

**ADOPTION OF CROP INSURANCE SCHEMES IN ALATHUR,
PALAKKAD DISTRICT**

by

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MAJOR PROJECT REPORT

Submitted in partial fulfillment of the requirement for the Post Graduate degree of

MBA IN AGRIBUSINESS MANAGEMENT

Faculty of Agriculture

Kerala Agricultural University



COLEGE OF CO-OPERATION BANKING AND MANAGEMENT

VELLANIKKARA, THRISSUR- 680656

KERALA, INDIA.

2018

DECLARATION

DECLARATION

I, hereby declare that this project report entitled “**ADOPTION OF CROP INSURANCE SCHEMES IN ALATHUR, PALAKKAD DISTRICT.**” is a bonafide record of research work done by me during the course of project work and that it has not previously formed the basis for the award to me for any degree/diploma, associateship, fellowship or other similar title of any other University or society.

Vellanikkara



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(2016-31-031)

CERTIFICATE

CERTIFICATE

Certified that this project report entitled “**ADOPTION OF CROP INSURANCE SCHEMES IN ALATHUR, PALAKKAD DISTRICT.**” is a record of project work done independently by Ms. Aswathy Rani V under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship or other similar title to them.

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ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

This report could not have been in its present form without the timely advices guidance's, help and prayers of an amble lot of well-wishers. To them, who had remained withmes as a constant inspiration, I place my advent resolution.

*I would like to record my gratitude to my guide **Dr. R. Sendil Kumar**, Professor, Agricultural extension, CCBM, advice and guidance in the every stage of this work, even in the midst of his busy schedules. Without his constant support and invaluable advice, this work could not have reached the stage of successful completion..*

*I would like to place record of my heartfelt thanks to **Dr. P. Shaheena**, Associate Dean, CCBM and Director **Dr. E.G. Ranjit Kumar**, MBA ABM, Kerala Agricultural University, for their constant inspiration and motivation*

I express my heartfelt thanks to all the library staffs of CCBM for all their help and support.

I thank all the teachers of College of Co-operation, Banking and Management, for giving us necessary suggestions. Word of thanks to all the office staff for all the help given by them. In addition I like to thank all the staffs of central library who extended a hand of help.

I sincerely express my gratitude to all the farmers, Agriculture officers and other staffs in the Agriculture office in Alathur block for extending their immense support in carrying out the data collection.

I take this opportunity to thank my parents, sister and brother for their support and encouragement throughout the study. I also thank my friends Bandana, Mahima, Muhammed Ijaz, and other classmates, seniors and juniors for their unforgettable affection and support extended to me.

Above all, I bow my head before the almighty without whose invisible hands above my head this report would not have been possible.

Finally I would like to thank everybody who was important to the successful realization of this report, as well as expressing my apology that I could not mention personally one by one.

For any errors or inadequacies that may remain in this work, of course the responsibility is entirely my own.

ASWATHY RANI V

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LIST OF ABBREVIATIONS

LIST OF SYMBOLS AND ABBREVIATIONS

AIC	:	Agriculture Insurance Company of India Ltd.
%	:	Per cent
&	:	And
AWS	:	Automatic weather station
BWS	:	Backup weather station
CCIS	:	Comprehensive Crop Insurance Scheme
ECIS	:	Experimental Crop Insurance Scheme
E.g.	:	Example
<i>et al</i>	:	And other workers
GIC	:	General insurance company
Ha	:	Hectare
MNAIS	:	Modified National Agricultural Crop Insurance Scheme
NAIS	:	National Agricultural Insurance Scheme
NSSO	:	National Sample Survey Organisation
PCIS	:	Pilot Crop Insurance Scheme
PCIS	:	Pilot Coconut Insurance Scheme
PMFBY	:	Pradhan Mantri Fasal Bhima Yojana
RWS	:	Reference weather station
WBCIS	:	Weather Based Crop Insurance Scheme
RWBCIS	:	Restructured Weather Based Crop Insurance Scheme

Chapter I
DESIGN OF THE STUDY

CHAPTER I

DESIGN OF THE STUDY

1.1 INTRODUCTION

Agriculture is subjected to lot many uncertainties. Still, more people in India earn their livelihood from this sector, than from all other economic sectors put together. In rural India, households that depend on income from agriculture (either self-employed or as agricultural labour), accounted for nearly 70% of the population¹. 75% of all rural poor are dependent on agriculture, in some way or other. Households that were self-employed in agriculture, account for 28% of all rural poor, while households that were primarily dependent on agriculture as labour, account for 47% of all rural poor (ShashiKiran A.S and K.B Umesh). Since agricultural depends on large number of factors which includes climatic factors which are not under the control of farmers, and hence, risk associated with agriculture is more. Because of this reason, achieving development goals in agriculture is not so easy unlike other sectors of the economy.

Agricultural risk is associated with negative outcomes that stem from imperfectly predictable biological, climatic, & price variables. They also include adverse changes in both input & output prices. Production, price or market, financial or credit, and institutional risks are the different categories under which agricultural risks can be classified. Taking steps to overcome these risks will be the major step in the development of agriculture. Hazell and Valdes (1985) indicated that risk and uncertainty pose a serious impediment to agriculture development. One method of setting risk to farmers is through crop insurance. He also suggested that if the crop insurance programme is to be useful in agricultural development, it must be carefully reworked to maximize their efficiency for both farmers and governments.

Agricultural crop insurance is one of the major management strategies to overcome risk to greater extent. Insurance of crops is regarded as an essential part of well-rounded agricultural programme designed to provide protection to farmers against physical failure of crops due to weather & other unavoidable natural hazards. Crop insurance advances the process of stabilizing

¹ Estimates from Survey of Consumption Expenditures, National Sample Survey, 1999/00

the agricultural industry to a stage of production, making such a process more comprehensive, effective and useful.

1.2 CROP INSURANCE IN INDIA

Agriculture is prone to systemic and co-variate risks where a single risk affecting a large number of properties across large geographical regions, doesn't easily lend itself to insurance. Lack of past yield data, small sized farm holdings, low value crops and the relatively high cost of insurance; have further made it more difficult to design a workable crop insurance scheme. Despite these constraints, India debated the feasibility of crop insurance schemes, since independence. However, the first concrete attempt could be made only in the 1970s. The summary of important schemes evolved, is as follows:

(a) Scheme based on 'Individual' approach (1972-1978): The first ever scheme started on H-4 cotton in Gujarat was extended later, to a few other crops and states. The scheme covered 3,110 farmers for a premium of Rs. 4.54 lakhs and paid claims of Rs. 37.88 lakhs.

(b) Pilot Crop Insurance Scheme– PCIS (1979-1984): PCIS was introduced on the basis of report of late Prof. V.M. Dandekar and was based on the 'Homogeneous Area' approach. The scheme covered food crops, oilseeds, cotton and potato; and was confined to loanee farmers on a voluntary basis. The scheme was implemented in 13 states and covered 6.27 lakh farmers, for a premium of Rs. 196.95 lakhs and paid claims of Rs. 157.05 lakhs.

(c) Comprehensive crop Insurance Scheme–CCIS (1985-1999): The scheme was an expansion of PCIS, and was made compulsory for loanee farmers. Premium rates were 2 percent of the sum insured for cereals and millets and 1 per cent for pulses and oilseeds, with premium and claims, shared between the Centre and States in 2:1 ratio. The scheme was implemented in 16 States and 2 UTs and covered 7.63 crore farmers for a premium of Rs.403.56 crores and paid claims of Rs. 2,319 crores.

(d) National Agriculture Insurance Scheme–NAIS (1999): NAIS was introduced during Rabi 1999-00 by improving the scope and content of the erstwhile CCIS. The salient features are as follows:

(i) **States and Areas covered:** The Scheme is available to all States and Union Territories, on an optional basis. A State opting for the Scheme will have to continue it, for a minimum period of three years.

(ii) Farmers covered: All farmers including sharecroppers and tenant farmers, growing the notified crops in the notified areas, are eligible for coverage. The scheme is compulsory, for farmers availing crop production loans and voluntary for others.

(iii) Crops covered: The Scheme covers food crops (Cereals, Millets and Pulses), Oilseeds and Annual Commercial / Horticultural crops - sugarcane, cotton, potato, onion, chilly, turmeric, ginger, jute, tapioca, coriander, cumin, isabgol, fennel, fenugreek, annual banana, annual pineapple, etc. However, mangoes, apples, grapes and oranges are not yet covered.

(iv) Sum insured: The minimum Sum Insured (SI) in case of loanee farmers, is the amount of loan availed, which can be further extended up to 150 per cent of the average yield. For non loanee farmers, it can be up to a value of 150 per cent of the average yield.

(v) Premium Rates: The premium rates are 3.5 per cent for oilseeds and bajra and 2.5 per cent for cereals, millets and pulses, during Kharif; in the Rabi season, they are : 1.5 per cent for wheat and 2 per cent for other food crops and oilseeds. The rates for annual commercial / horticultural crops are actuarial.

(vi) Premium subsidy: Small / Marginal farmers are subsidized in premium to the extent of 50 per cent, to be shared equally between the Centre and States. The premium subsidy is, however, to be phased out over a five year period, on a sunset basis. Accordingly, the eligible subsidy between 2004-07, is 10 per cent.

(vii) Scheme approach: The scheme covers losses from sowing to harvesting, and operates on an 'area approach' for widespread calamities. For this purpose, a unit of insurance (IU), is defined. It may be a Village Panchayat, Mandal, Hobli, Circle, Phirka, Block, Taluka, etc., to be decided by the State Govt. / UT. However, each participating state government. / UT, was required to reach the level of Village Panchayat, as the unit, within a maximum period of three years. The scheme is to operate on 'individual' basis for specified localized calamities. However, individual assessment of losses is currently researched in only in a few areas – one block / taluka in each state.

(viii) Loss assessment, Levels of Indemnity & Threshold Yield: The Threshold Yield (TY) or Guaranteed Yield for a crop in a Insurance Unit, shall be the moving average yield based on the past three years, in case of Rice & Wheat, and five years yield, in case of other crops, multiplied by the level of indemnity. Three levels of Indemnity, viz., 90, 80 and 60 per cent, corresponding to Low Risk, Medium Risk & High Risk areas, will be available for all crops. The insured

farmers of a unit area may also opt for higher level of indemnity, on payment of an additional premium.

(ix) If the 'Actual Yield' (AY) per hectare of the insured crop for the defined area falls short of the specified 'Threshold Yield' (TY), all the insured farmers growing that crop in the defined area, are deemed to have suffered a shortfall in their yield.

(x) Sharing of Risk: Until transition is made to an actuarial regime, Govt. of India and States shall share claims beyond 100 per cent of the premium collected, for food crops and oilseeds, on 50:50 basis. In case of annual commercial / horticultural crops, claims beyond 150 percent of premium in the first 3 or 5 years, and 200 per cent thereafter, are borne by the Centre and State, on a 50:50 basis.

Till Kharif 2010, NAIS covered 158.32 million farmers for a premium of Rs.6,801.61 crores and finalized claims of Rs. 14,227.99 crores.

(e) Weather Based Crop Insurance: It aims to mitigate the hardship of the insured farmers against the likelihood of financial loss on account of anticipated crop loss resulting from incidence of adverse conditions of weather parameters like rainfall, temperature, frost, humidity etc.

Weather based Crop Insurance is based on the fact that weather conditions affect crop production even when a cultivator has taken all the care to ensure good harvest. Historical correlation studies of crop yield with weather parameters help us in developing weather thresholds (triggers) beyond which crop starts getting affected adversely. Payout structures are developed to compensate cultivators to the extent of losses deemed to have been suffered by them using the weather triggers. Weather Insurance has been piloted in the country since Kharif 2003 season. Some of the States where it's piloted are Andhra Pradesh, Chattisgarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan etc.

(f) Pradhan Mantri Fasal Bima Yojana: This scheme was launched on April 1,2016. This insurance scheme is in line with One Nation – One Scheme theme. It incorporates the best features of all previous schemes and at the same time, all the previous shortcomings have been removed. The PMFBY replaced the two schemes National Agricultural Insurance Scheme as well as the Modified NAIS. In this uniform premium of only 2 per cent to be paid by farmers for all Kharif crops and 1.5 per cent for all Rabi crops. In case of annual commercial and horticultural crops, the premium to be paid by farmers is only 5 per cent. It was estimated that

the new scheme will ensure about 75 to 80 per cent of subsidy for the farmers in insurance premium.

Table 1.1 Timeline of crop insurance schemes in India

Name of the scheme	Period	Remarks
Insurance for cotton H4 (Individual approach)	1972-78	-
Pilot Crop Insurance Scheme (PCIS)	1979-1984	-
Comprehensive crop Insurance Scheme (CCIS)	1985-1999	Crop Insurance made mandatory for loanee farmers
National Agriculture Insurance Scheme (NAIS)	1999-2016	Continued in few notified areas
Weather Based Crop Insurance Scheme (WBCIS)	2007-to date	First scheme to ascertain crop loss based on deviation in rainfall. From 2016 as restructured WBCIS (RWBCIS)
Modified National Agricultural Insurance Scheme (MNAIS)	2010-2016	-
Coconut Palm Insurance Scheme (CPIS)	2009- to date	-
National Crop Insurance Programme (NCIP)	2013- 2014	NAIS, WBCIS, MNAIS merged to form NCIP. Discontinued simultaneously.
Pradhan Mantri Fasal Bima Yojana (PMFBY)	2016-to date	-

(Source: agricoop.nic.in)

1.3 STATEMENT OF THE PROBLEM

Crop insurance addresses the yield risks (risks that arise due to variability in crop yield). Yield risks arise due to uncontrolled inputs attributable to weather or pests and disease. Yield risks, specifically weather-related risks, are critical and account for nearly 60% of the variation in crop yield. This is primarily induced by weather fluctuations (rainfall etc.). India's crop insurance

program is the world's largest (25 million farmers) yet; 85 million farmer households are not covered. Only about 20 per cent of all farmers in the country are insured for crop damage. There are several problems that exist with the PMFBY such as the delay in crop cutting experiments and its associated high costs, delayed/non-payment of insurance claims to farmers and lack of transparency. As a result, farmers had shown their reluctance towards crop insurance schemes. The overall area insured has decreased over the last 2 years (from 53.7 million hectare in 2015-16 and 57.2 million hectare in 2016-17 to 47.5 million hectare in 2017-18). Despite the advantages of weather-indexed insurance, coverage under WBICS continues to remain an issue and the number of farmers insured has declined from 11.25 million in 2014-15 to a little over 2.1 million in 2016-17. In order to increase coverage, it is necessary for the government to effectively communicate to the farmers the value of insurance products. In Kerala too NAIS is operating since 1999 covering only 330000 farmers covering 7% of the total farmers covering mainly the paddy crops and other crops like banana, coffee, spices, coconut etc are all in the pipeline.

Recently Kerala has been hit with flood damaging around 57,000 hectares of crops.(The Indian express August 30, 2018). The main problem faced was many farmers didn't insure their crops are facing a huge loss.

Despite the combined efforts of State Government and the Central Government these crop insurance schemes are not gaining much momentum as expected. To bring the remaining portions of farmers under the cover of insurance agency has to face greater challenges. It is assumed fact that, production risks are more or less common to farmers and greatly varies with respect to crop and its nature. In this context, question raised that, why only certain category of farmers have opted crop insurance as a risk mitigating strategy and why not others? With this back drop a study will be attempted with the following specific objectives.

1.4 OBJECTIVES OF THE STUDY

- To study awareness of crop insurance among farmers.
- To identify the factors influencing the farmers to adopt the crop insurance scheme.
- To study the difficulties/ constraints faced by the farmers in adopting and getting benefits from the crop insurance.

1.5 METHODOLOGY

1.5.1 Data Source

Both primary and secondary data were required for this study. The primary data was collected by carrying out survey of paddy farmers in Alathur block. The secondary data was collected from various reports and publications from Agriculture Insurance Company, Krishi Bhavan and website sources like www.indiastat.com.

1.5.2 Period of study

The study was carried out from September to November 2018

1.5.3 Sampling Design

The study was confined to paddy farmers of Alathur in Palakkad district. 120 paddy farmers (40 loanee insured, 40 non-loanee insured and 40 uninsured) were selected for the study. The loanee and non loanee insured farmers 40 each was selected using simple random sampling method and convenience sampling was used to select 40 uninsured farmers.

1.5.4 Variables of study

- i. Social, psychological and agronomical aspects of the farmers
- ii. Awareness of crop insurance among paddy farmers
 - Crops covered
 - Sum insured
 - Premium rates
 - Claims
- iii. Attitude of farmers towards crop insurance
- iv. Major production risks in paddy in the study area
- v. Institutional linkages
- vi. Sources of information for getting the knowledge of risks and insurance scheme
- vii. Problems at different stages of the scheme

1.5.5 Data collection method

Well-structured Interview schedule was used to collect primary data from paddy farmers.

