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AN IN-DEPTH REVIEW OF CROP INSURANCE IN INDIAN AGRICULTURE

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ABSTRACT

This review paper explores the significance of crop insurance as a risk management tool for Indian farmers, who face multiple challenges in the agriculture sector. Despite agriculture's vital role in the Indian economy, farmers contend with natural disasters, price fluctuations, inadequate infrastructure, and diminishing farm sizes, leading to unpredictable incomes and increasing disinterest in farming. The paper reviews the historical background of crop insurance in India and highlights its limitations in providing adequate security and mitigating risks for farmers. Recognizing the need for further research, the proposal emphasizes the importance of analyzing the role of crop insurance comprehensively. The study aims to bridge existing gaps in understanding and proposes to contribute to the development of more effective crop insurance policies. It envisions assisting insurance companies and the government in devising plans and schemes that protect farmers' interests and promote a resilient and prosperous farming community. By addressing these challenges, crop insurance can play a crucial role in supporting the sustainable growth of the Indian agricultural sector and enhancing the nation's economic stability.

KEYWORDS: ***Agricultural sector, Crop insurance, Economic stability, Farmers' livelihood, Indian agriculture, Risk management.***

1. INTRODUCTION

India continues to be a predominantly agrarian country as agriculture is the backbone of Indian economy. India ranks first in the world with highest net cropped area followed by USA and

China.In 2018; agriculture employed 50% of the Indian workforce and contributed 17-18% to country's GDP which is one of the largest sectors of Indian economy (Sushruth Sunder, 2018). Any change in agriculture economy has a multiplier effect on whole economy. Agriculture plays an important role in economic development as well as rural development of the country.

The Indian economy is characterized by its vastness and diversity, encompassing several major sectors, such as manufacturing, agriculture, and services. (Chaugule, 2012). Agriculture remains an important sector of economic development in most of the developing countries. Agriculture is exposed to numerous risks as it is highly sensitive to the changes in weather. Indian agriculture gets affected by various natural calamities like adverse weather conditions, draught, peril, pest attack, outbreak of disease and flood. It is not an easy job for farmers as they face numerous agriculture related problems due to unpredictable weather and other risks like price risk, yield risk, less income and huge amount of loans taken for agriculture purpose which leads to the suicide of farmers. Various strategies of risk management are used by farmers like forward pricing, off farm investment, multiple peril crop yielding, bank loans and off farm employment. The capacity of agriculture sector to hedge itself from these exposures is considered critical to its development and growth.

Indian agriculture is comprised of small farmers' enterprise. The small and marginal farmers account for three fourth of total holdings. The impact of crop failures may be disastrous for these small and marginal farmers. To cope with this agriculture related problems, Government of India introduced agriculture/crop insurance as a risk management tool. Crop insurance is a mechanism to protect farmers against uncertainties of crop production due natural factors that beyond their control. A major role is played by insurance programs to indemnify the loss affected by natural calamities by pooling individual risks. Punjab, situated in northwest of India, holds a place of pride among Indian states for its outstanding achievements in agricultural development. Punjab state comprising only 1.5% of the total geographic area of country contributes around 13-14% towards the total food grain production of the country (Singh et. al., 2012). During 2015-16 Punjab contributed about 27.33% of rice and 46.22% of wheat to the central pool (Grover et. al., 2016). Agriculture remains the single most important sector of the state economy. Therefore, minimizing the impact of natural disaster related crop losses is a major public policy objective of government. An effective crop insurance system is a critical part of a strategy to protect farmers from probable losses due to these perils and to boost agricultural productivity, yet to design and implement an effective insurance programme is a challenging task. In 2010, Gurudev Singh

conducted a study focusing on crop insurance in India and its significance in the context of the agricultural sector's dependence on uncertain risks. Sing and Rai (1980) highlighted that Crop Insurance plays a crucial role in safeguarding cultivators from risks and can potentially incentivize them to cultivate high-risk crops, such as pulses and oilseeds. The present study aims to review an economical analysis of crop insurance and related issues in the state of Punjab. It also aims to study the extent of knowledge, perception and constraints faced by farmers in implementation of crop insurance in Punjab.

In India, total area covered under insurance in 2016-17 amounts to about 30 percent coverage of gross cropped area, less than half of what USA (89 percent coverage) and China has achieved (69 percentage coverage) (Gulati et. al., 2018). The premium subsidy payable by the government is 80 per cent and 70 percent in China and USA, respectively.

2. RISK AND RISK MANAGEMENT

Risk may be defined as the phenomenon which is associated with uncertain event or peril on which the object is exposed to and that may cause any loss or damage to the object of value. According to Williams and Heins 'Risk is the variation in the outcome that exists in nature in a given situation'. Risk is the potential that a chosen action or activity will lead to an undesirable outcome. Uncertainty means not knowing what will happen in future. The greater the uncertainty, the greater the risk. Risk is the non-separable part of an economic activity. Similarly agriculture producers make decisions in a risky environment and consequences of these decisions are generally not known when the decisions are made because of uncertainties associated with these decisions. Agriculture in India is also exposed to many risks which are broadly categorized into following risks:

A. Production risks (climate changes, storm, cyclone, flood, draught, insects, diseases etc.)
B. Marketing Risk (variability of prices, access to markets)
C. Financial risk (availability of capital, ability to meet short term and long term cash flows)
D. Legal Risk (laws and regulations, public policy and attitudes)
E. Human risk etc.

Risk management is the process by which significant risks are identified, evaluated and controlled. Risk management is a term applied to a logical and systematic method of establishing the context, identifying, analyzing, evaluating, treating, monitoring and communicating risks associated with

any activity, function or process in such a way to enable organization to minimize loss. It is the process which is associated with identification of risk exposures faced by an organization and selecting the most appropriate techniques, solutions and control measures to mitigate loss and treating such exposures. If we talk about agricultural risk management, there are numerous ways by which risk can be minimized like by using improved management practices, technology or to transfer some or all of the risk to someone else through insurance, forward pricing. Another way of risk management in agriculture are adoption of off-farm employment or off-farm investment.

3. INSURANCE AND CROP INSURANCE

Insurance is a form of risk management in which the insured transfers the cost of potential loss to another entity in exchange for monetary compensation known as the premium. A legal definition of insurance that appears in many insurance laws is the following: A contract of insurance is that whereby one party, the insurer, undertakes, for a premium or an assessment, to make a payment to another party, the policyholder or a third party, if an event that is the object of a risk occurs. Insurance allows individuals, businesses and other entities to protect themselves against significant potential losses and financial hardship at a reasonably affordable rate.

Crop insurance is a mechanism to protect farmers against loss and damage of crop yields due to natural factors beyond control. In a country like India, agriculture is subject to multiple risks and uncertainties and gets affected by climate changes and natural hazards including floods, droughts, landslides, diseases etc. Crop insurance is one of the powerful tools which can be used in agriculture to protect farmers from economic losses. Crop insurance covers the risks of anticipated losses in yield of various crops. Agricultural insurance and crop insurance are not exactly the same. These both terms are generally used interchangeably. Agricultural insurance consists of crop, livestock, bloodstock, forestry, aquaculture, and greenhouse insurance (Iturrioz 2009). Crop insurance covers following risks:

A. Natural Fire and Thunderbolt,
B. Strom, Hailstorm, Cyclone, Typhoon, Tempest,
C. Hurricane, Tornado,
D. Flood, Inundation, and Landslide,
E. Draught, Dry spells,
F. Insects, pests/Diseases etc.

But it does not include risks and losses arising out of following perils like war, kindred perils, nuclear risks, riots, malicious damage, theft, act of enmity, grazed or destroyed by domestic and wild animals. Discussion on crop insurance started after India's independence in 1947 by the Central Legislature. Then Dr. Rajendra Prasad (Minister of Food and Agriculture) gave an assurance that the government would examine the possibility of crop insurance for assistance of farmers to provide them protection from various perils and risks attached to agriculture. Some committees were formed and discussions and deliberations continued. The first crop insurance program was on H-4 cotton in Gujarat. Various schemes have been issued by government of India from time to time. Table 1 shows the different initiatives being taken by Government of India from time to time.

Table 1: Schemes initiatives by GoI

S. No.	Time Frame	Initiative/Scheme
1	1971-1978	First individual Approach Scheme
2	1979-1984	Pilot Crop Insurance Scheme (PCIS)
3	1985-1999	Comprehensive Crop Insurance Scheme (CCIS)
4	Rabi 1999-2000 to Rabi 2013-14	National Agricultural Insurance Scheme (NAIS)
5	Rabi 2010-11 season	Modified National Agricultural Insurance Scheme (MNAIS)
6	2007-2008	Weather Based Crop Insurance Scheme (WBCIS)
7	2009-10	Coconut Palm Insurance Scheme (CPIS)
8	2016	Pradhan Mantri Fasal Bima Yojana (PMFBY)

Source: **Department of Agriculture Cooperation & Farmers Welfare**

The Pradhan Mantri Fasal Bima Yojana (PMFBY) is the latest scheme launched by Prime Minister Narendra Modi on 18 Feb 2016 for farmers for their yields. The main aim of PMFBY is to provide a comprehensive scheme which covers insurance against failure of the crop including all Food & Oilseeds crops and Annual Commercial/Horticultural Crops.

4. OBJECTIVE OF THE STUDY

The objective of the study is to conduct a comprehensive review of the existing literature on crop insurance. Through this review, the study aims to gain insights into the various aspects of crop insurance, including its historical development, theoretical frameworks, implementation strategies, challenges, and impacts on farmers and agricultural communities. Ultimately, the goal of the study is to contribute to the existing body of knowledge on crop insurance, offer valuable insights to policymakers, researchers, and stakeholders, and provide a foundation for future research and policy development in this critical area of agricultural risk management.

5. REVIEW OF LITERATURE

- **Sherrick, Barry, Schnitky and Ellinger (2004)** in their paper 'Factors influencing Farmer's Crop Insurance Decision' examined the factors associated with farmers' purchase of crop insurance in US. The influence of risk perceptions, competing risk management options, as well structural and demographic differences were evaluated. The study was based on primary data collected from 3000 farmers each of whom operate at least 160 acres from Illinois, Iowa, Indiana of which 868 surveys were returned, yielding response rate of 29%. The factors that influence crop insurance decisions were the costs and returns of insurance, yield and other business risks, financial risks, farm size, enterprise and other forms of diversification, coverage levels, and relationships to adverse selection and moral hazard. Another finding of the study was that the famers who were more highly leveraged, less wealthy, riskier and operate larger acreages engage more extensively insurance and revenue protection.
- **Jain (2004)** in his paper 'Challenges in Implementing Agriculture Insurance and Re-Insurance in Developing Countries' discussed certain basic issues relating to agriculture insurance in developing economies. He discussed the requirement of agricultural insurance in developing countries and their conceptual framework of agriculture insurance programme. The study remarked that the development of crop insurance, coverage of crops, areas and farmers vary from country to country. It was admitted that penetration of insurance in most developing countries is low. The linkage and close working of insurance companies with banking companies would be significant for agriculture insurance.

Marketing of insurance would be much easier if it would be lined with credit.

- **Kalavakonda and Mahul (2005)** in paper 'Crop Insurance in Karnataka'examined the performance of the National Agriculture Scheme in Karnataka which was introduced in the area during kharif 2000 season. It highlighted the weakness in product design, implementation challenges and operational problems. The finding of the study was that the prevailing crop insurance schemes were not able to achieve its objectives either as a risk management or as a safety net which it is supposed to be. The number of insured farmers was very low and unsatisfactory. Through 2002, with only 16% of farmers accessing formal credit and less than one third of these were buying crop insurance. They provide a framework for designing a crop insurance scheme based on premise that insurance is a cost effective risk management technique and to improve the existing crop insurance scheme and exploring alternatives to the current product, based on an area-yield approach.
- **Chand and Raju (2008)** undertook a study to examine the performance of existing and earlier national agricultural insurance schemes implemented in India in paper 'Agriculture Insurance in India: Problems and Prospects'. The study was based on both primary and secondary data. The primary data was collected from 150 farmers in Vizianagaram district and West Godavari district during October 2005. The secondary data was collected from publications of central and state government, Agriculture Insurance Company of India etc. State wise results showed that those states where irrigation is not very dependable continue to face high risk. In some states neither technology nor any other variable helped in reducing production risk with the passage of time. Despite various schemes launched from time to time, the agriculture insurance has served very limited purpose. The coverage in the terms of area, number of farmers and value of agricultural output is very small. Renewed efforts by government are required in the terms of designing appropriate mechanisms and providing financial support for agriculture insurance. Some suggestion to promote agriculture insurance and to frame better policies and schemes for agriculture insurance were also quoted in the paper.

- **Pal and Mondal (2010)** in paper 'Agriculture Insurance in India: Approaches and Challenges' discussed that India is a predominantly agrarian economy with agriculture contributing about one fifth of GDP and providing about two thirds employment. Insurance in agriculture have been a topic of discussion since 1947 just after independence. But still

there is limited success in traditional crop insurance schemes due to financial non-viability due to non-actuarial based premium as well as the serious problem of moral hazard, adverse selection and complex administrative procedure. They advocated that peril-indexed insurance and options as a risk management technique aimed at stabilizing the revenue of farmers. In contrast the weather indexed insurance schemes would result in financial viability for the insurer by effectively transferring his risk to the investors in the secondary capital market and eliminating adverse selection and moral hazard problems while reducing administrative costs by using an objectively calculated index.

- **Nair (2010)** undertook a study that focus on the developments in weather insurance market and evaluated the performance of weather based crop insurance scheme in India in his paper 'Weather-Based Crop Insurance in India'. The study revealed benefits of weather-based insurance schemes which reduce the prominent drawback of the decades-old area yield scheme. According to this study weather based crop insurance scheme has tremendous potential to emerge as a sustainable crop insurance model. Yet, there are major issues and constraints associated with weather index products that need to be addressed. There should be in depth research of associated risks for various crops grown in the country so as to provide the insurers with requisite technical inputs in developing appropriate risk covers.
- **Cory G. Walters et al. (2012)** investigated the impact of increased premium subsidies for crop insurance on environmental consequences in the US agricultural sector. Using producer-level crop insurance contract data from four regions, the study found a generally positive correlation between crop insurance and environmental damage, suggesting that insurance premium costs may not always reflect the full social cost or benefit of crop insurance, and this gap varies by location. The study identified some association between environmental effects and insurance contracts but noted that results were context-specific and dependent on local conditions and environmental indicators. The research highlighted the importance of considering the regional perspective, as crop insurance-induced changes in crop acreage can have subtle yet locally significant environmental effects. This calls for careful evaluation of insurance premium costs to accurately account for the social implications of crop insurance.
- **Deshmukh and Khatri (2012)** in their paper 'Agriculture insurance in India' discussed the evolution of crop insurance over the period (1972-2004) in India. They discussed the

various types of risks involved and agriculture insurance as a risk mitigation tool to protect farmers from that risks and perils. A comparative study was done exhibiting the performance of crop insurance schemes provided by Government of India. A critical appraisal of few successful schemes over the period such as National Agriculture Insurance Scheme (NAIS), Weather Based Crop Insurance Scheme (WBCIS) and few others was done under the study. They recommended that some certain improvements in the NAIS should be eradicated so that it can be positioned as a flagship plan at national level.

- **Kakumanu *et al.* (2012)** conducted a random interview survey involving 240 paddy farmers during the Rabi 2010 season in the Nagarjuna Sagar Project right canal area of Guntur district, Andhra Pradesh, India. The survey covered six villages from three mandals (blocks). The study revealed that the primary obstacle hindering the adoption of crop insurance among these farmers was their perception that the insurance scheme fails to adequately compensate them in the event of losses caused by adverse natural events.
- **Sishirendu Das and Ray (2012)** conducted a study for their paper **'**An innovative study of socio-economic profile and crop insurance of farmers in Barak Valley of Assam'. For this purpose data was collected from 300 farmers in three district of Assam viz., Cachar, Karimganj, Haila-kandi. The data was collected regarding farmers' preference for farm insurance and main reason for crop damage, investment of the farmers and constraints in adopting crop insurance etc. They suggested that crop insurance coverage can be enhanced by providing more comprehensive schemes with wide market risk coverage and by making farmers aware of the available crop insurance schemes through advertisement.
- **Arun Kumar Deshmukh et al. (2012)** conducted a comprehensive analysis of the evolution and critical evaluation of agricultural insurance in India. Their study included a comparative assessment of the performance of various agricultural insurance schemes implemented by the Government of India up to that point. The research highlighted the tremendous potential of the agricultural insurance market. However, despite being in existence for the past forty years, it has not gained a strong foothold among the farming community, calling for further efforts to ensure broader adoption and deeper penetration. The study suggested categorizing farmers based on loan sanction, aiming to address the issue of leaving a significant proportion of non-loan farmers behind. To encourage more farmers to apply for crop insurance and adopt risk mitigation techniques, proper training and counseling were identified as essential components. The research concluded that

various experiments in this direction have yielded positive results and can be replicated. Nevertheless, certain constraints, such as farmers' acceptance, government policies, and inadequate infrastructure, hinder the full-scale implementation of the scheme. These challenges require careful consideration to foster successful and widespread adoption of agricultural insurance among Indian farmers.

- **Okpukpara and Banjamin (2013)** analyzed the risk management in agriculture enterprise from the point of view of both financial institutions and farmers in their paper 'Risk Management in Farming Enterprise in Rural Anambra State'. 120 farmers and 50 financial institutions were taken as a sample on the random basis for this study. Data was collected through questionnaire, focus group discussion and lead information interview. The findings of the study was that most of the farmers use crop diversification (32%), contract farming (22%) and non farming activities as risk management and majority of financial institutions use asset financing and collateral securities as risk management. They suggested that in order to mitigate risk there is a need for improved agricultural production strategies and greater awareness about insurance policies and improved technological skills for farming.
- **Soni and Trivedi (2013)** in 'Crop Insurance: An Empirical Study on Awareness and Perception' undertook a study to understand the scenario of crop insurance in India with special reference to Gujarat. The objective of the study was to examine the awareness level of farmers and perception of those who have availed or have not availed crop insurance. The primary data was collected from 55 respondents in Anand district through a structured questionnaire. The survey was carried out from November 2012 to December 2012. The finding of the study was that the respondents were not very familiar with crop insurance and a very low number of farmers, among who were covered under study, were availing the facility of crop insurance (i.e. two among 55). Instead of protecting themselves by crop insurance they prefer cash reserves and savings. A linkage and close working relationship with banking sector would be significant for better penetration of crop insurance. There is need for continuous interaction between all the stakeholders involved in implementation to make crop insurance more successful.
- **Malakar D. (2014)** in his paper 'Status of Crop Insurance in India' undertook a study to analyze the present status of crop insurance in India. Te objective of the study was to examine the status of operation of national level crop insurance schemes and problems related to crop insurance. The data was collected from secondary sources like reports,

journals, broachers, publications and web site of Agriculture Insurance Company of India Ltd. (www.aicofindia.com). The main challenges of crop insurance are lack of comprehensive model, delay in claim payout, lack of awareness, negligence of government and low participation of private sector. He suggested that success of crop insurance can be achieved by making it available and accessible with crop credit, using upgraded techniques and inviting private sector participants in the field of crop insurance.

- **Mohaptra, Dhaliwal and Kaur M (2015)** conducted a study in Punjab state titled 'Farmers Knowledge about the Agricultural Insurance Scheme in Punjab'. The main objective of the study was to test the knowledge of farmers regarding agriculture and livestock insurance scheme. The survey was done from 224 farmers and data was collected related to various aspects of insurance schemes like claim procedure, settlement procedure, loss estimation etc. Data analysis was done through various statistical tools like cumulative cube root, Pearson Product Moment Correlation Coefficient, frequency and percentage etc. The findings of the study were that there is a medium level of knowledge and awareness regarding livestock insurance (38% of respondents were having medium level of knowledge) and low level of knowledge about the weather insurance scheme (65% of respondents were having low level of knowledge level). The paper suggests that appropriate publicity of insurance schemes is must for raising the awareness level about crop insurance among farming community.
- **Sunder and Ramakrishnan (2015)** conducted a study which aimed to analyze the extent of farmers' awareness towards crop insurance and its purchase benefits in their paper 'A Study on Awareness, Purchase Benefits and Satisfaction Level towards Crop Insurance'. The objective of the study was to evaluate the benefits of crop insurance to the insured farmers and their satisfaction level with insurance schemes. For the purpose of study data was collected from 360 farmers. Among these 282 were insured and 78 were non-insured. The finding of the study was that most of the insured farmers were not satisfied with the purchase of crop insurance products (the mean score of respondents' response towards satisfaction was 2.1 on 5 points rating scale). The reasons for not purchasing crop insurance were lack of awareness, complex documentation, delays in claim payment etc. The government of India needs to take necessary steps to promote crop insurance and to enhance benefits and satisfaction by removing shortfalls in earlier schemes.

- **Mohapatra, Dhaliwal and Kaur (2016)** in their paper 'Farmers Knowledge about the Agriculture Insurance Scheme in Punjab' undertook a study to test the knowledge of farmers regarding different agricultural insurance schemes i.e. livestock insurance schemes and weather insurance schemes. For this purpose a list of 224 insured farmers was collected from insurance companies which were taken as a part of study. The findings of study were that farmers have comparatively better knowledge of livestock insurance schemes than weather based insurance schemes. It was also found that there is no significant relationship between socio-personal characteristics and the knowledge level of insured respondents. Adequate publicity of insurance schemes is required in order to spread awareness to the farmers.
- **Mariappan, S. (2016)** studied the extent of knowledge of farmers towards crop insurance in their research 'A study on knowledge and perception of farmers on crop insurance scheme in the Cauvery delta zone Tamil Nadu'. They also studied the constraints faced by them in availing crop insurance scheme. For this purpose the study area was divided into different blocks and data was collected from 300 respondents proportionately. Ex-post facto design was used. It was found that most of the respondents were having medium level of knowledge and majority (50.72%) of respondents was not satisfied from the premium, subsidy, sum insured and claim settlement of insurance schemes. Various constraints like delay in settlement, low level of indemnity fixed, inadequate risk coverage, complex procedure and documentation were faced by respondents in order to avail insurance scheme benefits. Various suggestions like various extension strategies, motivating farmers, improving farmers' knowledge, credit orientation, and risk orientation were also discussed in order to strengthen perception and knowledge of farmers.

- **Mukherjee and Pal (2017)** in their study 'Impediments to Spread of Crop Insurance in India' analyzed the performance of the Pradhan Mantri Fasal Bima Yojana (PMFBY) announced by government on 13 January 2016. The target of the scheme was to double the coverage of crop insurance among farmers to 50% by 2018. According to their analysis around 26% farmers were covered in 2017 so far. The coverage and average growth rate of crop insurance adoption is very low. With current level of growth rate, attaining the coverage of 50% farmers will take a long time. The paper highlighted the key issues of low spread of crop insurance are lack of awareness among farmers, delay in claim settlement, absence of adequate number of channels and lack of information on the risk behavior of

farmers. Although PMFBY had brought lower and standardized premium rates, and emphasized the use of technology but still they remarked that there were some other structural constraints that may need to be tackled if the targeted coverage of crop insurance needs to be achieved.

- **Muniraju and Sona (2018)** analyzed the status of crop insurance in India, adaptability of crop insurance, purchase benefits and satisfaction level among farmers with special reference to Kodagu District of Karnataka state in paper 'Status of Crop Insurance in India'. The objective of the study was to know the factors influencing and constraints in adoption of crop insurance scheme. The structured questionnaires were issued to 50 respondents in Madikeri Taluk of Kodagu District (Karnataka) to collect data for analysis. The study revealed the various factors that influence farmers to adopt crop insurance (age, income level, access to loan facilities) and constraints faced (lack of awareness(24%), delayed settlement of claims(16%), lack of compensation(8%), administrative reasons(14%), lengthy procedures(12%) in adoption of crop insurance. They suggested that necessary steps should have to be taken up by making scheme more administratively efficient, implementing agency and implementing crop insurance schemes effectively so to have a wider coverage of agricultural insurance in country.
- **Josheena (2018)** examined the relationship between agriculture insurance and risk management of farmers in research 'A study on the impact of agricultural insurance on risk management among food crop farmers in Kerala'. The main objective of the study was to examine the perception of farmers regarding agriculture insurance as a risk management tool. 475 respondents from 19 Gram Panchayat of 3 districts in Kerala were used to collect data through schedule method. It was found that farmers were using different tools like futures/options, forward pricing, multiple peril crop yields, off farming investments etc. as risk mitigating strategy. Majority of farmers were not aware of crop insurance in Alappuza and Palakkad, while 98.67% farmers were aware of crop insurance. Insurance coverage was satisfactory (79.37%). 79% of the respondents were of the opinion that premium amount is reasonable. Majority of respondents were of the opinion that crop insurance is more favorable to high risk farms than low risk farms.

- **Hazarika and Yasmin (2018)** conducted a study which aimed to identify the factors and constraints faced by farmers in adoption of crop insurance policy in their paper 'Adaptability of Crop Insurance as a Risk Mitigation Mechanism by the Farmers of

Assam'. The data was collected from 432 farmers of two districts of Assam. Among these 282 were uninsured farmers selected randomly and 150 were insured farmers selected randomly from the list of insured farmers obtained from the lead bank office. Insured were further categorized as laonee (119) and non-loanee (31). Some of the major reasons for not availing crop insurance were that they cannot afford premium, low compensation rates, complex claim settlement procedures and lack of awareness. The farmers (who were insured) also pointed out certain drawbacks of MNAIS (Modified National Agriculture Insurance Scheme) such as delay in claim settlement, inadequate estimation of CCE, limited role of financial institutions etc. These factors need to be take care of for adaptability of crop insurance.

- **Kumbalep and Devraju (2018)** in their study 'Awareness and Perceptions of Farmers about Crop Insurance' analyzed that only about 23% of farmers were using crop insurance as a mitigating tool. The objective of the study was to examine the awareness and perceptions of farmers about crop insurance and to figure out constraints faced by farmers and insurance agency in covering farming risks. The primary data was collected from 60 farmers and secondary data was collected from lead bank of Kolar to analyze the number of farmers enrolled for crop insurance during Kharif 2016-17, Rabi 2016-17 and Kharif 2017-18. The finding of the study was that only 20% farmers were aware of crop insurance which shows that there is a need of proper awareness of crop insurance schemes. The other suggestions of the study were that there is a need for increase in indemnity level and quick settlement is required. Procedure to purchase crop insurance should also be made easy.

- **Sreejamol and Sridevi (2018)** conducted a study to analyze the impact of Weather-Based Crop Insurance Schemes in their paper 'Farmers' Behaviors and Attitudes towards Crop Insurance Scheme'. Weather-based crop insurance is a scheme to provide risk coverage to the farmers who are likely to be affected by adverse weather incidences. The objective of the study was to analyze the impact WBCIS on socio economic status of the policy holders in Kerala State. For this purpose primary data was collected from 500 respondents through questionnaires. This study concludes that crop insurance products demands more technical support and expertise as it is the real solution for the risk faced by the farmers.

- **Mukherjee and Pal (2019)** in their paper 'On Improving Awareness about Crop Insurance

in India' discussed that reason for low take-up of crop insurance is low demand due to lack of awareness about its existence. The objective of the study was to analyze the various sources from which farmers get knowledge about crop insurance and to find factors that effects crop insurance demand. The study was based on the data collected by NSSO (National Sample Survey Organization) in 70th round Situation Analysis Survey for farmers in 2014. In that survey all the 36 States and Union Territories were covered. In that Survey on Situation Assessment of farmer households, the farmers who were unable to insure their crops due to inability to pay premium were only 4 per cent. Most of the farmers could not gain access to these services, but among those who could, among these 95 percent reported that they found the advice useful. It was also concluded that even with subsidies, the coverage of crop insurance was very low because of lack of awareness and access to the available schemes. By making services available such that they reach a larger number of farmers can uplift the status of crop insurance in India.

The comprehensive review of the existing literature on crop insurance provides valuable insights into the multifaceted aspects of this vital agricultural risk management tool. The discussion revolves around the key findings and implications of the study, shedding light on the historical evolution, theoretical underpinnings, implementation strategies, challenges, and the overall impact on farmers and agricultural communities. Challenges related to crop insurance emerge as a prominent theme in the review. The study uncovers various obstacles that hinder the successful implementation and adoption of crop insurance among farmers. These challenges include issues related to awareness, accessibility, affordability, and trust in the insurance mechanisms. Addressing these barriers is essential for ensuring that crop insurance schemes effectively mitigate the risks faced by farmers and contribute to agricultural sustainability.

6. CONCLUSION

In conclusion, this review paper highlights the critical role of agriculture in the Indian economy and its substantial contribution to the national income. Despite the gradual decline in its share compared to other sectors, agriculture remains a vital livelihood for around 50% of the working population in India. However, the sector faces numerous challenges, including the impact of

natural disasters, price fluctuations, imperfect markets, weak infrastructures, and declining farm sizes, leading to fluctuating incomes and forcing farmers to abandon their occupation. Crop insurance emerges as a potential solution to protect the farming community from the risks and losses they face. While discussions on crop insurance have been ongoing since India's independence, effective implementation and outcomes have been challenging. The research proposal emphasizes the need to explore and analyze the role of crop insurance as a risk management tool among farmers more comprehensively. Understanding the dynamics and challenges associated with crop insurance is of paramount importance for both insurance companies and the government. It will aid them in formulating and implementing more effective plans, schemes, and policies related to crop insurance in India. By providing financial assistance and security to farmers, crop insurance can become a crucial instrument in mitigating the risks faced by the agricultural sector.

In conclusion, this research endeavor has the potential to bridge the existing gaps and contribute significantly to the sustainable development of agriculture in India. By addressing the complexities of crop insurance and identifying areas for improvement, the findings from this study can guide policymakers and stakeholders to design policies that better safeguard farmers' interests and ensure the stability and growth of the agriculture sector. Ultimately, an efficient and well-implemented crop insurance system has the potential to create a more resilient and prosperous farming community in India, further strengthening the backbone of the nation's economy.

7. REFFERENCE

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