (PMFBY) Restructured Weather Based Crop Insurance Scheme (RWBCIS)

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1. Evolution, Present Status and Performance Analysis of food Crops Insurance Scheme in India

In India, agriculture insurance is one of the most critical instruments that protect the farmer from agricultural variability. The risk is management by the tool in which it could offer financial security to those who engage in farming. Agriculture insurance is the only mechanism for coping with natural hazards. It is a crucial tool for safeguarding farmers against uncontrollable crop production uncertainties. Agriculture insurance is essential for the steady expansion of the agricultural sector in a nation like India, where weather-related variations and widespread damage from illness and pest attacks have impacted the production of food crops. There has been focus on weather risk management within Indian agriculture, primarily through the introduction of agriculture insurance schemes. This has been a consistent feature since founding the CCIS (Comprehensive Crop Insurance Scheme) in 1985. The Ministry of Agriculture also Farmers Welfare launched a crop insurance program in 1985 to protect farming community from the risks associated with agriculture. Since then, it has periodically improved the previous program or programs based on feedback from stakeholders, including states and the farming community. The RWBCIS and the PMFBY have the insurance programs that are presently in operation. Later, 1999, the National Agriculture Insurance Scheme (NAIS) took its place. To provide farmers insurance coverage against weather risk, the NAIS was implemented

widely (in terms of crops and covered area). Therefore, it is imperative to assess the efficacy of India's food crops insurance program.

2. Evolution of Agricultural Insurance in India

In India, crop insurance gained traction at the start half the 20th century as a concept to control agricultural risk. Its conception or execution has changed periodically yet progressively throughout the previous century, particularly its reach, techniques, and customs are still transforming. India is an agrarian nation where most people depend on farming. However, Indian crop production is highly dependent on the weather, which is subject to extremes in addition to pest and disease outbreaks. The Life Insurance Corporation of India's "General Insurance" Department launched Gujarat's first programme for crop insurance for H-4 cotton during 1972–1973. The groundnut, wheat, and potato pilot programs were then extended to the producing states of Tamil Nadu, Maharashtra, Gujarat, Karnataka, Andhra Pradesh, along with West Bengal before acquiring them by the newly established General Insurance Corporation of India. This CCIS was later introduced by the Indian government on April 1st, 1985, with the active assistance of state governments. The Rabi 1997–1998 season saw the introduction of a new program known as the Experimental Crop Insurance Scheme (ECIS) 14 regions spread across 5 States. The system have been comparable with CCIS, excluding it individual providing 100% premium subsidies to small and marginal farmers. Moreover, India's Agriculture Insurance Company Ltd. (AIC) has assumed responsibility for the administration and execution of crop insurance schemes, previously carried out by General Insurance Corporation of India (GIC), since in company's founding by April 1, 2003.

3. Literature Review

(Vishnoi et al., 2020) The title entitled ‘’ Weather-based crop insurance for agricultural risk management: The research focuses on the performance of the RWBCIS from an analytical qualitative historical standpoint, which offers suggestions for the future. To help the millions of Indian farmers deal with the whims of nature, the paper concludes that insurance products based on weather indexes and PMFBY will be the perfect way to transfer risk. In 2020, Tiwari et al. This article summarises the PMFBY, a crop insurance program Mr. Narendra Modi introduced in India in 2016. PMFBY's unsustainable subsidy mechanism, delayed claim

resolution, skewed benefit pattern, and inadequate governmental backing are all problems a strategy driven by demand and enabled by technology are advised. The study suggested that It is necessary to separate political connections from crop insurance. The PMFBY's velocity, variety, and verifiability have given benefit to the farmers more than insurers, administrators, & politicians. In 2022, Kambali and Panakaje The study's primary objectives are to determine and investigate the factors that influence agriculture finance, comprehend the difficulties that farmers encounter, compare the rise of their income immediately before and following receiving financial assistance, and determine the necessary tactics to increase agricultural credit to farmers. Regulatory frameworks have regulated offenses committed by financial institutions, besides charging excessively exorbitant interest rates or recklessly risking the savings of investors or individuals. The study also found that smallholder systems, policies which have invested aim to enhance infrastructure, increase effectiveness to improve labour availability or automate processes, and fund and extend services. In some places, formal financial institutions have improved. (Khartri and Deshmukh, 2012) The development of crop insurance across the nation and its efficacy are covered in this essay. India is an agricultural economy, but agriculture is vulnerable to natural disasters. Crop insurance is a tool to mitigate these risks. The paper explores the development and efficacy in agriculture insurance in India. Agriculture is the foundation in the Indian economy, but it is at risk of natural disasters. One of the tools for reducing these risks is crop insurance. The paper describes the different government schemes. The National Agriculture Scheme is one of the most successful programs. However, the program has certain drawbacks such as limited participation by farmers and high lead time for claim settlement. The paper discusses the private-public partnership to increase the uptake of agriculture insurance. The paper concludes that agricultural insurance has potential but needs better outreach and private-sector involvement.

4. Objective of the study

1. To investigate how well food crop insurance works in India regarding enrolment and coverage provided.
2. To comprehend the function of the agricultural insurance program along with by gross premium income and claim pay-out in Rabi and kharif crop season.

   Hypothesis

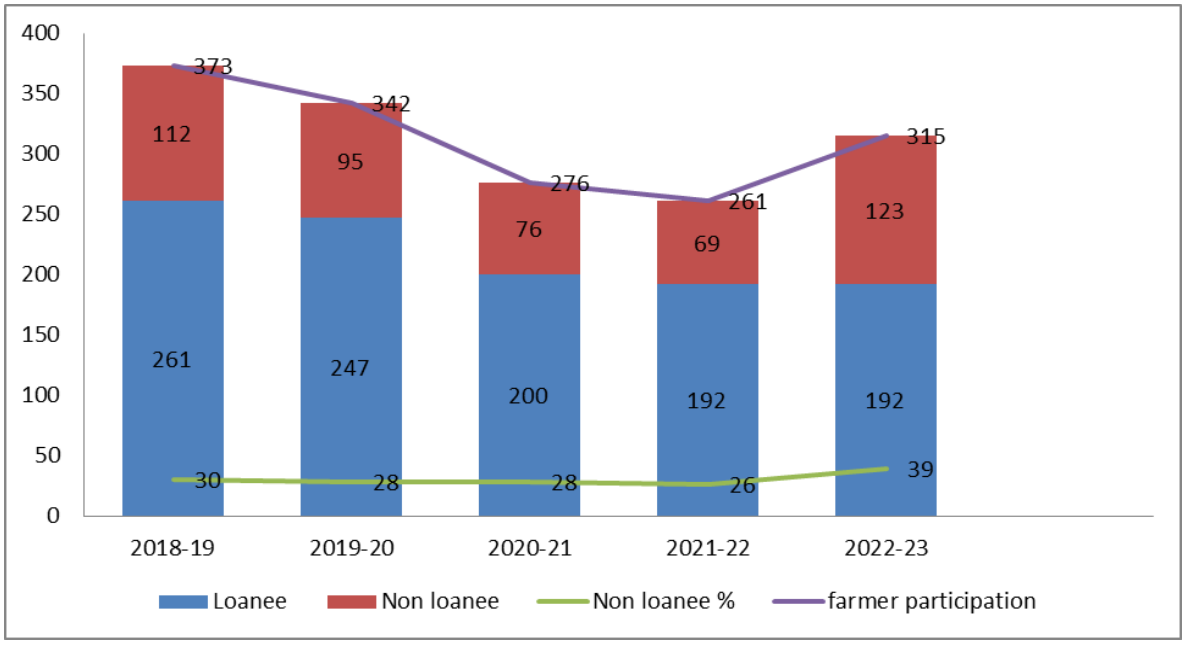
H_0: There is no significant bond among the gross premium income also claim pay-out of agriculture insurance schemes in Rabi and kharif crop seasons

5. Scope of the study

The efficacy of India's agricultural insurance has been the main subject of this study. The research has been bifurcated into two segments i.e., Kharif and Rabi seasons. The following are the agriculture insurance schemes were considered which were implemented in 2016-17. The first one is PMFBY & second is under RWBICS.

6. Research methodlogy

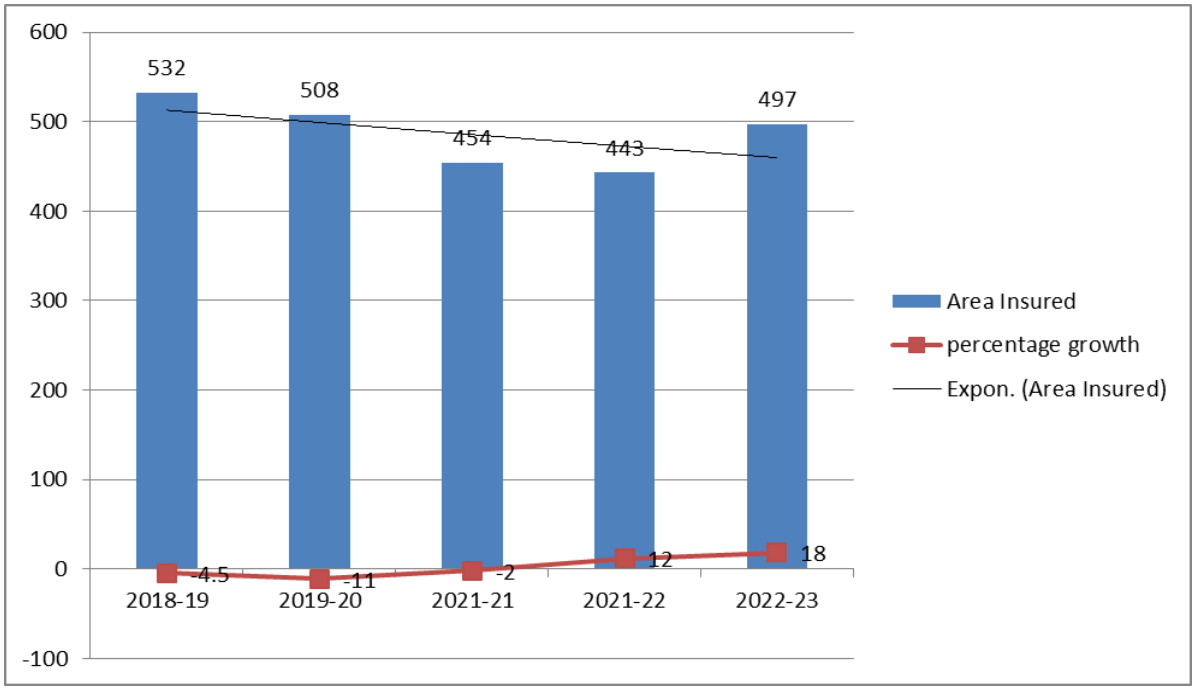
The study's data came from secondary sources. Among the sources form which information has been collected are the Department about Agriculture, agriculture statistics with a glance, and farmer welfare. The purpose of the pairwise t test proved to determine if there was a important difference across its agriculture insurance schemes of Kharif & Rabi seasons.



Source: Department of Agriculture and farmers' welfare

(Chart)1. PMFBY: Overall Enrolment of farmer

This graph displays farmer involvement, encompassing both loanee and non-loanee, along with the non-loanee percentage. From 2018-19 to 2022-23.Overall enrolment of farmers have increased by 21%, i.e. number of farmers enrolled in 2022-23 have reached more than 3.16 Crores against 2.61crore farmers in 2021-22. Both the loanee and Non-loanee farmer has been increase in year 2018-19. After that both are started decreasing, the lowest farmer participation record in 2021-21. In 2022-23 it slightly increases. The percentage of non-loanee farmers has generally decreased over the years, indicating that more farmers are taking loans. The lowest percentage was recorded in 2022-23.



(Source: Department of Agriculture and farmers' welfare)

(Chart 2) Area insured for last five years (in lakh hectares)

This graph shows insured areas also in the percentage growth over the years from 2018-19 to 2022-23. In 2018-19 the insured area cover 532 ha after that the graph shows the decreasing rate for three years. The percentage growth rate has been also fluctuated, with negative growth in 2018-19, 2019-20 and 2020-21. Overall insured area has also increased by 12% in comparison to 2021-22 and reached at more than 497 Lakh Ha. The expected insured area to increase 18% to 575 – 600 lakh Hectares from existing 497 lakh Hectares.

(Table 1) Progress by season under the Restructured Weather-Based Food Crop Program (RWBICS) from 2018-19 - 2000-23

Season	Farmer share premium (in Rs Crore	Gross premium in (Rs crore)	Total claim (in crore)
2018 Kharif	287.65	1982.34	2317.14
2018-19 Rabi	248.85	942.86	1309.68
2019 Kharif	334.57	1961.47	1952.54
2019-20 Rabi	268.20	1557.26	1517.33
2020 Kharif	178.43	915.67	547.56
2020-21 Rabi	166.57	803.32	513.00
2021 Kharif	183.92	1113.08	820.35
2021-22 Rabi	179.52 9	951.04	1061.08
2022 Kharif	191.24	1269.11	47.54
2022-23 Rabi	44.01	230.42	0.00
Grand total	**1903.44**	**11726.57**	**10086.22**

(Source: agriculture statistic at glance)

To get a clear picture of penetration of RWBICS in each season, the total farmer share premium is about Rs 1903 cr in both rabi and kharif season. It means that farmer contributed in food crop insurance. Whereas the gross premium refers to the total premium collected for agricultural insurance, including both the farmer's share and any subsidies or government contributions. The gross premium is way higher than farmer share premium. It shows that the farmer pays small amount for their insured crops and the government pays the higher amount. The total gross direct premium is rs 11726 cr. And the total claim is Rs 10086 cr. That means total claim settlement ratio is about 86%. The claim settlement ratio indicates that on every rs 100 paid in gross premiums rs 86 was paid out of a claim. This suggests that a significant amount is collected as a premium to settle claims to the farmers. A higher ratio indicates that a larger portion of premiums compensates farmers for losses.

Pair 1 Claim Paid-K And Paid-R	Paired T- test		
	Mean	841.5	772.75
	Variance	650544.3333	433869.5833
	Observations	4	4
	Pearson Correlation	0.947872647	
	Hypothesized Mean Difference	0	
	Df	3	
	t Stat	0.494697407	
	P(T<=t) one-tail	0.327387358	
	t Critical one-tail	2.353363435	
	P(T<=t) two-tail	0.654774715	
	t Critical two-tail	3.182446305	

The table represents the Pair t- test concerning the Claims paid by the farmer in Kharif and Rabi season. Here, the mean value is 841.5, implies the claims paid by the farmer in kharif is higher than the claims paid by the farmer in the Rabi season. The amount overall relevance increases as it is discovered if the p-value exceeds 0.5. A null hypothesis isn't able to rule out due to insufficient data. Therefore, we were unable to ascertain whether there is any statistically significant distinction among the two groups' means.

Paired T- test			
	Mean	1314.5	885.25
	Variance	206745	297229.5833

Pair 2 sum insured of K and R	Observations	4	4
	Pearson correlation	0.650430258	
	Hypothesized Mean Difference	0	
	Df	3	
	T stat	2.015119883	
	P(T<=t) one-tail	0.068651011	
	t Critical one-tail	2.353363435	
	P(T<=t) two-tail	0.137302023	
	t Critical two-tail	3.182446305	

The table displays all Pair t test concerning the farmer's premium for the Rabi & Kharif seasons. Its mean value in this case is 1314.5. It suggests the farmer's premium. In kharif is higher than the premium paid by the farmer in the Rabi season paid by the farmer in kharif is higher than the claims paid by the farmer in the Rabi season. As there is not enough information rule exclude this null hypothesis when the p-value falls below the 0.5 threshold for implication. Consequently, we lack the ability determine there is a difference of statistical significance between the means of the two groups.

7. Findings:

1. Pradhan Mantri Fasal Bima Yojana has shown significant increase in farmer enrolment in these five years.
2. The claim pay-out for both PMFBY and (RWBICS) is high, that indicate effective compensation for farmers.
3. In kharif season farmer likely to receive higher claim as compared to Rabi season, and in kharif season farmer also paid higher premium.
4. After statistical analysis using paired T-test did not find any significant difference between mean of claim or premium paid in both Rabi and kharif season.
5. Overall, this study identify that in agriculture insurance scheme in India have shown progress in term of claim settlement and enrolment. But there was no discernible difference, according to the statistical study. Between the performance of this scheme in kharif and Rabi seasons.

8. Conclusions:

Agriculture insurance has been the main subject of this study. Two programs were examined in the study: the PMFBYS also the WBCIS. The survey of India's agricultural insurance programs' efficacy provides valuable insights into their performance and identifies areas for improvement. Both schemes have shown positive growth in farmer enrolment and claim settlement. With the help of t-test, further analysis reveals that their performance is not significantly different between kharif and Rabi crop seasons. One key finding is the significant increase in PMFBY farmer enrolment. This shows that farmers are aware of and accept agriculture utilizing insurance as a risk management tool. The particular one which high claim ratios for PMFBY and the RWBCIS show how well these programs work to give farmers who dropped crops financial relief. However, according to the statistical analysis, there was no noticeable variance in the scheme's performance during the Rabi and kharif seasons. This implies that variables other than seasonal fluctuations might affect these schemes' performance. These factors—such as regional variations, crop-specific difficulties, and climate change's consequences—need further investigation.

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