1.5.6 Data analysis

To analyze the primary data and achieving the stated objectives, analytical tools like tabular analysis, Garrett ranking, percentages, satisfaction index and attitude index were used.

Garrett Ranking Technique

Garrett's ranking technique was used to rank the preference indicated by the respondents on different factors. As per this method, respondents have been asked to assign the rank for all factors and the outcomes of such ranking have been converted into a score value with the help of the following formula:

$$\text{Percent position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

N_j

Where R_{ij} = Rank given for the i th variable by the j th respondent

N_j = Number of variable ranked by the j th respondents

With the help of Garrett's table, the percent position is estimated is converted into scores. Then for each factor the scores of each individual are added and then total value of scores and mean value of scores are calculated. The factors having highest mean value is considered to be the most important factor.

Index method

For measuring the attitude and satisfaction level farmers towards crop insurance Attitude Index and satisfaction level index were developed. For construction of indices the respondents were asked to rate the statements representing selected variables as scales. The opinion of the respondents were assigned the marks of 4, 3, 2 and 1 representing most positive degree of opinion to most negative degree of opinion at the total score. The total score obtained by each variable was then divided by the maximum possible score for that variable to obtain the index of that variable

The score of all of the respondents for each variable were summed up to arrive at the score. The total score obtained by each variable to obtain the index of that variable.

$$\text{Index} = \frac{\text{Total score obtained for the statement}}{\text{Maximum obtainable score for the statement}} \times 100$$

Maximum obtainable score for the statement = maximum score for the opinion x total number of respondents

$$\text{Overall Index} = \frac{\text{Sum of total scores of all statements}}{M \times N \times S}$$

M = Maximum score

N = Number of respondents

S Number of statements

The indices were then classified into three zones as follows for interpreting the results

Limit	Calculation	Zone
Upper limit	Above M.I+SD	Upper
Middle limit	(M.I-SD) to (MI+SD)	Medium
Lower limit	Below MI-SD	Lower

M.I = Mean Index = Sum of indices/ Total no. of statements

SD = Standard Deviation

$$S = \sqrt{\frac{\sum(X-M)^2}{n}}$$

M = Mean Index

n = No. of statements

X = Obtained Index

1.6 OPERATIONAL DEFINITION

- **Area Approach:** An agriculturally homogeneous area may be insured as one unit, or form the basis for standardizing loss assessments across the area. This unit may comprise several blocks of land farmed by the same farmer or different farms farmed by different farmers. For loss adjustment, in this approach, the actual average yield is assessed by sample survey through crop cutting or other methods, and compared with the normal (insured) yield. The average yield loss is applied to all land of all insured farmers within the defined area, disregarding individual differences in actual damage and crop yield. The aim of this approach is speed and cost-containment.
- **Back-Up Weather Station:** It is a substitute Weather Station to be used only in case the weather data from the specified Reference Weather Station for the current season is unavailable for any reason.
- **Claim:** The application to be filled in by farmer for indemnity (payout) after an insured event has occurred.
- **Indemnity:** The amount payable by the insurer to the insured, either in the form of cash, repair, replacement or reinstatement in the event of an insured loss, is termed the indemnity. The amount is measured by the extent of the insured's pecuniary loss. It is set at a figure equal to but not more than the actual value of the subject matter insured just before the loss, subject to the adequacy of the sum insured. This means for many crops that an escalating indemnity level is established, as the growing season progresses.
- **Loanee:** Farmers who have taken crop loan from the bank and come under the gamut of crop insurance (Weather Based Crop Insurance Scheme).
- **Non loanee insured:** Farmers who have not taken crop loan from the bank, but come under the gamut of crop insurance (Weather Based Crop Insurance Scheme).
- **Not Insured:** Farmers who have not taken crop loan from the bank and have not taken crop insurance.

- Payout: Payout is defined as compensation received by insured farmer for their loss arising from insured risks.
- Peril: Peril is defined as probable cause (such as earthquake, fire, theft) that exposes a person or property to the risk of damage, injury or loss.
- Premium Rate: The price per unit of insurance, normally expressed as a per cent of the sum insured.
- Premium: A premium is the amount money farmer must pay insurance company in order to get coverage against risks mentioned in insurance policy. The premium is paid by the farmer to the insurance company for coverage.
- Reference Unit Area: Reference unit areas are the Geographical areas situated around the reference weather stations, which is deemed to be reflective of the Reference Weather Stations' for weather data. To the extent feasible, such Reference Unit Area shall be restricted to mandal for notified weather parameters.
- Reference Weather Station: This refers to the Automatic Weather Station operating for the particular Reference Unit Area i.e. mandal operating for the relevant Reference Unit Area for generating the weather data during the current season based on which payouts are processed.
- Risk: Risk is defined as a situation where the outcomes as well as its probabilities are known, and therefore, the expected result can be obtained. Whereas uncertainty is a situation where the outcome is not clearly known or its probability is unknown.
- Sum Insured: The amount specified in the policy up to which the insurer will pay indemnities should the insured peril(s) occur and result in a loss to the insured property.
- Weather Based Crop Insurance (WBCI): Weather Based Crop Insurance (WBCI) emphasizes on reducing the hardship of insured farmers against financial loss arising out of adverse weather conditions like rainfall, temperature, humidity, storms, pest infestation and disease incidence etc.

1.7 SCOPE OF THE STUDY

The study would be of great help to the insurance providing agency to devise appropriate diffusion strategy. The findings of the study figured out the factors influencing the farmers to go under the cover of crop insurance. The constraints found from the study would help Government,

Agriculture Insurance Company and other linked organisations to increase the efficiency of tools as well as the service and launch more schemes in the future dissolving the constraints faced.

1.8 LIMITATIONS OF THE STUDY

- Time limit for the study: conducting an elaborative study was not possible.
- The study was limited to farmers of Alathur block in Palakkad district. So the results cannot be generalised.
- Study was confined to paddy farmers only since the major crop in the area of study was paddy.

Chapter II
REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

A comprehensive study of past studies is useful to formulate concepts, methodology and tools analysis. An attempt is made here to review the concepts used in the past studies related to crop insurance. The review was arranged based on the variables of the study. Some of the reviews are as follows.

2.1 Socio-economic profile of farmers

Vijayabhinandana (1985) revealed that majority of the insured farmers and non-insured farmers belonged to young age group, majority of both insured and non-insured farmers were small farmers with medium extension contact, mass-media exposure, risk orientation and innovativeness whereas insured farmers had education up to middle school level and non-insured farmers had education up to primary school level.

Sridhar (1988) stated that majority of compulsory sheep insured farmers came under middle age group; most of them were illiterates with small land holdings. He also reported that majority of the compulsory cattle insured farmers belonged to small farmers group (80%), educated up to primary school with 1.27 ha. of land holding, whereas voluntary cattle insured farmers were educated up to high school level, with land holding of 2.25 ha. He further reported that majority of both voluntary and compulsory pump set insured farmers came under middle age group and had education up to high school level with large land holdings.

2.2 Awareness of crop insurance among farmers

Bhende M.J. (2003) tried to analyzing the crop insurance schemes Karnataka, based on secondary data collected from General Insurance Corporation of India Ltd., found that the spread and coverage of Comprehensive crop Insurance scheme (CCIS) was very meagre. The claim premium ratio in Karnataka was on the higher side, except in 1994. On an average, GIC paid Rs. 3.33 as indemnity for every rupee of premium it collected under Comprehensive crop Insurance scheme (CCIS). The study suggested to redefine homogenous area; inclusion of horticulture

crops; and awareness campaign to induce non-borrowers to buy insurance covers for notified crops.

Sundar and Lalitha Ramakrishnan, (2010) “A Study on Farmers’ Awareness, Perception and Willing to Join and Pay for Crop Insurance, the study was conducted in Kunichampet village, Puducherry District, India and 140 convenient respondents were chosen and been carried out in June and July, 2012. From the analysis farmers awareness level about crop insurance was low. Most of the farmers were not interested to pay for crop insurance because of instable income, premium rate, no or low compensation, problems with distribution channel and lack of financial knowledge.

Suresh Kumara, Barahb, Ranganathana, Venkatrama, Gurunathana and Thirumoorthya, (2011) “An Analysis of Farmers’ Perception and Awareness towards Crop Insurance as a Tool for Risk Management in Tamil Nadu”, To insulate farmers against risks in agriculture, government has launched several schemes such as National Agricultural Insurance Scheme and weather index based crop insurance schemes. But their coverage seems to be limited among the farmers primarily due to lack of full information. This paper has reported the results of a survey of 600 farmers conducted to assess their perception about various facets of crop insurance schemes. The Probit and Tobit models have been employed to analyse the factors affecting awareness among the farmers. Crop diversification index has also been used to examine the farmers’ adjustment mechanism against risks. The survey has revealed that most farmers (65%) are aware of risk mitigation measures of the government. But, only half of the farmers have been found aware about the crop insurance schemes/products. This implies that there is need to disseminate information about insurance schemes across the target groups. Further, it has been shown that factors such as gross cropped area, income from other than agricultural sources, presence of risk in farming, number of workers in the farm family, satisfaction with the premium rate and affordability of the insurance premium amount significantly and positively influence the adoption of insurance and premium paid by the farmers. The study has clearly brought out the urgency of developing more innovative products, having minimum human interventions.

Goudappa *et al.* (2012) “*Farmers Perception and Awareness about Crop Insurance in Karnataka*”, the study on farmers perception and awareness of crop insurance was conducted in

North Eastern parts of Karnataka because region receives very less rainfall compared to other part of Karnataka and people of this region always suffering from drought, they continue to suffer. The study revealed that though National Agricultural Insurance Scheme (NAIS) is operating since 2002-03 in the study area majority of respondent (>80%) are not aware that who is implementing agency and who pay's compensation. Almost all respondents are in the wrong perception that banks will pay compensation and are the implementing agency. More than three fourth of the insurance beneficiaries mentioned that bank compulsion was the motivation for opting insurance. Financial security, good experience from others was the region for opting crop insurance. Further more than 80% of respondents are not aware of extent of coverage premium paid, last date, procedure for insuring crops and method of loss determination and compensation worked out by agriculture insurance company. Respondent farmers were suggested for improving existing scheme and they want quick settlement of claims which is usually taking more than one year. Around three fourth of the beneficiaries suggested to consider adverse weather condition prevailed during flowering and pod formation stage. National Agriculture Insurance Scheme (NAIS) in operation needs to be continued with modification and simplification of modalities of indemnity, loss assessment, settlement of compensation and disbursement procedure.

Karthik and Ramalingam (2013) analysed the awareness level of farmers about various crop insurance scheme and also evaluated the relationship between the socio-economic charactersitics of farmers and their awareness level. Both primary and secondary data were collected for the study. Primary data were collected by a survey among 360 farmers from the nine blocks of Madurai district with the help of an interview schedule Secondary data were collected from various reports published by AIC, IRDA, NABARD. The study found that all the respondents were aware of the NAIS and 90% of loanee as well as nonloanee farmers aware about Pilot Insurance Scheme, Comprehensive crop insurance scheme and experimental crop insurance scheme. The study also concluded that only 22.6% in case of loanee category and 17.3% in case of non-loanee catagory farmers have high level awareness. The study revealed that most of the loanee farmers insured their crops because of compulsion by bank, but in case of non-loanee farmers, the reason "To protect against loss" secured the first place. The study found that

awareness level of farmers were very low towards crop insurance scheme. The study suggested that compulsory crop insurance for those who take loan from bank should be discouraged.

Bindiya Kunal Soni and Jigna Trivedi, (2013) “Crop Insurance: An Empirical Study on Awareness and Perceptions” revealed that the penetration of crop insurance is found to be very less. This study is an attempt to understand the existing scenario of crop insurance in India with a special reference to Gujarat. The study empirically checks upon the awareness level of farmers in Anand district towards this product. The paper further examines the perception of those who have availed or not availed crop insurance in various villages of Anand district. The farmers awareness towards two main types of rural insurance i.e. crop and cattle insurance was checked and compared with Wilcoxon signed rank test. Higher mean ranks for the negative differences indicated that the farmers knew more about cattle insurance than crop insurance. The actual mean values for the awareness of the farmers for crop and cattle insurance were observed to be 3.44 and 2.44 on a scale of 1 to 5 which reveals that the farmers knew very little about the crop insurance.

Selvaraj A (2015) “Crop insurance: A study with farmers’ awareness and satisfaction” conducted on 100 respondents. The study revealed that 44% of the sample respondents were having low level awareness about crop insurance. Hence, he suggested that the Insurance companies and Government should take necessary steps to improve the awareness among the farmers. In the study, it was also found that 86% of the sample respondents are dissatisfied about the existing crop insurance schemes.

2.3 Attitude of farmers towards crop insurance

Vijayabhinandana (1985) stated that majority of both crop insured and non-insured had medium level attitude towards crop insurance scheme. Most of the Insured farmer belonged to the high-attitude category when compared to the non-insured farmers.

Kavitha, Latha, and Jamuna., (2012) made a study titled, “Customers’ Attitude towards General Insurance - A Factor Analysis Approach”, this study examines the customer attitude towards the General Insurance. A study has been conducted at Erode district with the sample of 750 respondents to find out the influencing factor of the policy holders in the study area. In this context, the respondents’ opinion on the various related statements were collected with a 5 point

Scaling. Factor analysis, an important multivariate technique has used to reduce the large number of factors in a small group of factors. Twenty five factors which are considered to be the different type of policy holders conscious. This study helps to find out the various customers which are having different expectation from the General Insurance Companies in the study area.

2.4 Kinds of risks in agriculture

Ballabh, V. and B.M. Sharma, (1987) observed striking differences in the cropping pattern of flood-prone and flood-free districts of Uttar Pradesh. They observed that in eastern region which is more vulnerable to floods, paddy occupied 63 percent of the total area under kharif cereals during the year 1979-80, and it was only about 24 percent in the districts of the westraren region which are relatively flood-free.

Lal (1988) has observed that pulses fall an easy prey to a large number of diseases which not only reduce yields but also affect their quality. Many farmers refrain from growing pulses because of the risks involved owing to their susceptibility to diseases.

Singh (1993) attempted a district wise analysis to identity the factor affecting area and production of grain in Bihar. Annual rainfall was found to have a significant effect on production only in two districts. The regression co efficient for irrigated area was negative in most districts implying that as area under irrigation increased; grain was pushed to more and more marginal lands and substituted by superior crops.

Musser and Patrick (2001) outlined different kinds of risks as well as the sources of risks in agriculture. Production risk concerns variations in crop yields and in livestock production due to weather conditions, diseases and pests whereas marketing risk is related to the variations in commodity prices and quantities that can be marketed. Financial risk relates to the ability to pay bills when due, to have money to continue farming and to avoid bankruptcy. Legal and environmental risk concerns the possibility of lawsuits initiated by other businesses or individuals and changes in government regulations related to environment and farming practices. Finally, human resources risk concerning the possibility that family or employees will not be available to provide labour or management.

Hardaker **et al.** (2004) vibrantly explained the types of risks that witnessed in agriculture. The business risks including production, market, institutional and personal risks. Production risk would be due to unpredictable weather and performance of crops and livestock. Market risk would be related to uncertainty about the price of outputs and, sometimes also inputs, at the time production decisions are taken. Institutional risk is due to government actions and rules such as laws governing disposal of animal manure or the use of pesticides, tax provisions and payments. Personal risks were due to uncertain life events such as death, divorce, or illness. Second, financial risks result from different methods of financing the farm business. The use of borrowed funds means that interest charges have to be met before equity would be rewarded which may create risk due to leverage. Additionally there would be financial risk when interest rates rise or loans are unavailable.

Abedullah and Mubarak Ali (2006) studied the changes in cropping pattern by quantifying the extent and nature of risks in alternative cropping pattern in Claveria, Philliphines, High input and cropping intensity reduce crop production risk under the rain fed conditions. The analysis conducted at the farm level shows that weather turned out as the major risk factor in crop production. Prices played minor role. However, it could not be taken as a general rule and may be valid under the particular situation of rain fed farming.

Gurdev Singh (2010) in a research working paper titled "Crop Insurance in India" discusses the dependence of Indian agriculture on uncertain rains. In addition the farmers experience in production risks as well as marketing risks related to different crop enterprises and for different agro-climatic regions and areas. It then argues on the need for crop insurance as an alternative to manage production risk. It then takes up the historical overview of crop insurance products and their performance. It is followed by the discussion on the currently available crop insurance products for specific crops and regions. It discusses at length the two important products, namely, National Agricultural Insurance Scheme and Weather Based Insurance Scheme. It also reflects on some deficiencies in these products.

2.5 Institutional linkages regarding crop insurance

Jodha (1981) in an article argued that farmer's own measures to reduce the risk in farming in semi-arid tropical India were costly and relatively ineffective in reducing risk in farming and to adjust to drought and scarcity conditions. It was also found that official credit institutions were also ill-equipped to reduce the exposure of Indian farmers to risks because they couldn't provide consumption loans to drought-affected farmers; indicating thereby that both individual measures and well as offices credit agencies could not cope with the farmers' risk factors.

Pomareda (1986) addressed the empirical issues with reference to the Agricultural Development Bank of Panama (ADB) and examined the effects of crop credit insurance on the basis of data on a sample of insured and uninsured loans between 1974 and 1980. It was found that: (i) in almost all cases, the actual duration for insured loans is significantly shorter than for uninsured loans, implying better recovery performance, reduction of bookkeeping and recovery cost by banks and increase in the turnover velocity of the capital; (ii) insured loans on an average have slightly larger net returns to banks than uninsured loans and that the former have more stable returns than the latter; and (iii) analyzing the potential benefits of credit insurance on bank credit with the help of a normative model of bank portfolio management, both the empirical data and the normative analysis indicated that credit insurance can significantly improve bank earnings and growth. However, most of these benefits of insurance emerge from reduced collection costs, prompt repayment, greater turnover and more efficient use of human and physical resources. They do not arise from reduced variability of loan returns. So, it might be possible to achieve part of these gains simply with improvement in management, better supervision and loan appraisal.

Prabhu and Ramachandran (1986) analysed the implication of the linkages of the new crop insurance scheme with the institutional credit system for agriculture, using secondary data regarding the difference in the premium rates suggested by ISPE. It was found that as the Primary Agricultural credit society dominates the short-term credit disbursal to agriculture with unequally in its access and coverage as it is bound to be a credit-linked crop insurance scheme, which is likely to result in the crop insurance scheme benefiting the larger farmers" more than

small and marginal farmers. He also suggested re-fixing the premium rates for various crops and various regions in line with rates suggested by ISPE.

Report on agricultural credit, cooperation and agricultural insurance in India (2002) found a direct and positive linkage between agricultural insurance and credit disbursement. The logic behind the relationship could be that the risk in agriculture has declined due to insurance and the farmers are repaying their loan at the right time. Secondly, it may be due to the fact that farmers are insured and even if there is happening of natural calamities, still farmers could repay their loan. Hence, the financial institutions agreed to provide loan at a higher rate.

Barman, B (2003), in his study entitled “Institutional Rural Credit in Assam: A Case Study of Rangia Subdivision” examined the impact of the institutional credit on the socio-economic status of the rural people at micro level. The field survey covered 300 beneficiaries selected with simple random sampling technique. He found that the procedure for receiving loan was not simple and credit-deposit ratio of the sample banks of the Rangia sub-division was very low. The scholar had suggested that the flow of credit needs to be doubled to mitigate the gap between demand for and supply of funds to the agricultural sector.

Sharma (2004) in his article referred to a scheme of agriculture insurance has been introduced by the Central Government of India, with the collaboration of General Insurance Corporation of India (GIC) and other four insurance agencies from Kharif 2004, covering four crops, like bajra, arhar, cotton and maize. The principal sum was split among NABARD 30 per cent, General Insurance Corporation of India (GIC) 35 per cent and the rest in 4 insurance agencies. This scheme would operate in 6 districts for cotton and for bajra in 13 districts for arhar & maize in 4 districts have been selected. The indemnity level for the crops in the state would be 90 per cent for Arhar, 80 per cent for Bajra & Maize and 60 per cent for cotton for compensation, the average crop yield during the past five years and damage during the particular crop year would be taken into consideration.

Sharma (2007) in their study entitled “Access to credit- A study of hills farms in Himachal Pradesh.” Indicated that credit was very low in absolute terms which might be because the

farmers had small holdings and thus borrowings for machinery etc. were avoided. Among non-institutional sources, moneylenders had no role to play. Contributions of friends or relatives were found to be significant. Among agricultural loan, crop production loan for seed, fertilizers etc. were found to be important. Among social factors, formal education was found to be important in enhancing the probability of being a borrower. Also farm size and non-farm income played a vital role in borrowing behaviour.

Olivier Mahul and Charles J. Stutley (2010) have written a book on “Government Support to Agricultural Insurance: Challenges and Options for Developing Countries”. This book aims to inform and update public and private decision makers involved in promoting agricultural insurance about recent developments in agriculture insurance. The literature is heavily biased toward the practice and experience of a few very large public-private programs in Northern America and Europe, which are driven by large public financial subsidies. This book provides decision makers with a framework for developing agricultural insurance. It is based on an analytical review of the rationale for public intervention in agricultural insurance and a detailed comparative analysis of crop and livestock insurance programs provided with and without government support in more than 65 developed and developing countries. The comparative analysis is based on a survey conducted by the World Bank’s agricultural insurance team in 2008. Drawing on the survey results, the book identifies some key roles governments can play to support the development of sustainable, affordable, and cost-effective agricultural insurance programs.

Sunny IbeObilor (2013), in his study entitled “The Impact of Commercial Banks” Credit to Agriculture on Agricultural Development in Nigeria: An Econometric Analysis” evaluated the impact of commercial banks' credit to agricultural sector under the Agricultural Credit Guarantee Scheme Fund in Nigeria. Until the mid-seventies, agriculture was the primary foreign exchange earner for Nigeria. Now it has lost its prime position to the mineral sector. Of these factors, inadequate capital is considered as the single most important factor affecting the performance of the sector. It therefore empirically examined the impact of Agricultural Credit Guarantee Scheme Fund, agricultural product prices, government fund allocation and commercial banks” credit to agricultural sector on agricultural productivity. The result revealed that Agricultural Credit

Guarantee Scheme Fund and Government fund allocation to agriculture produced a significant positive effect on agricultural productivity, while the other variables produced a significant negative effect. It is recommended that farmers should be encouraged to be applying for loans from the participating banks to enhance their agricultural activities and productivity.

2.6 Problems in crop insurance

Vijabhinandana (1985) reported that delay in settling claims, high premium rates, lack of information and technical guidance were the problems expressed by the farmers to insure their crops.

Sridhar (1988) reported that 80 per cent of compulsory cattle insured farmers and 60 per cent of the voluntary cattle insured farmers expressed that the present premium rates was high.

Bhende (2005), in an occasional paper while analysing various phases of crop insurance in the country, using secondary data collected from General Insurance Corporation of India Ltd., discussed the type of risks involved in crop insurance. It was found that performance of NAIS was not normal as it did not cover areas uniformly. Insurance cover under the CCIS was available to loanee farmers only and a large number of farmers who did not borrow from institutional sources were deprived of crop insurance benefits. The claim premium ratio was the highest (20.22) in case of groundnuts and lowest (0.88) in case of wheat. It suggested to be more prudent if the expected revenue from the crop (as in the USA) is insured. This will help the farmers to manage their consumption needs in the event of crop failure.

Kalavakonda and Olivier (2005) examined the performance of the crop insurance scheme in Karnataka, a southern state of India and the second driest state in the country. The analysis highlighted the weaknesses in product design, implementation challenges, and operational problems. It was found that the crop insurance scheme in its current form does not achieve its objectives, either explicit (risk management) or implicit (safety net and containment of both the central and state governments" contingent liability). The crop insurance scheme in Karnataka performed poorly both in terms of coverage (number of hectares insured and number of farmers purchasing insurance) and financial performance. This study provided a framework for designing a crop insurance scheme based on the premise that insurance is a cost effective risk management

technique. It also provides some new ideas and thinking toward both improving the existing crop insurance scheme and exploring alternatives to the current product, based on an area-yield approach.

Jain, R.C. (2006) in a paper attempted to address certain basic issues relating to agricultural insurance in developing countries, highlighted the requirement of agricultural insurance. The annual crop insurance coverage of the farmers in India is about 10 per cent and annual risk commitment (sum insured) was about Rs. 10000 crore. He also discussed CCIS and Farm Income Insurance Schemes. He emphasized on the step by step approach, suggested that insurance products for the rural areas should be simple in design and presentation so that they could easily understand. The state can also play a significant role by creating additional re-insurance facilities, either by encouraging the establishment of re-insurance companies or directly providing reinsurance.

Sinha Sidharth (2007) analysed the various insurance scheme in India and identify the major problem in design and implementation. The study also described the pilot project on farm income insurance scheme and its relationship. It also compared rainfall insurance to crop insurance on various important dimensions. A system of public private partnership will help to improve the efficiency and service quality of crop insurance schemes. The study suggested that instead of adopting the easy and unsustainable route of large subsidies, in the long term the government should consider risk mitigation through improvements in the irrigation and water management infrastructure.

James and Nair (2009) evaluated the performance of National Agricultural Insurance Schemes (NAIS), using the Agricultural Census (1995-96) data of Agricultural Insurance Company of India Ltd. of both crop seasons. By simply analysing and interpreting the data, they found that the coverage and indemnity pay-outs benefited many regions and crops; and that the programme is favourably placed in terms of equity, i.e., in terms of proportionate coverage and benefits accrued by small and marginal farmers. They indicated that the problem of adverse selection which is common in many agricultural policies world-wide has been significantly reduced in the recent years.

Jayakumar, S. and A. Subbiah (2009) in their research work indicated the problems and suggestions of agricultural insurance in India. The important problems pointed out by them includes – lack of information about agricultural insurance schemes; lengthy process; about three per cent farmers participate in agriculture insurance; major crops are not covered under insurance scheme; farmers are not the part of committees; no motivation from bank and other officers; delay in getting the compensation amount; lack of coordination between various state government department and agencies and so on. Based on the problems some suggestions are also provided by them.

Priscilla Jebaraj (2018) in her article in The Hindu dated 25th August addressed the issues regarding the payout of Restructured Weather Based Crop Insurance Scheme. There would be no payout for Kerala farmers affected by the recent floods under the government's weather-based crop insurance scheme, as the State had not notified excess rainfall as one of the trigger conditions for the month of August. But the farmers would be benefitted from Pradhan Mantri Fasal Bhima Yojana as it is yield based.

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Chapter III
EVOLUTION OF CROP INSURANCE –
A SNAPSHOT

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EVOLUTION OF CROP INSURANCE – A SNAPSHOT

3.1 RISKS IN AGRICULTURE

Agricultural phases are exposed to controllable and uncontrollable risks. Controllable risks are pests, diseases, weeds, seed and faulty fertilizers or pesticides. Uncontrollable risks are deficit or excess rainfall, distribution of rainfall, extreme temperature conditions, hail storms, wind speeds, humidity and fog etc. Technology, effective monitoring and usage of inputs mitigate controllable risk. The challenge is risk mitigation for uncontrollable risks. Management of risk in agriculture is one of the major concerns of the decision makers and the policy planners, as risk in farm output is considered as the primary cause for low level of farm level investments and agrarian distress. Both, in turn, have implications for output growth. In order to develop various mechanisms and strategies to mitigate risk in agriculture it is essential to know the sources and magnitude of fluctuations involved in agricultural output. The different types of risks affecting agriculture (Report of the working group on Risk management in agriculture) are as follows;

3.1.1 Production risks:

Agriculture is often characterized by high variability of production outcomes or production risk. Unlike the most other entrepreneurs, farmers are not able to predict with certainty the amount of output that the production process will yield due to external factors such as weather, pests, and diseases. Farmers can also be hindered by adverse events during harvesting or threshing that may result in production losses. Development and adoption of innovations also add to production risk in agriculture.

In India, more than 60 per cent of land is vulnerable to droughts (*World focus journal, Disaster management in India*). Droughts lead to economic losses resulting from low agricultural production, loss of animal wealth, reduced nutrition and loss of health of workers.

3.1.2 Price or Market risks:

Price or market risk refers to uncertainty about the prices producers will receive for commodities or the prices they must pay for inputs. The nature of price risk varies significantly from one commodity to another commodity. The market risks result from fluctuations in the prices of inputs and outputs, outside competition, changing supply and demand, market imperfections, changing consumer preferences, etc. Sale of farm produce under distress may take place due to lack of post-harvest processing and lack of infrastructure storage facilities.

Output price is also a source of risk along with input price. Output price variability originates from both endogenous and exogenous market shocks. Segmented agricultural market will be influenced mainly by local supply and demand conditions, while more globally integrated markets will be significantly affected by international production dynamics. In local markets, price risk is sometimes mitigated by the “natural hedge” effect in which an increase (decrease) in annual production tends to decrease (increase) output price (though not necessarily farmers’ revenues). In integrated markets, a reduction in prices is generally not correlated with local supply conditions and therefore price shocks may affect producers in a more significant way. Another kind of market risk arises in the process of delivering production to the marketplace. The inability to deliver perishable products to the right market at the right time can impair the efforts of producers. The lack of infrastructure and well-developed markets make this a significant source of risk.

3.1.3 Financial and credit risks

Many agricultural production cycles stretch over long periods of time, and farmers must anticipate expenses that they will only be able to recuperate once the product is marketed. This leads to potential cash flow problems exacerbated by lack of access to insurance services, credit and the high cost of borrowing. This also creates an obligation to repay debt. Rising interest rates, the prospect of loans being called by lenders, and restricted credit availability to the farmers lead to financial risks.

3.1.4 Institutional risks

Important source of uncertainty for farmers is institutional risk, generated by unexpected changes in regulations that influence farmers’ activities. Changes in regulations, financial services, level

of price or income support payments and subsidies can significantly alter the profitability of farming activities.

3.1.5 Human or personal risks

This risk refers to factors such as problems with human health or personal relationships that can affect the agriculture. Agricultural households, as any other economic entrepreneur, are exposed to personal risks affecting the life and the wellbeing of people who work on the farm, as also asset risks from floods, cyclones and droughts and possible damage or theft of production equipment and any other farming assets.

3.1.6 Legal / policy risks

The legal and policy risk arises due to changes in the government policies related to agriculture, failure to comply with contractual obligations, etc.

3.1.7 Resource risk

The resource risks include uncertain supply or no availability of labour (skilled labour), credit and irrigation water and also timely supply of desired seed, fertilizer or plant protection chemicals. Supply of spurious seeds and plant protection chemicals pose a great risk to the producers. Failure of crops due to sub-standard seed or spurious plant protection chemicals causes drain of resources of the farmer. It inflicts considerable damage on the psyche of the farmer sometimes leading to suicides by the farmers.

3.1.8 Health risks

The health risk arises due to sickness or injury to the farmer, low labour productivity due to poor labour management, family disputes, accidental death, etc.

3.1.9 Assets risks

The trade-off is most acute for small farmers because their opportunities for ex-post management of risk through credit are limited. When all other measures fail, farmers have no option but to sell their assets (principally livestock) or to migrate out to regions with better work opportunities.

3.1.10 Technology risks

Like most other entrepreneurs, farmers are responsible for all the consequences of their activities. Adoption of new technologies in modernizing agriculture such as in introduction of genetically modified crops causes an increase in producer liability risk.

3.2 RISK MITIGATING STRATEGIES

In order to cope with various risks, farmers and rural societies have developed number of risk management strategies. These can be grouped as risk-reducing and risk-coping strategies (Walker and Jodha 1986). The *ex-ante* measures adopted to lower or minimize risks can be grouped as risk-reducing strategies whereas *ex-post* measures adopted to mitigate risks are classified as risk-coping measures or strategies. The following table summarizes these classifications.

Table 3.1 Risk management strategies in agriculture

Kinds of risk management strategies		Informal mechanisms	Formal mechanisms	
			Market based	Publicly provided
<i>ex-ante</i> Strategies	On-farm	<ul style="list-style-type: none"> - Avoiding exposure to risk - Crop diversification and inter-cropping - Plot diversification - Mixed farming -Diversification of income source -Buffer stock accumulation of crops or liquid assets - Adoption of advanced cropping techniques (fertilization, irrigation, resistant varieties) 		<ul style="list-style-type: none"> - Agricultural extension - Supply of quality seeds, inputs etc. - Pest management systems - Infrastructures (roads, dams, irrigation systems)
	Sharing Risks With Others	<ul style="list-style-type: none"> - Crop sharing - Sharing of agricultural equipment, irrigation sources, etc. - Informal risk pool 	<ul style="list-style-type: none"> - Contract marketing -Futures contract - Insurance 	
<i>ex-post</i> strategies	Coping With	<ul style="list-style-type: none"> - Reduced consumption patterns 	<ul style="list-style-type: none"> - Credit 	<ul style="list-style-type: none"> - Social assistance (calamity relief,

	Shocks	<ul style="list-style-type: none"> - Deferred / low key social and family functions - Sale of assets - Migration - Reallocation of labour - Mutual aid 	<ul style="list-style-type: none"> food for-work, etc.) -Rescheduling loans - Agricultural insurance - Relaxations in Grain procurement procedures - Supply of fodder -Cash transfer
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Source: World Bank report 2005

3.2.1 Informal mechanisms:

Ex ante informal strategies are characterized by the diversification of income sources and choice of agricultural production strategy. Simply avoiding the risk is one of the strategy. In many cases, extreme poverty makes people very risk averse, often forcing them to avoiding activities that entail risk, but that could also bring larger income gains. This inability to manage risk and accumulate and retain the wealth is sometimes referred to as the “the poverty trap”.

Once farmers have decided to engage in farming activities, the production strategy, they select is an important means of mitigate the risk of crop failure. Traditional cropping systems in many places rely mainly on crop diversification and mixed farming. Crop diversification and intercropping systems are the means to reduce the risk of crop failure due to adverse weather conditions, crop pest or insect attacks. Studies presents the evidence that households whose consumption levels are close to subsistence (and are therefore highly vulnerable to income shocks) devote a larger share of land to safer, traditional varieties of rice and other cereals than to riskier, high-yielding varieties. Studies also present the evidence that near-subsistence households, spatially diversify their plots to reduce the impact of weather shocks that vary by location.

Apart from altering agricultural production strategies, households also smooth income by diversifying the income sources and thus minimizing the effect of a negative shock to any one of them. According to the study conducted by the International Crops Research

Institute for the Semi-Arid Tropics (ICRISAT), most of the rural households in villages of semi-arid India surveyed generated income from at least two different sources; typically crop income and some livestock or dairy income. Off-farm seasonal labour, trade and sale of handicrafts are also common income sources. The importance of income source diversification as part of risk management is emphasized by many studies, finding that households with more farm profit volatility are more likely to have a household member engaged in a steady wage employment.

Buffer stock accumulation of crops or liquid assets, and the use of credit present obvious means for households to smooth consumption. Studies also show that currency and crop inventories functions as buffers or precautionary savings.

Crop-sharing arrangements in land renting and labour hiring can also provide an effective way of sharing risks between individuals, thus reducing producer risk exposure. Other risk sharing mechanisms, like community-level risk pooling, occur in specific communities or extended households where members of the group transfer resources among themselves in order to rebalance marginal utilities. These kinds of arrangements are effective for counterbalancing the consequences of events that affect some members of the community, but do not work well in cases of covariate income shocks.

Ex post informal income-smoothing mechanisms are typically the sale of assets, such as land or livestock, or reallocation of the labour resources to off-farm labour activities, deferred / low key family functions, reduced consumption patterns, migration. It is reported in the studies that south Indian farmers are able to quickly shift from 100 per cent on-farm labour activities to largely off-farm activities if the monsoon rains are expected to be poor. Studies in India and elsewhere, reported considerable efficiency losses associated with risk mitigation, typically due to lack of specialization — in other words, farmers trade off income variability with profitability.

The need to smooth consumption not only against idiosyncratic shocks, but also against the correlated shocks comes at a serious cost in terms of production efficiency and reduced profits, thus lowering the overall level of consumption of the household. A major consideration for innovation would be to shift the correlated risk from the rural households. An obvious solution for rural households is to engage in risk sharing with households or institutions from areas

largely uncorrelated with the local risk conditions. Examples of such extra-regional risk sharing systems are found in the literature, for example, through credit and transfers with distant relatives; through migration and marriages; or through ethnic networks.

Although there is some degree of risk sharing and thus of insurance against weather, none of the systems are so widespread that they cover all households, nor are they even close to providing a fully efficient insurance mechanism. Most households are therefore still left with no insurance against correlated risks, the main source of which is weather.

3.2.2 Formal mechanisms:

Formal risk management mechanisms can be classified as publicly provided or market based. Government action plays an important role in the agricultural risk management both *ex ante* and *ex post*. *Ex ante* education and services provided by the agricultural extension helps to familiarize producers with the consequences of risk and help them to adopt strategies to deal with risk. Supply of quality agricultural inputs is another institutional strategy. Governments also reduce the impacts of risk by developing relevant infrastructure and by adopting social schemes and cash transfers for relief after shocks have occurred

It is known earlier narration, production and market risks probably have the largest impact on agricultural producers. Various market-based risk management solutions have been developed in order to address these sources of risk. These include:

- **Production/weather risk management**

Insurance is another formal mechanism used in many countries to share production risks. However, insurance is not as efficient in managing production risk as derivative markets are for price risks. In contrast, insurance is an appropriate risk management solution for independent risk.

- **Price risk management**

One way producers have traditionally managed price variability is by entering into preharvest agreements that set a specific price for future delivery. These arrangements are known as forward contracts and allow producers to lock in a certain price, thus reducing risk, but also foregoing the possibility of benefiting from positive price deviations.

Contract marketing / farming is an important price risk mitigation tool, becoming popular in the country and should play an important role during the XI Plan period. Contract farming also has

many more direct benign impacts on farm incomes. Market risks are large in specialty crops and vegetables that deter most farmers from investing in them. Through price insurance, credit and technological inputs, contract farming could be an important mechanism by which small farmers can supply high value crops to urban and international markets, while benefiting from assured higher incomes.

3.3 AGRICULTURE INSURANCE

The capacity of the agriculture sector, to hedge itself from the vagaries and aberrations of nature, is considered critical to its development and growth. Many factors, including disasters, can slow the development process, by reducing domestic food supplies and raw materials in the short term. Natural disasters such as drought, floods and cyclones are a major source of risk in agriculture. More than 2/3rd of the cropped acreage is vulnerable to drought, in different degrees. On an average, crops on 12 million ha. of land are damaged annually, by natural calamities and adverse seasonal conditions in the country, grossly impacting the level of agricultural productivity and production. Uncertainty of crop yield is thus one of the basic risks, which every farmer has to face, more or less, in all countries, whether developed, or developing. These risks are particularly high, in developing countries particularly in the tropics as in most of these countries, the overwhelming majority of farmers are poor, with extremely limited means and resources. They cannot bear the risks of crop failure of a disastrous nature.

It is true that much of the present uncertainty of crop production in developing countries like India, could be removed by technical measures and by improvements in the social and institutional set-up. That a complete set of initiatives is needed in this regard goes without saying. Still, a good deal of uncertainty will always be there, as no imaginable measure could make crop production completely independent of natural factors. Also, the physical measures envisioned, need to be justified by their cost-benefit ratio. There may be many places, for example, where flood is preventable, but the cost of prevention measures, would be far out of proportion to their benefit. In such cases, it would be bad economics to spend more capital in preventing a risk, than would be lost by the risk itself (especially where capital is so scarce). Secondly, with a growing population constantly pressing against land, no part of it could be given up for cultivation, simply because it is subject to periodical risks of failure. It is, as much in the country's interest, as in that of the individual owners that such lands should be kept under plough, even if there were occasional risks of failure.

Various methods have been adopted for helping to compensate farmers, at least partially, for loss of their crops through natural calamities. Reduction or suspension of land rent, taxes, cancellation of accumulated agricultural debts (example of Rural & Agricultural Debt Relief Scheme, 1990), and relief from the Calamity Relief Fund (CRF) / National Calamity Contingency Fund (NCCF), are amongst the methods applied so far. Useful though these means have been, farmers cannot expect them as a right. Secondly, the continued prospects of relief, 'soften' its recipients and are also likely to be questioned by the non-farming community. An important measure that is largely free from the above difficulties is crop insurance against all natural and unavoidable hazards.

Crop insurance is a mechanism to protect farmers, against the uncertainties of crop production, due to natural factors, beyond farmer's control. It is also a financial mechanism, which minimizes the uncertainty of loss in crop production, by factoring in a large number of uncertainties, which impact crop yields distributing the loss burden. In a country like India, where crop production is subjected to the vagaries of weather and large-scale damage due to the attack of pests and diseases, crop insurance assumes a very vital role.

The insurance need for agriculture cannot be over emphasized, as it is a highly risky economic activity, on account of its critical dependence on weather conditions. To design and implement an appropriate insurance program for agriculture is therefore a very complex and challenging task. The idea of crop insurance emerged in India, during the early part of the twentieth century. Yet, it was not operated in a significant way till the nineties. It is still evolving in terms of scope, spread and structure

3.3.1 TYPES OF CROP INSURANCE

Crop insurance may be of different types according to different criteria. The types as per criteria used could be:

3.3.1.1 According to Perils insured

- Single Peril insurance: E.g.- Hail insurance
- Named Peril insurance: Up to four perils are covered
- Multi-Peril insurance: At least five or more perils are covered
- All Peril insurance: Covers all natural and non-preventable perils.

3.3.1.2 According to Object insured

- Single crop insurance: A scheme covers a single crop, e.g. Apple insurance against hail & frost.
- Multiple crop insurance: A single scheme covers a host of crops, e.g. National Agricultural Insurance Scheme.

3.3.1.3 According to Basis of administration

- Public insurance: Predominantly government run schemes
- Private insurance: Private insurers, without government support.
- Cooperative insurance: Both Government and private agencies are involved.

3.3.1.4 According to Scope & Application

- Voluntary insurance: Scheme optional for states and / or farmers
- Compulsory insurance: Scheme compulsory for States and / or farmers.
- Optional local application of compulsory insurance: Scheme compulsory for certain crops grown in certain pockets.

3.3.1.5 According to Basis of Unit size

- Individual farm basis: assessment & settlement of claims will be on individual farm / plot basis.
- Individual household approach: assessment & settlement of claims will be on household basis, covering all farms owned or cultivated by a farmer.
- Homogenous Area approach: assessment & settlement of claims will be on Area approach basis, covering groups of farmers growing crops under similar conditions.
- Combinations: A combination of farm/area based assessment, peril nature.

3.3.2. OBJECTIVES OF CROP INSURANCE SCHEME

The objectives of crop insurance scheme are:

- To protect the farmers against the loss of their crops [declared affected crops] due to natural disasters such as hail, drought and flood etc. or the loss of revenue due to decline in the prices of agricultural commodities.
- To encourage the farmers to use progressive agricultural strategies, high yielding seeds and fertilizers, and to use advance technology in the agriculture.
- To stabilize the income of the farmers in the years' of natural calamities

3.3.3. BENEFITS AND CONSTRAINTS OF CROP INSURANCE

Benefits:

Overall benefits of Crop Insurance could be summarized as follows:

- (i) Cushions the shock of disastrous crop loss, by assuring farmers a minimum of protection.
- (ii) Crop Insurance spreads the crop losses, over space and time. As agricultural income is an important factor in national income, crop insurance also has an effect on the prosperity of the country. It gives farmers greater confidence, in making greater investments in agriculture.
- (iii) It improves the position of farmers in relation to agricultural credit.
- (iv) Government is relieved of present uncertain financial burden of providing relief.
- (v) It can help normalize the availability of supplies and stabilize prices.
- (vi) It will help maintain the dignity of farmers.
- (vii) It enables maintenance of systematic records of crop production.

Insurability of Risks:

Not all risks are insurable. To be insurable, a risk must satisfy the following main criteria:

- (i) The probability of a loss in the future, should lend itself to estimation. This is possible only if reliable data of losses, is available for a sufficiently long period in the past.
- (ii) The loss must be capable of being estimated in financial terms.
- (iii) The probability of occurrence should not be too high, to make insurance unaffordable
- (iv) Occurrence of an event, or the damage it causes, should not be affected by the insured's behaviour (Moral Hazard).
- (v) To the extent possible, the risk should be an 'Independent Risk'.

3.3.4 EVOLUTION OF CROP INSURANCE

Risk management in agriculture is a complex proposition. Agriculture, particularly prone to systemic and co-variate risk (a single risk affecting a large number of properties across large geographical regions), doesn't easily lend itself to insurance. Lack of past yield data, small sized farm holdings, low value crops and the relatively high cost of insurance, have further made it more difficult to design, a workable crop insurance scheme.

Despite these constraints, India debated the feasibility of crop insurance schemes, since independence. However, the first concrete attempt could be made only in the 1970s. The summary of schemes evolved till date, is as follows:

3.3.4.1 ORIGIN OF CROP INSURANCE SCHEMES

What a great achievement for Crop Insurance in India i.e. 250 farmers covered in first ever scheme in 1972 to more than 12 Million farmers in 2005. However the experience is not fully satisfactory as less than 10% farmers are brought under the umbrella of crop insurance and a large number of farmers are still reeling in poverty and even committing suicides, as agriculture has become a very risky and non-profitable proposition.

The above referred achievement is obtained by implementing and experimenting various types of schemes and the search is still on to find a more beneficial and economically viable crop insurance scheme.

India is an agriculture country and around 58 per cent (.7Billion population) are engaged in agriculture and allied activities contributing about 15.11% to GDP (2017). Every year, large scale crop failure occur in one part of the country or the other due to various natural calamities such as flood, drought, cyclone etc. and damaging the crops in wide spread areas and making agriculture as the most risky business. Though such farmers were given some support from the government under various schemes but the help was not enough. The subject of crop insurance was discussed in Indian parliament as early as 1950 and Government assured that viable crop insurance scheme would be introduced. Accordingly, Government appointed various committees to suggest a viable crop insurance scheme. The scheme suggested by such committees were not acceptable to the State Governments due to huge financial implications and no insurance company was willing to implement any such scheme because of expected heavy losses.

As elsewhere in the world, policy makers in India were also concerned about the risk and uncertainty prevalent in agriculture. Credit for pioneering work on crop insurance in India goes to Chakarvarti, who in 1920, proposed an agricultural insurance scheme based mainly on rainfall approach. The data on which the scheme was based pertained to Mysore State, but he had an all India perspective. Scheme suggested by him consisted of a package that included insurance of buildings, granaries and agricultural implements; cattle insurance and; insurance of crops. He recognized that at the core of agricultural insurance is the assumption of the risk of loss or

deficiency in respect of crops. Therefore, he attached higher importance to crop insurance than to the insurance of cattle and buildings. The issues then to be decided were: what should be the basis of crop insurance? And, should the crop insurance be on the value of a crop or on its quantity? He admitted that value should be the basis. As the prices and quantity are inversely related, in some cases the value of output in an unfavourable year may be more than in a normal year. However, there are practical problems in estimation of quantity and price to arrive at the value of the crops.

The other issue posed by him related to moral hazard. Crop output depends vitally on the efforts and resources put in by a farmer. No insurance agency can ever maintain a supervisory arrangement that would enable it to watch and ensure that every insured field receives the required amount of care and attention at the hands of its cultivator. Unless some method can be devised by which this difficulty is surmounted, a system of crop insurance for individual field will be well nigh impossible. Moral hazard can be taken care of if partial insurance or under insurance is used i.e. by the method of deductible. However, in crop insurance it is not practicable as the commodity to be insured, i.e. crop is yet to exist, and its existence, nature and quantum would depend on the actions of the insured farmer. In addition, there are other problems e.g. illiteracy of farmers, inadequate statistics, backwardness of infrastructure etc. It is not possible to monitor actions of a farmer. Recognizing these problems, Chakravarti suggested that it would be more practical to introduce indirect system of crop insurance rather than direct system.

The quantity and distribution of rainfall during a year are most important factors determining crop output. Both deficient and excessive rainfall affects crop output, though drought and scare rains affect more. Therefore, he advocated drought insurance. He felt that in a scheme based on rainfall, it would be possible to eliminate the problem of moral hazard and that of estimation of crop yield or value. He also argued that area approach is more feasible (which was in vogue in Europe during that time), a rain gauges cannot be set up on individual fields, even in every village. The first ever attempt to formulate a crop insurance scheme in India was, unfortunately, not put into practice.

A concrete step for introducing crop insurance at the national level was taken only in October 1965. It was decided by the government of the day to draw up a Crop Insurance Bill and a model scheme of crop insurance at the central level in order to help states to introduce crop insurance.

The draft bill was prepared and referred in March 1970 to an expert Committee chaired by Dr. Dharam Narain. The Committee opined that it was not advisable to go in for any type of crop insurance in India, not even on a pilot basis.

3.3.4.2. Scheme based on 'individual' approach (1972-1978)

The first ever scheme started on H-4 cotton in Gujarat was extended later, to a few other crops & states. The scheme covered 3,110 farmers for a premium of Rs. 4.54 lakhs and paid claims of Rs. 37.88 lakhs. The premium claim ratio was as high as 8.34. This experiment was based on individual approach. A few other states also introduced similar schemes.

In 1976, an expert committee headed by Prof. Dandekar looked into issues and modalities of crop insurance in India and revisited Dharam Narain Committee's views. It opted for the introduction of crop insurance, and submitted its report to General Insurance Corporation (GIC) in May 1976.

The report admitted that the individual approach to crop insurance would be the ideal approach to the crop insurance. It is because assessment of the indemnity has to be done separately for each individual based on the actual crop-output of the concerned farmer each year compared to his normal output.

However, it was pointed out that any scheme based on individual approach would prove impracticable at the present juncture in our country because the process of assessing the indemnity separately for each individual would be administratively difficult, highly expensive, liable to interminable disputes and fraught with grave dangers of moral hazard.

3.3.4.3. Pilot Crop Insurance Scheme – PCIS (1979-1984)

The scheme is based on homogenous area approach was put in place on the basis of the recommendation of the Dandekar Committee Report, in 1979-80. General Insurance Corporation in collaboration with the state government introduced this scheme in 26 areas of Gujarat, 23 areas in West Bengal and 17 areas in Tamil Nadu. Subsequently it was extended to other states. The scheme covered Cereals, Millets, Oilseeds, Cotton, Potato, Gram and Barley. It was confined to loanee farmers on voluntary basis. The scheme covered 6.27 lakh farmers who paid premium worth ₹195.01 lakhs. The claims paid amounted to ₹ 155.68 lakhs with claim premium ratio of 0.80.

The details about the coverage, in terms of number of farmers, area covered, premium collected and total claims paid for the PCIS implemented during 1979 through 1984-85 have been presented in Table 3.2.

Table 3.2: Results of PCIS for all India from 1979 to 1985

Particulars	1979- 1980	1980- 1981	1981- 1982	1982- 1983	1983- 1984	1984- 1985	Total
No. of States	3	3	8	9	11	12	-
Area Covered (Ha)	13181	18703	24467	70729	87347	477333	661760
Farmers Covered	16265	23442	24625	50855	60349	447086	622622
Sum Insured*	130.30	165.77	202.82	468.26	653.64	4446.49	6067.28
Premium Collected	5.53	6.93	7.55	15.65	21.15	138.20	195.01
Total Claim Paid	5.29	3.27	9.64	37.32	8.37	91.80	155.68
Claim Ratio (%)	95.71	47.10	127.67	238.46	39.56	66.42	79.83
* Sum Insured, Premium Collected and Claims Paid are in lakh rupees							
Source : Tripathy 1987							

3.3.4.3. COMPREHENSIVE CROP INSURANCE SCHEME – (CCIS) (1985-1999)

Comprehensive crop insurance scheme was an extension of PCIS. It was made compulsory for loanee farmers and was implemented by GIC. The premium rates were 2 per cent of the sum insured for cereals and millets, and 1 per cent for pulses and oilseeds. The central government and the state government shared premium and claims in the ratio of 2:1. Small and marginal farmers received 50% premium subsidy. The limit of sum insured was pegged at Rs. 10,000/- per farmer per hectare. The participation by states was on voluntary basis. The Government of India under the scheme was reimbursing 50 per cent of administrative expenses to GIC. The scheme

was based on an area approach. The details of the scheme for all India from 1985 to 1999 are as follows:

Table 3.3: Results of CCIS for all India from 1985 to 1999

Year	Area	Sum Insured	Premium Collected	Total Claims	Claim / Premium Ratio	Claims Paid
1985	7.69	7.811	138.97	872.63	6.28	872.63
1986	9.84	10.986	195.05	1739.58	8.92	1739.58
1987	11.65	16.161	279.47	2894.73	10.36	2894.73
1988	6.25	7.148	120.00	330.57	2.75	330.57
1989	7.60	10.255	172.50	372.86	2.16	372.86
1990	4.48	7.114	111.62	855.97	7.67	855.97
1991	7.98	11.383	180.88	2013.04	11.13	2013.04
1992	8.43	14.206	229.17	509.55	2.22	509.55
1993	8.08	15.872	255.48	1886.11	7.38	1885.30
1994	8.24	18.769	297.09	580.23	1.95	579.34
1995	9.07	21.638	343.30	1489.65	4.34	1486.74
1996	9.46	24.666	393.52	1722.14	4.38	1717.31
1997	9.69	26.298	414.76	1870.24	4.51	1717.04
1998	10.13	29.110	463.53	1284.39	2.77	685.57
1999	8.97	28.331	440.25	4616.87	10.49	4613.89
Total	127.57	249.749	4035.59	23038.54	5.71	22270.11

Source: Agriculture Insurance Company of Limited, New Delhi

3.3.4.4. 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 entailed 100 percent premium subsidy for small / marginal 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. The working details of the scheme during Rabi 1997-98 is as follows:

Table 3.4: Results of ECIS scheme during Rabi 1997-1998 (Rs. In Crores)

Sr. No.	State	Farmers Covered	Sum Insured	Premium	Claims
01	Andhra Pradesh	118770	57.65	0.86	5.55
02	Assam	3664	2.42	0.05	0.43
03	Karnataka	66114	23.06	0.35	8.00
04	Orissa	26713	17.56	0.28	0.13
05	Tamil Nadu	239294	67.43	1.30	23.69
	Total	454555	168.12	2.84	37.80

The ECIS was discontinued after one season due to its many administrative and financial difficulties.

3.3.4.5. NATIONAL AGRICULTURE INSURANCE SCHEME (NAIS) (1999-2016)

Considering the demands of the farming community and States/ Union territories, the Government of India decided to implement a new scheme in the place of CCIS, called National Agricultural Insurance Scheme (NAIS) - (*Rashtriya Krishi Bima Yojana*) from Rabi 1999-2000.

The scheme is available to all the farmers both loanee and non-loanee, irrespective of the size of their holdings. It envisages coverage of all the food crops (cereals, millets, and pulses), oil seeds, and annual commercial/ horticultural crops, in respect of which past yield data are available for an adequate number of years. Three cash crops, i.e. sugarcane, potato, and cotton will be covered in the first year of its operation. All other annual horticultural and commercial crops will be placed under insurance cover within the next three years subject to the availability of past yield data.

The premium rates are 3.5 per cent of the sum insured for bajra and oil seeds, 2.5 per cent for wheat, and 2 per cent for other Rabi crops. In the case of commercial / horticultural crops, actuarial rates will be charged. Small and marginal farmers will be entitled to a subsidy of 50 per cent of the premium charged on them, which will be shared on 50:50 basis by the Central and the State Governments. The premium subsidy will be phased out over a period of five years.

The new scheme would operate on the basis of Area approach, i.e., defined areas for each notified crops for widespread calamities and on individual-basis for localised calamities such as hailstorm, landslide, cyclone, and flood. Individual-based assessment in case of localised calamities would be implemented initially in a few areas, on an experimental basis, and shall be extended in the light of operational experience gained. Under the new scheme, each participating State / Union Territory will be required to reach the level of *Grama panchayat* as the unit of insurance in a maximum period of three years. The Government has also decided to set up, in due course, an exclusive organisation for implementation of the new scheme in due course. Until such time the new set-up is created, the General Insurance Corporation of India will continue to function as implementing agency.

The total outlay of the Ninth Five-Year Plan period for Crop Insurance is fixed at ₹ 730 crore. During first two years i.e., 1997-'98 and 1998-'99 ₹110 crore were released annually to the GIC for implementation of the scheme. A revised estimate of ₹ 208 crore was kept for implementation of Crop Insurance during 1999-2000. To improve further and make the Scheme easier and more farmer friendly, a proposal on Modified National Agricultural Insurance Scheme (MNAIS) was prepared and was approved by Government of India for implementation on pilot basis in 50 districts from *Rabi* 2010-11 seasons till 2016.

During the Five seasons of its implementation in 17 States, the MNAIS covered 45.80 lakh farmers for a premium of ₹1, 08,800 lakh against the claim of ₹ 86, 400 lakh until *Rabi* 2012-13. The total area insured was 46.79 lakh hectares during the same period.

Strengths of NAIS

- (i) All farmers including loanees, non-loanees, sharecroppers, and tenancy farmers covered under the scheme;
- (ii) Additional crops covered under the scheme including annual, commercial, and horticultural crops;
- (iii) Limits of the sum insured removed.
- (iv) Premium rate rationalised according to the crop;
- (v) Unit area reduced to *panchayat* level;
- (vi) Localised calamities also brought into the purview of coverage; and

(vii) Direct acceptance from non-loanee on experimental basis.

Table 3.5: Season-wise Performance of Modified National Agricultural Insurance Scheme (MNAIS) in India (1999-2000 to 2015-2016)

Year/Season	No. of Farmers Covered	Area Insured (In Hectare)	Rs in lakhs		
			Sum Insured	Gross Premium	Claims Paid
Rabi 1999-00	579940	780569	35641	542	769
Kharif 2000	8409374	13219829	690338	20674	122248
Rabi 2000-01	2091733	3111423	160268	2779	5949
Total 2000-01	10501107	16331252	850607	23452	128197
Kharif 2001	8696587	12887710	750246	26162	49364
Rabi 2001-02	1955431	3145873	149751	3015	6466
Total 2001-02	10652018	16033583	899997	29177	55829
Kharif 2002	9768711	15532349	943169	32547	182439
Rabi 2002-03	2326811	4037824	183755	3850	18855
Total 2002-03	12095522	19570173	1126924	36397	201294
Kharif 2003	7970830	12355514	811413	28333	65268
Rabi 2003-04	4421287	6468663	304949	6406	49710
Total 2003-04	12392117	18824177	1116362	34739	114979
Kharif 2004	12687104	24273394	1317062	45894	103833
Rabi 2004-05	3531045	5343244	377421	7585	16059
Total 2004-05	16218149	29616638	1694482	53480	119892
Kharif 2005	12673833	20531038	1351910	44995	108645
Rabi 2005-06	4048524	7218417	507166	10482	33830
Total 2005-06	16722357	27749455	1859076	55477	142475
Kharif 2006	12934060	19672280	1475936	46729	177622
Rabi 2006-07	4977980	7632882	654221	14288	51597
Total 2006-07	17912040	27305162	2130158	61017	229219

Kharif 2007	13398822	20754747	1700796	52432	91536
Rabi 2007-08	5044016	7387156	746664	15871	81018
Total 2007-08	18442838	28141903	2447461	68303	172554
Kharif 2008	12992272	17636187	1566607	51194	237780
Rabi 2008-09	6210648	8857836	1114871	29572	150976
Total 2008-09	19202920	26494023	2681478	80766	388756
Kharif 2009	18253072	25769817	2761671	86285	453769
Rabi 2009-10	5681148	7899761	1100750	29170	58038
Total 2009-10	23934220	33669578	3862421	115455	511807
Kharif 2010	12682242	17108888	2371090	72179	164177
Rabi 2010-11	4967878	6938628	1101056	29817	65794
Total 2010-11	17650120	24047517	3472145	101995	229971
Kharif 2011	11554561	15776489	2348711	71435	166542
Rabi 2011-12	5239299	7609278	1128394	25768	54254
Total 2011-12	16793860	23385766	3477104	97203	220796
Kharif 2012	10649354	15693701	2719906	87874	278684
Rabi 2012-13	6141726	8691157	1571009	44761	204135
Total 2012-13	16791080	24384857	4290915	132635	482818
Kharif 2013	9746431	14231634	2900469	97772	326002
Rabi 2013-14	3973611	6476265	1254945	29748	104748
Total 2013-14	13720042	20707899	4155415	127519	430750
Kharif 2014	9683645	11547793	2438912	84471	292050
Rabi 2014-15	7009527	9180141	2137997	55056	78050
Total 2014 15(P)	16693172	20727934	4576909	139526	370100
Kharif 2015	20693184	22020704	5258860	183066	136644
Rabi 2015-16(P)	10161135	11780317	2780966	71674	18354
Total 2015-16(P)	30854319	33801021	8039826	254740	1384808
Kharif Seasons Total	192794082	279012072	31407096	1032041	4186413
Rabi Seasons	78361739	112559434	15309824	380384	998601

Total					
Grand Total	271155821	391571507	46716920	1412425	5185014
Abbr.: P: Provisional.					
Source: Ministry of Agriculture & Farmers Welfare, Govt. of India.					

3.3.4.6. FARM INCOME INSURANCE SCHEME (FIIS) (2003-2004)

NAIS protects the farmers only against the yield fluctuations, and the price fluctuations are outside the purview of this scheme. Farmer's income is a function of yield and market prices. Therefore, despite normal production, farmers often fail to maintain their income level due to fluctuations in market prices. To take care of variability in income arising out of fluctuations in the yield and market price, the government introduced a pilot project, viz. Farm Income Insurance Scheme (FIIS) during Rabi 2003-04 seasons. 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. The scheme, however, was withdrawn just after two seasons.

3.3.4.7. STATE CROP INSURANCE

State insurance scheme was been implemented in the Kerala state from 1995. This scheme was modified after 21 years by increasing the insured amount around 12 times more than the previous from March 2017. The main objective of this scheme is to sustain the farmers, who are in agriculture as well as to attract more persons to this enterprise. The purpose of this scheme is to provide insurance coverage to the crop loss caused due to natural disasters. The features of the scheme are as follows:

Crops covered

This scheme covers crops such as coconut, banana, rubber, pepper, cardamom, cocoa, turmeric, cashew nut, pineapple, coffee, tea, ginger, nutmeg, vegetables, sesame, pulses, tuber crops, sugarcane and paddy.

Calamities

Crop losses caused by the following natural calamities are covered. Drought, Flood, Landslide or Landslip or Landfall, Encroachment of sea, Tornado, Storm, Lightning, Forest fire, and Attack of Wild Elephants.

The scheme does not cover any of the crop losses or damages due to pest and disease infestation. Damages caused by wild elephants are included for rural areas of Thiruvananthapuram, Kollam, Pathanamthitta, Idukki, Ernakulam, Thrissur, Palakkad, Malappuram, Kozhikode, Kannur and Wayanad.

Premium rate

- (i) The farmer should remit the premium rate determined by the Government. This amount will not be reimbursed. Premium amount was ₹100 per hectare which was changed to ₹250 per hectare from 2017.
- (ii) (ii) The insured shall be eligible for crop loss caused after seven days of remittance of premium.

Indemnity

- (i) Claims shall be valid only for complete crop loss caused by the factors mentioned above;
- (ii) The price of the damaged crop, if any, shall not be deducted from the indemnity;
- (iii) A part of the crop in a field cannot be insured.
- (iv) The insured should take every possible effort to minimise crop loss;
- (v) The insured shall be given the indemnity fixed by the government from time to time;
- (vi) Aged and unproductive tree crops cannot be insured in the programme;
- (vii) For crops like ginger, turmeric, groundnut, sesame, vegetables, pulses, tuber crops, cardamom, and betel vine, indemnity shall be claimed, if crops in at least 10 per cent of the cropped area are lost due to the calamity;
- (viii) The duration of the insurance coverage for short-duration crops shall be from the seventh day of remittance of premium to the date of harvest.

Membership

- (i) Farmers cultivating in own land or leased-in land are eligible for membership in this scheme.
- (ii) The rice farmers shall insure their crop through *Group Farming Samithis*, but the indemnity shall be provided for individual farmers.

Implementation of the scheme

- (i) The scheme is implemented through *Krishi Bhavans* at the *panchayat* level.
- (ii) The insured submits the application for the scheme through the concerned *Krishi Bhavan*.
- (iii) The *Krishi Bhavan* official visits the field and determines the premium rate.
- (iv) The determined premium rate is collected through an agent and deposited at the District Co-operative Bank.
- (v) The agent is selected by the Agricultural Officer from among the young farmers from each *panchayat* ward.
- (vi) The agent remits the premium and submits the receipt to the *Krishi Bhavan*.

Crop insurance fund

The Crop insurance fund consists of

- (i) The amount deposited by the State Government
- (ii) The amount collected as premium from the insured; and
- (iii) The interest accrued from the fund.

Operation of fund

The Director of Agriculture opens an account in the State Co-operative Bank and the Principal Agricultural Officers (PAO) in the District Co-operative Banks. The premium collected by the agents is transferred to the PAO's account before the first day of the succeeding month. If the amount in the PAO's account exceeds Rs 50,000, it is transferred the same day to the accounts of the Director of Agriculture.

Formalities for claiming indemnity

- (i) The claim should be submitted to the *Krishi Bhavan* within three days of the casualty.

- (ii) The damaged crop should be retained as such till the *Krishi Bhavan* staff visits the field for perusal.
- (iii) The *Krishi Bhavan* staff should visit the field and determine the indemnity within five days of receipt of the claim and should send the report to the Principal Agricultural Officer.

Limit for recommending indemnity

- (i) Agricultural Assistant : Up to Rs 500
- (ii) Agricultural Officer : From Rs 501 to Rs 3000
- (iii) Asst. Director of Agriculture : From Rs.3001 to Rs 10,000
- (iv) Deputy Director of Agriculture : From Rs10001 to Rs 50,000
- (v) Principal Agricultural Officer : Above Rs 50,000

Power for sanctioning the indemnity

- (i) Principal Agricultural Officer: Up to Rs 10000
- (ii) Director of Agriculture: Rs. 10001 to Rs 25000
- (iii) Administrative Committee: Above Rs 25000

Administrative committee

The Administrative Committee shall consist of the Secretary, Department of Agriculture (Chairman), Additional Director of Agriculture (CP) (Convener), Director of Agriculture, Registrar of Co-operatives, State Insurance Director, and Managing Director of State Co-operative Bank.

Compensation

The indemnity will be issued in the form of cheque by the concerned *Krishi Bhavans*.

Collection of premium

The incentives for *Krishi Bhavan* staff and agents for the collection of premium is fixed by the Government as 10 per cent of the total premium collected. The distribution of the incentive will be as follows.

- (i) Agent: 8 per cent



(ii) Agricultural Assistant: 1.5 per cent

(iii) Agricultural Officer: 0.5 per cent

3.3.4.8. WEATHER BASED CROP INSURANCE SCHEME (WBCIS)

Objective of the Scheme

Weather Based Crop Insurance Scheme (WBCIS) aims to mitigate the hardship of the insured farmers against the likelihood of financial loss on account of anticipated crop loss resulting from adverse weather conditions relating to rainfall, temperature, wind, humidity etc. WBCIS uses weather parameters as “proxy” for crop yields in compensating the cultivators for deemed crop losses. Pay-out structures are developed to the extent of losses deemed to have been suffered using the weather triggers.

Coverage of Farmers

All farmers including sharecroppers and tenant farmers growing the notified crops in the notified areas are eligible for coverage. However, farmers should have insurable interest for the notified/insured crops. The non-loanee farmers are required to submit necessary documentary evidence of land records prevailing in the State (Records of Right (RoR), Land possession Certificate (LPC) etc.) and/ or applicable contract/ agreement details/ other documents notified/ permitted by concerned State Government (in case of sharecroppers/ tenant farmers). This is compulsory for all the loanee farmers and voluntary for all non-loanee farmers.

Coverage of Crops

- Food Crops (Cereals, Millets and Pulses)
- Oilseeds
- Commercial / Horticultural crops

Weather Perils to be covered

- (i) Rainfall – Deficit Rainfall, Excess rainfall, Unseasonal Rainfall, Rainy days, Dry-spell, Dry days
- (ii) Temperature– High temperature (heat), Low temperature

(iii)Relative Humidity

(iv)Wind Speed

(v) A combination of the above

(vi)Hailstorm, cloud-burst may also be covered as Add-on/Index-Plus products for those farmers who have already taken normal coverage under WBCIS.

Period of Risk (i.e. Insurance Period)

Risk period would ideally be from sowing period to maturity of the crop.

Reference Unit Area & Premium / sum assured calculation

The scheme operates on the concept of “Area Approach” i.e., for the purposes of compensation, a ‘Reference Unit Area (RUA)’ is defined by state government as a homogeneous unit of Insurance. Such RUA can be a Village Panchayat / Revenue Circle/Mandal/Hobli/Block etc. as defined as per formula, which is based on the ‘cost of production’ and is same for loanee and non loanee farmers and all companies. This sum assured is arrived at by using a formula. The Sum Insured (SI) for each notified crop is pre-defined and will be same for loanee and non-loanee farmers, which will be based on the ‘Scale of finance’ as decided by the District Level Technical Committee.

This RUA shall be notified before the commencement of the season by the state government and all the insured cultivators of a particular insured crop in that area will be deemed to be on par in the assessment of claims. Each RUA is linked to a Reference Weather Station, on the basis of which current weather data and the claims would be processed. Adverse Weather Incidences, if any during the current season would entitle the insured a payout, subject to the weather triggers defined in the ‘Payout Structure’ and the terms & conditions of the Scheme. The “Area Approach” is as opposed to “Individual Approach”, where claim assessment is made for every individual insured farmer who has suffered a loss.

Premium Rates & Premium Subsidy

Table 3.6: Premium rates and premium subsidy of WBCIS

S.No	Season	Crops	Maximum Insurance charges payable by farmer (% of Sum Insured)
1	Kharif	All food grain and oilseed crops (all cereals. Millets, pulses and oilseed crops)	2.0% of SI or Actuarial rate, whichever is less
2	Rabi	All food grain and oilseed crops (all cereals. Millets, pulses and oilseed crops)	1.5% of SI or Actuarial rate, whichever is less
3	Kharif and Rabi	Annual commercial/annual horticultural crops	5.0% of SI or Actuarial rate, whichever is less

Claims Assessment & Settlement

- (i) Insurance company shall be responsible for all claims arising out of adverse weather incidence and shall settle claims strictly as per the terms and conditions of the scheme mentioned in the notification. In case of adverse weather incidence all the insured cultivators growing the notified crop in a RUA shall be deemed to have suffered the same level of adverse weather condition & same proportion of crop loss and become eligible for the same rate of claims.
- (ii) Claims shall be assessed only on the basis of weather data recorded by the notified RWSs or BWS, as the case may be, and the claims process shall commence once the weather data is received.
- (iii) Claims processing should be strictly as per the insurance term sheets, payout structure and the Scheme provisions. Claims shall be worked out as per the Insurance Declarations received from the Nodal Branches/ Nodal Banks for each notified area and crop.
- (iv) All standard Claims should be processed and paid within 45 days from the end of the risk period. Further verification & collection of relevant documents / papers, if required, in

respect of affected farmers should be completed within a period of 30 days from payment of standard claims of season.

(v) Insurance Companies should verify & satisfy themselves about the insured farmers, crops & areas before approaching the Government for release of Subsidy. Cases of area discrepancies under WBCIS will be settled within a maximum period of three months from closing of crop season.

(vi) If observed index value falls below or above, (as the case may be) the notified trigger value, then claims per unit shall be calculated using following formula depending upon index definition: Claims per Unit = (Difference between Observed & Notified index values) X Notional Payout Overall claims will be 'Claims per Unit' X 'Number of units'

Restructured Weather Based Crop Insurance Scheme (RWBCIS)

The RWBCIS was launched on 18th February 2016 by Hon'ble Prime Minister 12 states implemented the scheme in Kharif 2016 whereas 9 states have implemented the scheme in Rabi 2016-17. Approximately 15 lakhs farmers have been insured in the Kharif 2016 for 16.95 lakh ha of land at premium of Rs983.96 crore for a sum insured of Rs8536.53 crore as per figures available on 31.03.2017.

3.3.4.9. COCONUT PALM INSURANCE SCHEME (CPIS)

This scheme is implemented by Agriculture Insurance Company. Although Coconut is a perennial crop, yet the cultivation is subjected to risks from climatic changes, natural disasters, pests, diseases etc. Further, palm trees are characterized by periodic system of crop setting and outcomes and hence resemble seasonal annual crops. Moreover, coconut is cultivated under rain-fed management and is susceptible to biotic and abiotic stresses. Due to the above reasons, there is a separate insurance scheme.

Palm grower covered:

- Individual farmer/ planter / grower offering at least 5 healthy 'nut' bearing palms in contiguous area / plot will be eligible for insurance. The planter / grower shall, insure all eligible palms within a contiguous area. Partial insurance of plantation in contiguous area is not allowed.

- Coconut Development Board (CDB) shall make every effort to get all bearing and healthy palms insured, in cluster villages of district(s).

Palm covered:

- Healthy ‘nut’ bearing coconut palms of all varieties i.e. Tall, Dwarf and Hybrids grown as mono or intercropped, on bunds, farms or homestead can be covered.
- Dwarf and Hybrid coconut palms in age range of 4 to 60 year and Tall variety coconut palms in age range of 7 to 60 year are eligible for coverage. Unhealthy and senile palms will be excluded from coverage.
- Self-declaration of age group by insured planter / grower in insurance proposal is acceptable. However, Implementing Agency (IA) may get the insured palms verified for authenticity, at any time and Insurance becomes void in the event of wrong declaration of age or any material fact by insured, concerning the insurance.

Risk covered:

The scheme covers following perils leading to death / loss of palm or palm becoming un-productive:

- Storm, hailstorm, cyclone typhoon, tornado, heavy rains
- Flood and inundation.
- Pest and diseases of widespread nature causing, irreparable damages to palm.
- Accidental fire, including forest fire and bush fire, lightening
- Earth quake, landslide and tsunami
- Severe drought and consequential total loss

Sum insured & premium:

Coconut Palm age in years	Sum insured per palm (Rs.)	Premium per plant/ year (Rs.)
4th --- 15th	900	9.00
16t h--- 60th	1750	14.00

3.3.4.10. NATIONAL CROP INSURANCE PROGRAMME

This scheme was implemented by the Department of Agriculture and Cooperation, Ministry of Agriculture & Farmers Welfare in 2013. It was started by merging three schemes which are now its component: Modified National Agricultural insurance Scheme (MNAIS), Weather Based Crop insurance Scheme (WBCIS) and Coconut Palm Insurance Scheme (CPIS). The Scheme aims to provide insurance coverage and financial support to the farmers in the event of crops failure as a result of natural calamities, pests and diseases as also to encourage farmers to adopt progressive farming practices, high value inputs and higher technology in agriculture.

3.3.4.11. PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY) - KHARIF 2016 ONWARDS

Realizing the limitations of existing system of crop insurance that was not able to meet the needs of farmers, the NDA government announced a new crop insurance program. PMFBY scheme became operational from Kharif, 2016 with an objective to provide adequate insurance coverage and financial support to the farmers in the event of crop failure.

Features of the new scheme

(i) Sum Insured- The sum insured is equal to the Scale of Finance (SoF) for that crop as fixed by District Level Technical Committee. Sum Insured for individual farmer is now equal to the Scale of Finance per hectare multiplied by area of the notified crop proposed by the farmer for insurance. The scale of finance takes into account the cost of cultivation on the basis of land quality, irrigation expenses and facility as well as cost of fertilizers, seeds and labour which varies from one district to another.

(ii) Premium Rates: The premium rates payable by farmers for Food Crops and Oilseeds (FCOS) is fixed at 2 percent of the Sum Insured or Actuarial rate, whichever is less, for Kharif season and 1.5 percent for Rabi season. For commercial/horticulture crops, premium rate of 5 percent is fixed to be paid by the farmer. The difference between premium rate and rate of insurance payable by farmers will be shared by the Central government and the State government equally as premium subsidy.

(iii) Estimation of Crop Yield: The minimum number of Crop Cutting Experiments (CCEs) required at village level is 4 for major crops and 8 for other crops. Inputs from RST/satellite imagery would also be utilized in optimizing the sample size of CCEs.

(iv) Use of modern technology: The CCEs have been lacking in reliability and speed in estimation of crop yield. The use of mobile based technology with GPS stamping was recommended to improve the quality of data and make faster assessment of claims. The expense in procuring handheld devices/smart phones are to be borne equally by the Centre and the State, with a cap on total funds to be made available by the Central government. The use of technology available in the fields of remote sensing, aerial imagery, satellites etc. would reduce manpower and infrastructure. It is estimated that using a mix of modern technology can be expected to minimize the number of CCEs by about 30 percent.

(v) Role of Private players: The public sector company, Agriculture Insurance Company (AIC) of India along with other public and private insurance companies are participating in the new crop insurance scheme. The selection of Implementing Agency (IA) is made by state governments by adopting a cluster approach consisting of 15-20 'good' and 'bad districts', based on risk profile, with reference to the bid to be laid out. Selection of IA is to be made through competitive bidding up to 3 years.

(vi) Time frame for loss assessment: The cut-off date for the receipt of yield data is within one month of final harvest. Processing, approval and payment of final claims is based on the yield data and it is to be completed within three weeks from receipt of yield data.

(vii) Timely release of premium subsidy to Insurance Companies: The government (both Central and State) must release 50 percent share of premium subsidy to insurance companies, in the beginning of every crop season, based on fair estimates submitted by them, and settle balance of actual premium subsidy for season as soon as final figures are submitted by insurance company.

(viii) Publicity and awareness: Adequate publicity is to be given in all villages of the notified districts through fairs, exhibitions, SMS, short films, electronic and print media and documentaries. The crop insurance portal should be regularly uploaded with all published material information.

3.3.5. CROP INSURANCE IN FOREIGN COUNTRIES

3.3.5.1. Crop Insurance in USA

In 1938, Congress formed the Federal Crop Insurance Corporation (FCIC) to protect the income of the farmer from falling prices and crop failure. The insurance coverage was limited to only wheat and cotton and this programme suffered from heavy losses and low participation rates. Till 1980, this programme was mainly run by the government. With the passage of the Federal Crop Insurance Act of 1980, there is increased involvement of private players that has laid the foundation of its success.

The Federal Crop Insurance Reform Act of 1994 was passed to address the ad hoc disaster compensations that were released from time to time by the government. The participation of farmers in crop insurance programme was made compulsory to be eligible for deficiency payments under price support programmes. As participation in this programme was compulsory, catastrophic (CAT) coverage was created where premium was subsidised. In 1996, the Risk Management Agency (RMA) was created to administer FCIC programmes and other non-insurance related risk management and education programmes that support US agriculture. The RMA of the U.S. Department of Agriculture sets the rates that can be charged and determines which crops can be insured in different parts of the country. Private companies are obligated to sell insurance to every eligible farmer who requests for it. Efforts made by the government led to a substantial increase in area insured and by 1998, more than 180 million acres (73 million hectares) of farmland was insured, covering around 52 percent of cropland, which is almost twice the area insured in 1993. The increase in premium subsidies has made the insurance products more attractive and affordable to farmers.

There are two types of crop insurances available to farmers in the USA: multi-peril crop insurance (MPCI) and crop hail policy.

While the crop hail policy is not a part of the FCIP, they are directly provided to farmers by private insurers. The farmers purchase this policy in areas where crops are affected by frequent hailstorms. They can be purchased at any time in the agricultural season.

On the other hand, MPCCI is overseen and regulated by RMA. This is a public-private partnership programme and 19 private companies are currently authorised by USDA RMA to write MPCCI policies. These policies cover loss in yield due to extreme weather conditions and price risk to protect framers against potential loss in income. The crop insurance products include individual plans as well as area plans.

The government plays an important role not only in subsidising the insurance premium of farmers but also in reimbursing the operating and administrative expenses incurred by private insurers. The subsidy provided by the government accounts for approximately 70 per cent of the total premium amount (including operating and administrative expenses). The insured area has increased to 120 million hectares in 2015. Thus, area insured has increased from 52 percent of cropland in 1998 to 89 percent in 2015. Revenue insurance protects farmers against fluctuations in price and yield and it has become the most popular insurance product in the USA. Although, revenue insurance was tried by several countries including Canada, Europe and Spain, USA is the only country in the world that has been successful in running revenue insurance scheme. At present, revenue premium accounts for nearly 85 per cent of total premium. Different insurance plans have various level of coverage. For example, in the case of actual production history, insurance coverage varies from 50 per cent to 85 per cent of yield and 55 per cent to 100 per cent of price (USDA, Risk Management Agency, 2011).

Year	Insured hectares (million)	Premium (million USD)	Share of premium paid by government (%)
2008	110	9,851	57.77
2009	107	8,951	60.63
2010	104	7,595	62.04
2011	108	11,971	62.33
2012	115	11,114	62.78
2013	120	11,788	61.80
2014	119	10,042	61.69
2015	121	9,747	62.34

Source: (USDA, Risk Management Agency, 2011).

3.3.5.2. Crop Insurance in China

China is one of the few countries in the world which is at risk for a large variety of highly destructive natural disasters. The country is affected by weather calamities such as drought, floods, and hailstorm. According to a report by AIR Worldwide, drought and flood affects 52 per cent and 28 per cent of crop value in China, respectively.

Crop insurance is not new to China as the Peoples Crop Insurance Company of China (PICC) had introduced livestock insurance in the 1950s. Based on the State Council Report submitted by the People's Bank of China (1982), PICC implemented a pilot programme and received a positive response. There was a steep rise in the annual premium from 1982 to 1993 and it covered 29 provinces of China's 34 provinces (including autonomous region and provincial level municipalities). However, the average annual loss ratio⁹ in this period was 105 per cent. From 1993 until 2006, the insurance sector in agriculture witnessed a steep fall as the premium amount fell from around 1000 million Yuan in 1993 to around 200 million Yuan in 2006. One of the primary reasons behind this decline was the high loss ratio coupled with the strong market oriented focus of PICC. In 2006, a policy document of the State Council recommended the exploration of a new model on agriculture insurance based on subsidies from both the central and local governments. It also recommended establishing an agricultural reinsurance system with fiscal support from both the central and the local governments. In 2007, the government approved 1 billion Yuan (USD 130 million) towards an agricultural insurance subsidy. This marked the beginning of a new phase of insurance in the agricultural sector in China. Total premium rose from 0.8 billion Yuan (USD 104 million) in 2006 to 5.3 billion Yuan (USD 690 million) in 2007. Since 2007, there has been a steep rise in premium amount and it crossed 30 billion Yuan (USD 4.8 billion) in 2013. In the same period, the total area insured has increased from 15.3 million hectares in 2007 to 73 million hectares in 2013 and 115 million hectare in 2016.

3.3.5.3. Crop Insurance in Kenya- Kilimo Salama

Agriculture is the main occupation in the Kenyan economy. Around 70 per cent of the workforce still depends on agriculture for their livelihood. Although traditional indemnity-based insurance

products are available to farmers in this region, it has several limitations such as the long time lag in payout of claims, high premium rates and lack of faith in insurance products.

Kilimo Salama (Safe Agriculture) is a weather-index based insurance product developed in 2009 by the Syngenta Foundation for Sustainable Agriculture (SFSA). This was launched in partnership with Safaricom (the largest mobile network operator in Kenya) and UAP (a large insurance company based in Kenya). It insures farm inputs such as seeds and provides complete crop cycle cover for drought and excessive rain. Rainfall is measured using solar powered weather stations and, in case of deviation from normal rainfall, claim payouts are made to farmers. These weather stations are located at a radius of about 15 square kilometres. It monitors rainfall and several other weather parameters such as wind speed, sunlight and temperature and sends data to the central location every 15 minutes using GPRS technology. Since 2012, SFSA has partnered with Columbia University's Earth Institute to ground proof and scale satellite index insurance products.

The foundation has entered into a partnership with Safaricom, which is the largest mobile network operator in Kenya with 80 per cent market share. They developed an application that uses Safaricom mobile technology, M-pesa, to transfer money for claims payout and premiums. Agricultural stockists act as a medium of distribution of insurance products. The farmers are registered with the agro-dealers using barcode which is linked to Cloud-based system. Farmers who purchase insurance embedded seed bags send an SMS to short code with details of unique code, upon which the farmer is automatically registered for insurance. The confirmation message is immediately sent to farmers and they are automatically connected to automated weather stations. Whenever there is a deviation in rainfall, leading to germination failure, the claim amount automatically gets transferred into the accounts of insured farmers. This process does not take more than 4 days and the farmers can use the money for replanting crops. The premium rates vary from 4-13 per cent and this is shared between the farmers and seed companies. The government plays no role in subsidising premium payments.

3.3. Restructure weather based crop insurance scheme in Kerala (RWBCIS) – Kharif 2018

Of the 14 districts of the state, Reference Weather Stations (RWSs) were identified or installed so far for the implementation of RWBCIS in 12 districts barring Alapuzha and Pathanamthitta.

Other 12 districts have been notified for the implementation of the RWBCIS and Agriculture Insurance Company would be the implementing agency.

Crops covered

The crops notified are paddy, arecanut, pepper, ginger, sugarcane, turmeric, cardamom, pineapple, banana and nutmeg.

Table 3.7: Crops covered under RWBCIS Kharif 2018

SI No	Districts	Crops covered
1	Thiruvananthapuram	Paddy ,Banana
2	Kollam	Paddy, Banana, Pepper, Turmeric
3	Kottayam	Banana, Pepper, Pineapple
4	Idukki	Paddy, Banana, Pepper, Turmeric, Ginger, Sugarcane, Cardamom, Pineapple
5	Ernakulam	Paddy, Banana, Pineapple, Turmeric, Nutmeg
6	Thrissur	Paddy, Banana, Arecanut, Nutmeg
7	Palakkad	Paddy, Banana, Pepper, Turmeric, Ginger, Sugarcane, Cardamom, Arecanut
8	Malappuram	Paddy, Banana, Pepper, Turmeric, Arecanut
9	Kozhikode	Paddy, Banana, Pepper, Turmeric, Arecanut
10	Kannur	Paddy, Banana, Pepper, Arecanut
11	Wayanad	Banana, Pepper, Turmeric, Ginger, Cardamom, Arecanut
12	Kasarkode	Paddy, Banana, Pepper, Arecanut

Reference Unit Area, Reference Weather Station and Backup Weather Station for notified crops in Alathur block

Table 3.8: Reference Unit Area, Reference Weather Station and Backup Weather Station for notified crops in Alathur block

SI No	Reference Unit Area	Reference Weather Station	Backup Weather Station
1	Puthukode	NCMSL, AWS STATE Seed Farm Alathur	NCMSL, AWS at Nemmara
2	Kizhakkencherry		
3	Vadakkancherry		
4	Kannambra		
5	Kavassery		
6	Tarur		
7	Erimayur		

CHAPTER IV
ANALYSIS AND INTERPRETATION

CHAPTER IV

ADOPTION OF CROP INSURANCE SCHEMES – AN ANALYSIS

This chapter deals with the findings and analysis on the adoption of crop insurance schemes and the results are presented in the following heads:

Section A: 4.1. Socio-economic profile of farmers

Section B: 4.2. Agronomical profile of farmers

Section C: 4.3. Sources of information about insurance scheme

Section D: 4.4. Awareness of crop insurance among paddy farmers

Section E: 4.5. Attitude of farmers towards crop insurance

Section F: 4.6. Satisfaction level of farmers towards crop insurance'

Section G: 4.7. Constraints encountered by farmers

4.1. Socio-economic profile of farmers

The socio-economic profile of farmers (loanee, non loanee & not insured farmers) such as age, gender, educational qualification, annual income, sources of income were studied & are presented in the table 4.1 to 4.5.

4.1.1. Age of farmers

Table 4.1. Age of farmers

n=120

Age	Loanee (n=40)		Non loanee (n=40)		Not insured (n=40)	
	Number	Percentage	Number	Percentage	Number	Percentage
21 – 40 years	1	2.50	2	5.00	1	2.50
41 – 60 years	17	42.50	20	50.00	14	35.00
Above 60 years	22	55.00	18	45.00	25	62.50
Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

The farmer respondents categorised in to three sections such as 21- 40 years, 41-60 years, and above 60 years. From the table 4.1 it can be understood that in the loanee category majority of the farmers (55%) fall under the age group 60 years and above, followed by 41-60 years (42.5%). Only 2.5% farmers belong to the category 21-40 years. In case of non loanee not insured farmers 62.5 per cent farmers belong to above 60 years category, 14 per cent belong to 41-60 years and 2.5 per cent belongs to 21-40 years. It could be inferred that, more number of farmers belongs to age more than 60 years and middle aged. Therefore, it could be concluded that younger generation are still yet to get entry into farming.

4.1.2. Gender of farmers

Table 4.2. Gender of farmers

n=120

Sex	Loanee (n=40)	Percentage	Non loanee (n=40)	Percentage	Not insured (n=40)	Percentage
	Number	Percentage	Number	Percentage	Number	Percentage
Male	31	77.50	28	70.00	27	67.50
Female	9	22.50	12	30.00	13	32.50
Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

From table 4.2 it could be seen that in the loanee category 77.5 per cent of the farmers are male and 22.5 per cent are female. In the not insured category 67.5 per cent of farmers are male and rest 32.5 per cent are female. And in case of non loanee category 70 per cent of them are male while 30 per cent are female. Hence it could be observed that the number of male farmers is more than that of female farmers with respect to farming.

4.1.3. Educational status of farmers

Table 4.3. Educational status of farmers

n=120

Qualification	Loanee (n=40)		Non loanee (n=40)		Not insured (n=40)	
	Number	Percentage	Number	Percentage	Number	Percentage
Primary	21	52.50	28	70.00	24	60.00
Secondary	19	47.50	12	30.00	16	40.00
Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

Table 4.3. explains the educational status of farmers in the study area. Farmers are classified into five categories as not accessed with formal education, primary, secondary, graduate and post graduate. However, no farmer seen in category like not accessed to formal education, graduate and post graduate. In loanee category 52.50 per cent have primary education and 47.50 per cent have secondary education. In case of not insured farmers 60 per cent farmers have primary education and rest 40 per cent have secondary educational qualification. In non loanee category 70 per cent has primary education and 30 per cent have secondary education. As compared to the past, now farmers are knowledgeable, it facilitate platform for the use of modern technologies among the farmers. It could also be concluded that graduate and post graduates opting more of non-agricultural jobs than farming.

4.1.4 Annual income of farmers

Table 4.4 Annual income of farmers

n=120

Annual income	Loanee (n=40)		Non loanee (n=40)		Not insured (n=40)	
	Number	Percentage	Number	Percentage	Number	Percentage
Less than ₹ 25000	3	7.50	2	5.00	6	15.00
₹ 25000 - ₹ 50000	15	37.50	11	27.50	22	55.00
₹50000 - ₹ 100000	20	50.00	23	57.50	11	27.50
Above ₹ 100000	2	5.00	4	10.00	1	2.50
Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

From the table 4.4, it could be seen that majority farmers in loanee category have an annual income between ₹50000 and ₹100000 with 50 per cent followed by the range ₹25000 and ₹50000 with 37.50 per cent. In case of not insured majority are in the category of ₹25000 and ₹50000 with 55 per cent followed by ₹50000 and ₹100000 with 27.5 per cent. In case of non loanee insured majority are under the category ₹50000 and ₹100000 with 57.5 per cent and ₹25000 and ₹50000 with 27.50 per cent. In all categories, only few account for annual income less than ₹25000 and above ₹100000.

4.1.5 Sources of income

Table 4.5 Sources of income

n=120

Sources	Loanee (n=40)		Non loanee (n=40)		Not insured (n=40)	
	Number	Percentage	Number	Percentage	Number	Percentage
Agriculture	38	95.00	35	87.50	34	85.00
Agriculture and allied activities	2	5.00	5	12.50	6	15.00
Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

The main sources of income of a farmer is categorised into agricultural activities, non-agricultural activities and agriculture and allied activities. From the table 4.5, it is clear that, no

The main sources of income of a farmer is categorised into agricultural activities, non-agricultural activities and agriculture and allied activities. From the table 4.5, it is clear that, no farmer from the sample have depended on the sourced income from non-agricultural activities. In loanee category 95 per cent of the farmer's source of income obtained from agriculture, where as in the case of non loanee insured and non-insured it is 87.50 per cent and 85 per cent respectively. Few farmers also have their source of income from agriculture and allied activities, which accounts for 5 per cent loanee farmer, 15 per cent in case of non loanee non-insured and 12.50 per cent in case of loanee insured farmers. So from the table it can be concluded that the main source of income of farmers in the study area is agriculture. Hence set back in income would affect their livelihood.

4.2. Agronomical profile of farmers

The details of cultivation practices of the farmers were collected in order to understand the nature of farming and the risk faced. The analysis on this key areas are presented in the table 4.6 to 4.13

4.2.1. Ownership and size of land holdings

Table 4.6. Ownership and size of land holdings

n=120

Ownership	Area (in ha)	Loanee (n=40)		Non loanee (n=40)		Not insured (n=40)	
		Number	Percentage	Number	Percentage	Number	Percentage
Owned	Less than 1 ha	22	55.00	25	62.50	25	62.50
	1- 2ha	18	45.00	14	35.00	15	37.50
	2- 4ha	0	0	1	2.50	0	0
	Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

With respect to the study area most of the farmers are cultivating in their own land. They neither lease in nor lease out land for cultivation. Hence, it could be conclude that most of the farmers are cultivating in their own land. From the table 4.6, it could be understood that majority of the farmers have land area less than 1 ha and between 1ha and 2 ha. In loanee category 55 per cent

farmers have land holding less than 1 ha and 45 per cent having land area 1ha – 2ha. In case of not insured farmers, 62.5 of them have land area less than 1ha followed by farmers having land holding 1ha – 2ha with 37.5 per cent. In case of non loanee farmers 62.5 per cent farmers have less than 1ha land area, 35 per cent have area of 1ha -2ha and 2.5 per cent having area 2ha – 4ha. From the table, it could be concluded that with respect to the study area farmers are mostly small marginal farmers.

4.2.2 Season and varieties cultivated

Table 4.7. Season and varieties cultivated

Season	Varieties cultivated	Duration	Average yield kg/acre
Kharif (April to September)	Jyothi	110-120 days	2000
	Kanchana	110-120 days	2000
Rabi-I (October to December)	Uma	130-140 days	2200
Rabi –II (January to March)	Nil	Nil	Nil

Source: Compiled from primary data

Usually there are three cropping seasons practised in Kerala. However, two seasons mainly Kharif and Rabi-I was followed in the study area. During the kharif season farmers mainly prefer Jyothi (110- 120days duration) and few go for Kanchana variety. During Rabi-I farmers in the study area opts for Uma variety with longer crop duration i.e. 130-140 days. For Jyothi, average yield per hectare is 2000kg and in case of Uma it is 2200kg per hectare.

4.2.3. Sources of marketing of produce

Table 4.8. Sources of marketing

n=120

Type of marketing	Loanee (n=40)		Not insured (n=40)		Non loanee (n=40)	
	Number	Percentage	Number	Percentage	Number	Percentage
Supply Co & Private agents	2	5.00	5	12.50	2	5.00
Supply Co	38	95.00	35	87.50	38	95.00
Total	40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

private agents. Similar results also seen in the case of non loanee (95%) and non-insured (87.5). Most of the farmers approached supply co, because it procures the produce from the farmers at MSP (₹1750/quintal for 2018-19) declared by the Government time to time which is greater than in the open market. But some would chose private agents if supply co delayed procuring the produce.

4.2.4 Agricultural risks encountered by farmers

Table 4.9 Agricultural risks encountered by farmers

n=120

Agricultural Risks		Loanee (n=40)		Not insured (n=40)		Non loanee (n=40)	
		Number	Percentage	Number	Percentage	Number	Percentage
Production risks	Low (25%)	0	0	0	0	0	0
	Medium (50%)	11	27.50	18	45.00	9	22.50
	High (75%)	29	72.50	22	55.00	31	77.50
Marketing risks	Low (25%)	38	95.00	35	87.50	38	95.00
	Medium (50%)	2	5.00	5	12.50	2	5.00
	High (75%)	0	0	0	0	0	0
Human Resource risks	Low (25%)	14	35.00	24	60.00	20	50.00
	Medium (50%)	26	65.00	15	37.50	20	50.00
	High (75%)	0	0	1	2.50	0	0
Economic risks	Low (25%)	40	100.00	39	37.50	40	100.00
	Medium (50%)	0	0	1	2.50	0	0
	High (75%)	0	0	0	0	0	0

	High (75%)	0	0	0	0	0	0
Political risk	Low (25%)	40	100.00	40	100.00	40	100.00
	Medium (50%)	0	0	0	0	0	0
	High (75%)	0	0	0	0	0	0

Source: Compiled from primary data

From table 4.9, it could be understood that all the three categories of farmers have encountered mainly production risks 72.5%, 77.5% and 55% respectively. Farmers of the study area also encounter medium level human resource risks with loanee 65%, non loanee insured 50% and non loanee not insured 37.5%. The farmers have been facing human resource risk, due to lack of labourers available for cultivation, because labourers prefer jobs given under the scheme Mahatma Gandhi National Rural Employment Guarantee Act. As the farmers could very well sell their produce through supply co, marketing risk found to be low. However economic and political risks are not well pronounced. Apart from these loss farmers have also mentioned about loss due to wild animals such as pigs, peacock and monkeys which is a headache for the farmers.

4.2.5 Major production risks encountered by paddy farmers

Table. 4.10 Major production risks encountered by paddy farmers

n=120

Agricultural Risks		Loanee (n=40)		Not insured (n=40)		Non loanee (n=40)	
		Number	Percentage	Number	Percentage	Number	Percentage
Pest	Low (25%)	0	0	6	15.00	0	0
	Medium (50%)	25	62.50	23	57.50	28	70.00
	High (75%)	15	37.50	11	27.50	12	30.00
Diseases	Low (25%)	0	0	3	7.50	0	0
	Medium (50%)	23	57.50	25	62.50	28	70.00

	High (75%)	17	42.50	12	30.00	12	30.00
Both pest and diseases	Low (25%)	0	0	1	2.50	0	0
	Medium (50%)	8	20.00	16	40.00	3	7.50
	High (75%)	32	80.00	23	57.50	37	92.50
Weeds	Low (25%)	6	15.00	29	72.50	2	5.00
	Medium (50%)	18	45.00	9	22.50	23	57.50
	High (75%)	16	40.00	2	5.00	15	37.50
Rainfall	Low (25%)	0	0	0	0	0	0
	Medium (50%)	17	42.50	21	52.50	15	37.50
	High (75%)	23	57.50	19	47.50	25	62.50
Wind	Low (25%)	40	100.00	40	100.00	40	100.00
	Medium (50%)	0	0	0	0	0	0
	High (75%)	0	0	0	0	0	0
Temperature	Low (25%)	0	0	0	0	0	0
	Medium (50%)	16	40.00	14	35.00	15	37.50
	High (75%)	24	60.00	26	65.00	25	62.50
Humidity	Low (25%)	40	100.00	38	95.00	40	100.00
	Medium (50%)	0	0	2	5.00	0	0
	High (75%)	0	0	0	0	0	0

Source: Compiled from primary data

From table 4.10 it could be seen that for loanee farmers major production risks are both pest and diseases (80%), temperature (60%) and rainfall (57.5%). For not insured category major production risks also follows somewhat more similar pattern. Non loanee farmers faced the major production risks such as pests and diseases (92.5%), temperature and rainfall (62.5% each). It can be inferred from the analysis, that major production risks in the study area are temperature, rainfall and both pests and diseases. Risks caused by weeds, wind and humidity are found to be less in the study area.

4.2.6 Sources of borrowing

Table 4.11 Sources of borrowing

n=52

Source of Fund		Loanee (n=40)		Not insured (n=8)		Non loanee (n=4)	
		Number	Percentage	Number	Percentage	Number	Percentage
Own		0	0	32	80.00	36	90.00
Institutional sources	Bank	0	0	3	37.50	0	0
	Co- operative s	40	100.00	5	62.50	4	100.00
Total		40	100.00	40	100.00	40	100.00

Source: Compiled from primary data

From the table it could be understood that most of the loanee farmers borrowed fund from co-operatives (100%). Few non loanee farmers (8 and 4 from 40 non loanee and not insure farmers respectively) have also borrowed fund from bank and co-operatives but not as loan. They have borrowed money by pledging goldas for farmers the interest rate is as low as 4% per annum. Other non loanee and not insured respondents used their own fund for cultivation.

4.3 Sources of information about insurance scheme

The sources of information about insurance studied by including the details regarding channels of information and their suitability, modes of communication and effectiveness, relation with channels of information and sources of information for creating awareness, interest and adoption. Table 4.12 to 4.18 shows the analysis of awareness of paddy insurance among farmers.

4.3.1 Channels of information and their suitability

Table 4.12 outline the different channels of information of crop insurance.

Table 4.12 Channels of information of crop insurance

n=80

Sources	Loanee (n=40)		Non loanee (n=40)	
	Number	Percentage	Number	Percentage
Co-operative banks/society	38	95.00	0	0
Krishi bhavan	1	2.50	2	5.00
Service providing agency	1	2.50	9	22.50
Paadashekhara samithi	0	0	29	72.50
Total	40	100.00	40	100.00

Source: Compiled from primary data

From table 4.12 it could be seen that farmers have got information from different sources like cooperatives, krishi bhavan, service providing agency and paadashekhara samithi. In case of loanee farmers 95% got information from Cooperative banks/society and 2.5% from krishi bhavan and 2.5% from service providing agency. In non loanee category 72.5% received information from paadashekhara samiti, 22.5% from service providing agency and 5% from krishi bhavan. It could be interpreted that cooperatives and paadashekhara samiti are the important information source for farmers for crop insurance.

4.3.2. Communication method for crop insurance

Farmers have received information about crop insurance from different modes like personal contact and meeting.

Table 4.13 Communication method for crop insurance

n=80

Communication method	Loanee (n=40)		Non loanee (n=40)	
	Number	Percentage	Number	Percentage
Personal contact	40	100.00	11	27.50
Meeting	0	0	29	77.50
Total	40	100.00	40	100.00

Source: compiled from primary data

Farmers have accessed information from different channels and these channels use different mode of communication. From table 4.13 it is evident that personal contacts were used as a major mode of communication to receive information about crop insurance.

4.3.3 Farmers perception about the effectiveness of communication

Table: 4.14 Farmers perception about the effectiveness of communication

n=80

Effectiveness of communication	Loanee (n=40)		Non loanee (n=40)	
	Number	Percentage	Number	Percentage
More effective	0	0	4	10.00
Effective	33	82.50	36	90.00
Less effective	7	17.50	0	0
Total	40	100.00	40	100.00

Source: Compiled from primary data

From table 4.14 it could be understood that both loanee and non loanee expressed their good opinion about the effectiveness of communication channels with respect to the information about the crop insurance. 82.5% of loanee and 90% of non loanee has good opinion about the effectiveness of communication.

4.3.4 Relation with channels of information

Farmers relation with the channels are shown in the table 4.15

Table 4.15 Relation with channels of information

n=80

Relation with the channels	Loanee (n=40)		Non loanee (n=40)	
	Number	Percentage	Number	Percentage
More than adequate	0	0	6	15.00
Somewhat adequate	40	100.00	34	85.00
Total	40	100.00	40	100.00

Source: Compiled from primary data

Farmers have exhibited different types of relation with the agencies to avail the service. Both categories of farmers have maintained a good relation with the service providing agencies.

4.3.5 Sources of information for creating awareness, interest and adoption

The sources of information for creating awareness, interest and adoption were collected in order to understand the role of these sources in creating awareness, interest and adoption among farmers. Table 4.16, 4.17 and 4.18 shows the analysis of sources of information for creating awareness, interest and adoption.

4.3.5.1 Information sources for creating awareness about crop insurance among farmers

Table 4.16 Information sources for creating awareness about crop insurance

n=80

Sources	Loanee (n=40)		Non loanee (n=40)	
	Average Score	Garrett rank	Average score	Garrett rank
Cooperative bank/society	71.5	1	40	4
Commercial bank	28.37	5	25	5
Krishi bhavan	50	3	55.75	3
Service providing agency	43	4	58.62	2
Paadashekhara samiti	57.37	2	70.87	1

Source: Compiled from primary data

The farmers were asked to rank different sources of information according to degree of influence in creating awareness on crop insurance. In case of loanee farmers, they got awareness mainly from Cooperatives followed by paadashekhara samiti, whereas non loanee farmers, they were mainly influenced by paadashekhara samiti followed by service providing agency and krishi bhavan in case of awareness. Hence it may be concluded that Cooperative bank/society and paadashekhara samiti have played a good role in creating awareness among farmers and further reinforced by the service providing agency in the case of non loanee.

4.3.5.2 Information sources for creating interest about crop insurance

Table 4.17 Information sources for creating interest about crop insurance

n=80

Sources	Loanee (n=40)		Non loanee (n=40)	
	Average Score	Garrett rank	Average score	Garrett rank
Cooperative bank/society	72.5	1	40	4
Commercial bank	28.37	5	25	5
Krishi bhavan	49.75	3	55.75	3
Service providing agency	43	4	58.62	2
Paadashekhara samiti	56.62	2	70.87	1

Source: Compiled from primary data

Creating interest of farmers to adopt the crop insurance is a challenging task and sources play a significant role in this. From the table 4.17 it could be understood, that in case of loanee farmers Cooperative bank/society ranked first in case of degree of influence in creating interest and in case of non loanee farmers mainly through paadashekhara samiti. Krishi bhavan and service providing agencies also played a major role in creating interest among farmers.

4.3.5.3 Role of information sources in adoption of crop insurance

Table 4.18 Role of information sources in adoption of crop insurance

n=80

Sources	Loanee (n=40)		Non loanee (n=40)	
	Average Score	Garrett rank	Average score	Garrett rank
Cooperative bank/society	74.25	1	40	4
Commercial bank	25	5	25	5
Krishi bhavan	51	3	50.75	3
Service providing agency	44.87	4	62.25	2
Paadashekhara samiti	55.25	2	72	1

Source: Compiled from primary data

From the table 4.18 it is evident that Cooperative bank played a vital role in influencing loanee farmers towards adoption of crop insurance. This is because, scheme is mandatory for the farmers those who availed loans, whereas, it is optional for non loanee. For non loanee farmers paadashekhara samiti plays a major role in influencing non-loanee farmers for adopting crop insurance, further supplemented by paadashekhara samiti (62.25%). It can be inferred that peer groups have good influence among the farmers, which would be very much essential for any programme to penetrate to the needy people.

4.4 Awareness of crop insurance among farmers

4.4.1 Awareness level of loanee and non loanee farmers on crop insurance (WBCIS) components

Table 4.19 Awareness level of farmers on crop insurance (WBCIS)

n=80

Sl No	Items	Loanee (n=40)		Non loanee (n=40)	
		Index	Zone	Index	Zone
1	All farmers including share croppers & tenant farmers growing notified crops in notified areas are eligible for coverage	88.33	M	95.83	M
2	WBCIS uses weather parameters as “proxy” for crop yields in compensating the cultivators for deemed crop losses	95.83	H	95.83	M
3	Under WBCIS, insurance coverage is compulsory for all loanee farmers availing seasonal agricultural loans	100	H	98.33	H
4	WBCIS also covers non-loanee farmers on voluntary basis who grow notified crops in notified area	100	H	96.67	M
5	Risk period would ideally be from sowing period to maturity of crop.	100	H	100.0	H
6	Sum insured would be equal to Scale of Finance for that crop as fixed by District Level Technical Committee (DLTC)	33.33	L	100.0	H
7	The Sum Insured (SI) for each notified crop is pre-defined & will be same for loanee & non-loanee farmers.	56.67	M	70.00	M
8	Non-loanee farmers shall submit prescribed proposal forms to the nearest selected commercial bank or RRB branch/PACBs	57.50	M	100.0	H
9	There is a prescribed cut-off dates for the premium Payment (in the case of non-loanee farmers)	55.83	M	69.17	M
10	The service area branch/PACB are the collaborative agency for WBCIS in the micro level	100	H	100.0	H
11	WBCIS operate on the basis of area approach (defined area for each crop called Insurance unit in selected notified Reference Unit Areas (RUAs)	73.33	M	82.50	M
12	Adverse Weather Indices leading to crop loss and subsequent indemnity are rainfall, relative humidity, temperature, wind speed, hail storms & cloud burst.	85.83	M	90.83	M

13	In case of loanee farmers settlement of claim is through bank/PACB	98.33	H	90.83	M
14	Coverage of crops under WBCIS include Food Crops, oil seeds, commercial/ horticultural crops	85.00	M	84.17	M
15	Notified crops in a RUA shall assumes similar adverse weather conditions, crop loss & rate of claims	67.5	M	75.00	M
16	There is one RWS and BWS for each RUA (AWS at Alathur and Nemmara respectively)	68.33	M	71.67	M
17	Claims shall be assessed only on the basis of weather data recorded by the notified RWSs or BWS	44.17	M	49.17	L
18	All standard Claims should be processed and paid within 45 days from the end of the risk period.	36.67	L	36.67	L
19	The loss exclusion due to war and nuclear risks, malicious damage and other preventable risks	51.67	M	52.50	M
20	Claim settlement is an automatic process based on weather readings recorded at the Reference Weather Station (RWS)	55.00	M	56.67	M
21	In a RUA, for a given crop. Payments given per unit area will be the same for all insured cultivators under the same RWS	47.50	M	45.00	L
22	WBCIS addresses the production losses arising out of parametric weather risks notified only	67.5	M	90.83	M
23	Farmers have to pay 2% of sum insured or actuarial premium rate whichever is lower for food crops, 5% for commercial or horticultural crops as premium.	40.00	L	40.83	L
24	Triggers are broadly fixed to capture the incidence of weather parameters on crop yield	33.33	L	33.33	L
25	When actual weather parameter within time period mentioned in benefit table differ compared to specified trigger leading to crop loss then eligible for claim.	33.33	L	34.17	L

Source: Compiled from primary data

Particulars	Loanee (n=40)	Non loanee (n=40)
Overall Index	67.00	74.4
Mean Index (M,I)	66.99	74.4
Standard Deviation (SD)	23.66	23.48

Loanee (n=40)		Non loanee (n=40)	
Index	Zone	Index	Zone
Above 90.65	High	Above 97.88	High
43.33 – 90.65	Medium	50.92– 97.88	Medium
Below 43.33	Low	Below 50.92	Low

The awareness level of loanee and non loanee farmers towards the crop insurance were collected on the components screened from the WBCIS notification 2018 from www.keralaagriculture.gov and presented in table 4.19. By looking into the table it could be seen that majority of farmers in both categories have awareness about the basic components of the scheme but lack of proper awareness in further details of the scheme. They are mainly unaware of in-depth details of the scheme. By comparing awareness level among the respondents, it was noted that loanee and non loanee farmers the later one have more awareness about the crop insurance scheme. This is so happened, because all the procedures related to crop insurance are done by the Co-operative bank and hence the loanee don't have the direct experience, because of the mandatory nature. But in case of non loanee farmers, they have undergone the procedures, so they have reasonable awareness about the insurance. However, both the category of farmers exhibited very poor level of awareness with respect to statements S17, S18, S20, S21, S23, S24, and S25. This might be because, these statements reflected in-depth information about the scheme and it requires much level of understanding.

4.4.2 Awareness about premium and their opinion

Awareness and opinion of farmers about premium and the opinion of farmers about premium were collected and presented in table 4.20

Table 4.20 Awareness and opinion about premium paid

n=80

Factors	Awareness				Opinion			
	Loanee n= 40		Non loanee n=40		Loanee n=40		Non loanee n=40	
	Number	Perce t-age	Number	Perce t-age	Number	Perce t-age	Number	Perce t-age
Aware	40	100.00	40	100.00	-	-	-	-
Not aware	0	0	0	0	-	-	-	-
Total	40	100.00	40	100.00	-	-	-	-
Affordable	-	-	-	-	8	20.00	29	72.50
Somewhat affordable	-	-	-	-	12	30.00	11	27.50
Not affordable	-	-	-	-	20	50.00	0	0
Total	-	-	-	-	40	100.00	40	100.00

Source: Compiled from primary data

The amount of premium paid by each farmer differs from others based on the acreage cultivated. From the table 4.20 it could be seen that all farmers of both categories are aware about the premium paid. For loanee farmers even it is mandatory, they keep a check on the premium. It could be understood from the table that 50% of the loanee farmers found the premium high. In case of non loanee farmers majority of them (72.5%) could afford to pay the premium amount. It can be concluded that, loanee farmers are taking insurance, because it is mandatory not because they could afford it.

4.4.3 Awareness about sum insured and their opinion

Awareness about sum insured and their opinion was collected and presented in table 4.21

Table 4.21 examines the awareness and opinion of respondents about sum insured

Table 4.21 Awareness and opinion about sum insured

n=80

Factors	Awareness				Opinion			
	Loanee n= 40		Non loanee n=40		Loanee n=40		Non loanee n=40	
	Number	Percent -age	Number	Percent -age	Number	Percent -age	Number	Percent -age
Aware	32	80.0	33	82.5	-	-	-	-
Not aware	8	20.0	7	17.5	-	-	-	-
Total	40	100.0	40	100.0	-	-	-	-
Highly satisfied	-	-	-	-	0	0	0	0
Satisfied	-	-	-	-	15	37.5	35	87.5
Dissatisfied	-	-	-	-	25	62.5	5	12.5
Highly dissatisfied	-	-	-	-	0	0	0	0
Total					40	100.0	40	100.0

Source: Compiled from primary data

From table 4.21 it could be analysed that majority of loanee (80%) and non loanee (82.5%) are aware of the sum insured. It may be conclude that both loanee and non loanee farmers are aware of the sum insured, but the percentage shown was slightly more in case of non loanee farmers. From table, it could be seen that loanee farmers 37.5 per cent have satisfied with the sum insured, but 62.5 per cent are dissatisfied with the sum insured. In case of non loanee category majority of farmers (87.5%) satisfied with the sum insured. It may be concluded that non loanee farmers are more satisfied with the sum insured than loanee.

4.4.4 Payout received and their opinion

Table 4.22 Details of payout received

n=80

Parameters	Loanee n= 40	Percentage	Non loanee n=40	Percentage
Got payout	40	100.0	40	100.0
Didn't get payout	0	0	0	0
Total	40	100.0	40	100.0

Source: Compiled from primary data

From table 4.22 it could be understood that all the farmers of both category has got payout for 2017. According to different reference unit area payout differs. As the block had a dry spell during the specified time all got payout where for some farmers the amount they got was around ₹5000 per ha and some even got around ₹20000 per ha.

Table 4.23 Opinion about payout received

n=80

Parameters	Loanee n= 40	Percentage	Non loanee n=40	Percentage
Loss covered	0	0	0	0
Somewhat covered	12	30.0	35	87.5
Not covered	28	70.0	5	12.5
Total	40	100.0	40	100.0

Source: Compiled from primary data

From the table it could be seen that for majority of the loanee farmers (70%) the payout obtained didn't cover the loss and for 30 per cent loanee farmers the loss was somewhat compensated by the payout. In case of non loanee farmers (87.5%) of farmers the payout declared somewhat covered the loss. Regarding the opinion collected from both categories, it could be concluded that the payout received was not adequate to cover the losses. Farmers are taking crop insurance, not because it covers the loss, but instead of having nothing for them it is better to get payout to cover at least some of the losses.

4.4.5 Factors that urged the farmers to go for crop insurance

Table 4.24 Factors that urged the loanee farmers to opt crop insurance

n=40

S I No	Factors	Highly urged	Somewhat urged	Least urged	Index	Zone
S1	High Probability of occurrence of climatic risk	2 (5.00)	9 (22.50)	29 (72.50)	44.17	M
S2	Increased production cost	0 (0)	14 (35.00)	26 (65.00)	45.00	M
S3	Compulsion from bank while taking the loan	40 (100.00)	0 (0)	0 (0)	100.00	H
S4	Awareness about benefits of the scheme	2 (5.00)	7 (17.50)	31 (77.50)	42.50	M
S5	An experimental desire	0 (0)	0 (0)	40 (100.00)	33.33	M

S6	Compulsion from agencies concerned	0 (0)	0 (0)	40 (100.00)	33.33	M
S7	Easy access to loan	40 (100)	0 (0)	0 (0)	100.00	H
S8	Encouraged by experienced farmer	0 (0)	8 (20.00)	32 (80.00)	40.00	M
S9	Peer group farmers influence	0 (0)	13 (32.50)	27 (67.5)	44.17	M

Figures in parenthesis show percentage

Source: Compiled from primary data

Overall Index = 53.61

Mean Index (M,I) = 53.61

Standard Deviation (SD)= 25.10

Index	Zone
Above 78.75	High
28.47 –78.75	Medium
Below 28.47	Low

Table 4.24 delineate the factors which forced the loanee farmers to take crop insurance. It could be seen that the main factors for adoption are easy access to loan and compulsion from bank while taking loan for which all farmers were highly motivated. