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ECONOMIC ANALYSIS OF CROP INSURANCE IN TIRUVALLUR DISTRICT

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ABSTRACT

The agriculture sector in India is crucial because it provides a significant portion of the population with a means of subsistence and employment, contributes to the national income, and ensures food security for the vast majority of the population. It provides vital raw materials to numerous agro-based sectors like as textiles and sugar, significantly contributes to foreign exchange revenues via exports, and underpins ancillary services such transportation and banking. Indian agriculture is essential for national food security, rural employment, and the provision of raw materials for industry; nonetheless, it confronts considerable threats from climate change and natural disasters. Farmers need crop insurance to protect themselves from financial problems. Crop insurance is indispensable for the prosperity of farmers and policy instruments to deal with the perils present in agriculture. However, the farmer's attitude is largely responsible for the implementation of crop insurance. The financial risks that farmers face as a result of adverse weather, pests, diseases, or other unforeseen events are greatly mitigated by crop insurance. The crop insurance program in Tiruvallur district is the subject of a comprehensive analysis in this abstract. The purpose of the study is to assess farmers' awareness of crop insurance and the obstacles they face.

Keywords: crop insurance

INTRODUCTION

Agriculture plays a vital role in India's economy. Over 58,000 households in rural areas rely on agriculture as their primary source of income. One of the largest contributors to the Gross Domestic Product is agriculture, along with forestry, fisheries, and other related industries. Because it is the result of physical, social-institutional, technological-economic, and technological factors that are dynamic in nature, agriculture constantly evolves with the primary goal of increasing production and the generation of food grain surplus. India has always been blessed with fertile lands and has a long history of agriculture, which dates to Indus Valley Civilization era and even before that in some parts of Southern India. Because agriculture is not viewed as a job in our country but rather as a way of life, the tradition of participating in agriculture and related activities continues today. In 2014, agriculture and related activities contributed nearly 17% of India's GDP, making them the primary means of subsistence for approximately 58% of the country's population¹. Agriculture is a very risky profession given that it is affected by uneven distribution of rainfall, pest attacks, hail, other natural calamities like flood, drought, etc. The free distribution of grain, free kitchens, remission of revenue and other

taxes, payment of advances, construction of public works, and irrigation projects. According to a study conducted in India in 2002 majority of farmer suicides are caused due to failure of crops (16.84%) as compared to debt burden (2.65%), property disputes (2.65%), family problems with spouse or others (13.27%), losses in nonfarm activities (1.77%), other reasons (15.04%), etc.,

Agriculture in India is highly susceptible to risks like droughts and floods. To deal with these bad things, farmers have come up with risk management plans, sometimes with help from governments. The Indian government implemented numerous agricultural programs throughout the country for this purpose. The First Individual Approach Scheme, which ran from 1972 to 1978, the Pilot Crop Insurance Scheme, which ran from 1979 to 1984, the Comprehensive Crop Insurance Scheme, which ran from 1985 to 1999, the Experimental Crop Insurance Scheme, which ran from 1997 to 1998, the Pilot Scheme on Seed Crop Insurance, and the National Agricultural Insurance Scheme, which ran from 1999 to 2000 onwards. The government of India, in conjunction with the General Insurance Corporation of India (GIC), introduced the National Agricultural Insurance Scheme, which ran from 1999 to India's Agricultural Insurance Company, Ltd. The present article explains how crop insurance insulates the farmers against crop failure. Instability and fluctuation, cropping patterns, inequality in the interior and distribution, inadequate irrigation facilities, agricultural debt, poor farming practices, and other issues confront farmers engaged in agriculture and related activities.

Crop Insurance

Insurance is a way to pay for losses incurred by a small number of people who are exposed to similar risks with money collected through small payments. Growers can protect themselves financially from expected crop failures brought on by a variety of uncontrollable natural phenomena, such as wildfires, adverse weather, flooding, pests, and diseases, with crop insurance. The sum insured may represent the overall outlay, a multiple thereof, or a proportion of anticipated income from the crop(s) for which the premium is sent. The indemnification, which pertains to claims payable for out-of-pocket expenses, is contingent upon the shortfall in average yield compared to the promised return (threshold yield). Claims are disbursed subsequent to the determination of the yield loss. Weather-based crop insurance represents an alternative method for shifting production risk to the insurer. It aims to relieve the difficulties faced by the insured farmer due to potential financial losses stemming from expected crop failures caused by unfavourable meteorological conditions such as rainfall, temperature, frost, and humidity. Crop insurance expressly compensates the cultivator for deficiencies in crop output, whereas weather insurance acknowledges that climatic conditions might impact crop yield despite the cultivator's diligent efforts to secure a successful harvest. Research on the historical link between crop yield and weather parameters aids in establishing weather thresholds (triggers) beyond which crops begin to experience detrimental effects. For claims eligibility, the actual loss in revenue or produce has not been determined.

Need of Crop Insurance

Crop insurance policies, in particular, protect farmers from the financial consequences of crop loss caused by diseases, pests, natural disasters, and other unanticipated events. Farmers can rest easy knowing that they will be compensated financially in the event that their crops are damaged or destroyed under specific conditions by paying a regular premium. Crop insurance promotes farmers' agricultural operations and aids in their financial recovery, enhancing the agricultural sector's overall sustainability and resilience.

Financial Security for Farmers - The financial stability that crops insurance provides to farmers is one of its main advantages. Farmers may more confidently plan their operations and investments when they are assured of compensation for any losses. Even in difficult circumstances, this safety net is essential for keeping a steady income and providing for

their family. Farmers can reinvest in their farms, implement new farming practices, and buy essential equipment without worrying about going bankrupt because to this financial stability.

Agricultural Risk Mitigation - Crop insurance is essential for reducing agricultural risk. Crop insurance is a great way to deal with uncertainty because it covers risks like diseases, pests, and natural disasters. They can now concentrate on enhancing their agricultural methods without having to worry about losing their harvests all the time. Crop insurance helps farmers try new methods and innovations by lessening the financial effect of these risks, increasing their resilience and production.

Protection Against Natural Disasters - Natural catastrophes like storms, landslides, and floods can destroy crops and cause large financial losses. Crop insurance is an important safeguard against these kinds of things. With crop insurance, farmers may quickly recover from financial crises brought on by crop loss or damage and continue production with the least amount of disturbance to the following crop cycle. In areas that frequently experience extreme weather, when crop loss is likely to occur and the financial consequences could be catastrophic, this protection is essential.

Crop Protection - Crop insurance offers advantages beyond monetary recompense. Additionally, it encourages the use of improved farming methods. Because crop insurance provides a safety net, farmers who have insurance are more inclined to spend money on premium seeds, fertilizer, and cutting-edge farming methods. The entire agricultural industry benefits as a result of increased productivity and improved crop quality. Crop insurance reduces the risk of monoculture and improves farm resilience by encouraging farmers to grow a variety of crops. **Insurance Coverage for Farmers** - A wide range of crops can be covered by crop insurance plans. Farmers can find a policy that meets their specific needs thanks to this adaptability. Commercial and subsistence farmers alike can safeguard their financial investments in agriculture with crop insurance. This individualized strategy ensures that farmers are adequately protected for their agricultural endeavours and helps them overcome specific challenges. **Agricultural Risk Reduction** - Crop insurance programs are essential for lowering total agricultural risk since they diversify financial risks. It lessens the financial impact of unfavourable occurrences by enabling farmers to divide the cost of any losses with insurance companies. The agricultural community is financially strengthened and long-term viability is promoted by this collaborative approach to risk management.

Financial Stability for Farmers - Farmers can better manage their resources by having a stable financial environment thanks to crop insurance. With the assurance that they will be compensated for any losses they might incur, farmers are able to plan for future expansion, invest in more effective farming techniques, and obtain loans more easily. The viability and growth of the agriculture industry depend heavily on this financial stability. Additionally, having financial stability makes it easier for farmers to weather market and economic ups and downs, guaranteeing the survival of their farming operations and long-term success.

Agricultural Income Protection - Farmers are guaranteed a consistent income even in the event of crop failure or market volatility thanks to crop insurance. It maintains their revenue levels and promotes their financial well-being by compensating them for lost or damaged crops. For small-scale farmers who rely on agricultural products for both their livelihood and the chance to enhance their standard of living, this income protection is essential.

Influence of Crop Insurance on Indian Agriculture

Crop Insurance's Effect on Indian Agriculture Farmers in India now have access to crop insurance, which provides financial protection against losses caused by diseases, pests, and natural disasters. Multiple dimensions of crop insurance's impact on Indian agriculture can be examined, including its impact on agricultural investments and access to credit, its role in crop diversification and risk-taking, and its socioeconomic implications for farmers' livelihoods. Assessment of the socioeconomic effects on farmers' livelihoods: Crop insurance serves a crucial function in safeguarding farmers' livelihoods by offering a safety net against crop losses. Crop insurance, according to research, improves farmers' capacity to invest in both farms and households while also reducing their vulnerability to income shocks. Additionally, by reducing stress and encouraging better mental health, crop insurance contributes to an overall improvement in farmers' well-being. Crop insurance availability may enhance farmer retention in agriculture and reduce urban migration in pursuit of improved opportunities. Examination of crop diversification and risk-taking behaviour among farmers: Crop insurance may impact farmers' risk-taking behaviour and strategies for crop diversification. Farmers benefit from a variety of benefits provided by crop insurance, which improves their overall well-being. As collateral for crop loans, it improves farmers' creditworthiness, one of these benefits. Furthermore, it promotes investment by farmers in high-risk, high-profit crops, resulting in greater expenditure on agricultural inputs and, subsequently, enhanced agricultural output. By guaranteeing a minimum income from agricultural activities, crop insurance also stabilizes farm household consumption. This may result in enhanced crop diversification and improved soil health, contributing to long-term agricultural sustainability. Crop insurance enables farmers to confidently invest in high-risk, high-reward crops, thereby enhancing agricultural productivity and income. Evaluation of the impact of crop insurance on agricultural investments and access to credit: The presence of crop insurance significantly affects agricultural investments and the availability of credit. Crop insurance serves as collateral for securing loans from banks and financial institutions, thereby enhancing farmers' access to credit and diminishing their dependence on informal credit sources. This may result in heightened investment in agriculture, fostering long-term sustainability and economic growth in the sector.

REVIEW OF LITERATURE

M. Dr. Nagentran and R. According to Rajendran (2017), crop insurance protects farmers from uncontrollable natural disasters, which lessens the impact of crop losses. The reviews above demonstrate the effectiveness of crop insurance, government policy, and the informal approach farmers take to managing risk. Besides, it is essential to evaluate the performance of crop insurance scheme in India and point out problems in its implementation. Due to this gap, crop insurance-related issues must be investigated. As a result, it is essential for the researchers to investigate the issues surrounding crop insurance in order to enhance crop insurance and ensure the livelihoods of Indian farmers.

Parthiban and Anjugam's (2023) investigation of the Pradhan Mantri Fasal Bima Yojana (PMFBY) crop insurance program in India focused on its performance. The study employs descriptive statistics and compound annual growth rates to compare the performances of various crop insurance schemes. When compared to other crop insurance programs in India, PMFBY covered a greater number of farmers and safeguarded an enormous amount of land from unanticipated dangers. The multiple regression model reveals that the number of farmers insured during the time period was significantly influenced by the premiums paid by farmers.

T. P. Saravanan and Dr. P. Karthikeyan (2023): The main goal of this study is to find out how farmers feel about buying crop insurance so that researchers can learn how crop insurance subscriptions can reduce or eliminate risks for farmers. Because the perceptions and attitudes of farmers in Erode District in the Western part of Tamil Nadu are indicative of their behavior regarding crop insurance, this location was chosen for this investigation. The researcher looked into a number of different things that farmers think and feel about buying crop insurance. Using the convenience sampling method, a sample of 426 farmers from the Erode District was chosen for this study. 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.

OBJECTIVE OF THE STUDY

- ❖ To investigate India's crop insurance programs.
- ❖ To study the trials tackled by farmers in crop insurance
- ❖ To study the consciousness level of farmers for crop insurance scheme.

HYPOTHESIS OF THE STUDY

H0: There is no significant correlation between farmers' awareness of crop insurance programs and their level of farm experience.

METHODOLOGY OF RESEARCH

Research methodology is the process used to collect information and data for the process of analysing crop insurance scheme. The researcher used to collect data through articles, websites, published research, surveys and other techniques. Using a descriptive research design, the purpose of this study is to investigate the potential of a crop insurance program. This study is based on primary data which is derived from published from journals. And further information needed for the study was gathered through various books, websites etc. This study is conducted based on the primary data with the sample size of 100 respondents. The samples consist of marginal, small and large farmers. The data has been collected by administering the self-structured questionnaire used for collection of primary data from respondents. The Chi-square test, percentage analysis were used to analyse the collected data.

SCHEMES FOR CROP INSURANCE IN INDIA

Comprehensive Crop Insurance Scheme: (CCIS) (1985-1999) It was made compulsory for loanee farmers and was implemented by GIC. The premium rates were 2 percent of the sum insured for cereals and millets, and 1 percent for pulses and oilseeds. The insured sum was set at Rs. 10,000 per hectare for each farmer. The participation by states was on voluntary basis. The Government of India under the scheme was reimbursing 50 percent of administrative expenses to GIC.

Experimental Crop Insurance Scheme: (ECIS) (RABI 1997-1998) This scheme was introduced on an experimental basis to additionally cover non-loanee small / marginal farmers in 14 districts of five States. It required a premium subsidy of 100 percent for marginal or small farmers. The scheme covered 4.55 lakh farmers who paid Rs. 2.84 crore as premium and collected claims worth Rs. 37.80 crore. This resulted in a fairly high claim premium ratio of 13.31.

Farm Income Insurance Scheme (FIIS): In 2003-2004, the government launched a pilot project to address income fluctuations caused by yield and market price fluctuations. The objective of the scheme was not only to protect the

income of the farmer, but also to reduce the government expenditure on procurement at Minimum Support Price (MSP). The other main objectives were to encourage crop diversification and also to give fillip to private trade, etc.

National Agricultural Insurance Scheme (NAIS): In 1999-2000, the Comprehensive Crop Insurance Scheme of India (CCIS), an insurance program that had been in place in India since 1985, was redesigned into the National Agricultural Insurance Scheme (NAIS). The NAIS provides insurance cover for yield losses of food crops, oilseeds and annual commercial/horticultural crops due to natural calamities, pests and diseases. For Food crops and oilseeds: ranges from 1.5 to 3.5 per cent of SI or actuarial rates, whichever is less Annual Commercial and horticultural crops: actuarial rates Varies depending on the shortfall of actual yield from the threshold yield in the unit area of insurance and the sum insured by the farmers.

The central government's Pradhan Mantra Fasal Bima Yojana (PMFBY), which went live on January 13, 2016, is a brand-new insurance program. The scheme which is administered by the ministry of Agriculture and farmers' welfare will be implemented in all the states with the cooperation of the respective state governments. The scheme targets at providing a better insurance support to the farmers by low premium insurance cover. When compared to previous plans, the new crop insurance plan eliminates the cap on premium subsidies. It also covers risks like losses after harvest, preventative sowing, and numerous localized disasters like cyclones, which were not covered by the majority of previous plans. This plan also takes the welcome step of giving raising awareness a high priority.

ANALYSIS AND INTERPRETATION

Table 1 - Demographic Profile

Variable	No of respondents	Percentage
Education Qualification		
Illiterate	21	21
Secondary school education	43	43
Higher secondary school education	26	26
Under graduate	6	6
Post graduate	5	5
Total	100	100
Farming experience		
5 Years	15	15
6 to 10 Years	45	45
11 to 15 Years	27	27
More than 16 Years	13	13
Total	100	100
Annual Income		
Up to 1,00,000	25	23
1,00,001 – 2,00,000	30	30
2,00,001 – 3,00,000	23	24
3,00,001 - 4,00,000	12	13
Above 4,00,001	10	10
Total	100	100

Sources: Primary Data

The study's demographic profile, which includes education, farming experience, and annual income, is depicted in table 1. Nearly 43 percent of the respondents have a basic education, 26 percent of the respondents cleared their higher secondary education, 6 percent and 5 percent of the respondents have under and post-graduation. From the respondent's 21 percent are illiterate. 45 percent of the respondents have 6 to 10 years of experience in the farming activity. 30 % of the respondents has an income level between 100001 – 200000.

Table 2 - Awareness of farmers about crop insurance

Awareness of farmers about crop insurance	No. of Respondents		Percentage	
	Yes	No	Yes	No
Do you know about crop insurance?	72	28	71.5	28.5
Do you know how to take crop insurance?	64	36	64.5	35.5
Is there a need for a workshop or orientation program?	75	35	74.5	25.5

Source: primary data

Table 2 shows the awareness of Farmers about crop insurance, 71.5 percent are aware of the crop insurance, 64.5 percent knows how to take crop insurance and 74.5 percent of the respondents said they need workshop or orientation program on crop insurance.

Table 3- Sources of information about crop insurance

variables	No of respondents	Percentage
Bank/Financial Institution	37	37
Newspaper/T V./Radio	28	28
Agricultural Department	9	9
NGOs or any other agency	2	2
Fallow Farmers	21	21
family members	3	3
Total	100	100

Sources: Primary Data

Table 3 shows the source of information to the respondents regarding crop insurance. The majority of respondents, 37%, get their information from a bank or financial institution; second, 28% of respondents got their information from a newspaper, television, or radio; 21% of respondents got their information from fallow farmers; 9% of respondents got their information from an agricultural department; and 3% chose a family member.

Table 4 - Challenges faced by farmers in crop insurance

Problems faced by farmers	No. of Respondents	Percentage
High rate of premium crops	32	32
Lack of awareness	24	24
Delay in the settlement of claims	21	21
Premium seen as financial burden	9	9
Time consumption	14	14
Total	400	100

Source: primary data

Table 4 explains the challenges faced by the farmers in crop insurance. 32 percent said high rate of premium crops, 24 percent says lack of awareness, 21 percent said delay in the settlement of claim, 9 opted premium seen as financial burden and 14 percent said time consumption.

Testing of hypotheses: Farming Experience and Knowledge of Crop Insurance Programs

H0: There is no significant correlation between farmers' awareness of crop insurance programs and their level of farm experience.

Table 5 - Farming Experience and Awareness of Crop Insurance Schemes – observed value

Farming Experience	Awareness of Crop Insurance Schemes		Total
	Aware	Unaware	
5 Years	7	8	15
6 to 10 Years	38	7	45
11 to 15 Years	24	3	27
More than 16 Years	9	4	13
Total	78	22	100

Table 6 - Farming Experience and Awareness of Crop Insurance Schemes – expected value

Farming Experience	Aware	Unaware
5 Years	46.65	13.35
6 to 10 Years	139.17	39.82
11 to 15 Years	83.97	24.03
More than 16 Years	41.20	11.79

Calculation of Chi-Square

OBSERVED VALUE (O)	EXPECTED VALUE (E)	(O-E)	(O-E) ²	(O-E) ² /E
7	12	-5	25	2
8	3	5	25	8
38	35	3	9	0
7	10	-3	9	1
24	21	3	9	0
3	6	-3	9	2
9	10	-1	1	0
4	3	1	1	0

14

Calculate esteem = $\sum[(O-E)^2/E] = 14$

Degrees of freedom = 3

Level of significance – 1%

Table worth = 11.345

The calculated value between farmers' awareness and farming experience is 14, which is higher than the table value of 11.345 at a 1% significance level. Hence, null hypothesis is rejected and it is concluded that there is a significant association between farming experience of the farmers and their awareness of crop insurance schemes.

CONCLUSION

Agriculture in India is highly susceptible to risks like droughts and floods. Former players must be protected from natural disasters in order to maintain their credit eligibility for the following season. For this purpose, the government of India introduced many agriculture crop insurance schemes throughout India. Insurance companies are significantly contributing to the farmers' assistance in this setting. The insurance company ought to comprehend the requirements of farmers in order to encourage them. However, comprehending farmers is difficult due to the fact that it is connected to the psychology of farmers and also depends on a number of factors that are directly related to changes in the climate. In India since 1972 many crops insurance scheme has been launched in the country but they failed to influence the farmers and share the risk of farmers. Due to a lack of risk management, some farmers are currently taking their own lives. Hence there is need of serious concern of his problem sharing the risk of farmers and protecting their crops against adverse weather and natural calamities. The premium rates are needed to cover pure risk, administrative cost and reasonable returns. In order to expand farmer coverage and boost crop insurance's viability, private sector insurers may also participate in crop insurance. Insurance product at village level should be simple in design presenting so farmers easily understand.

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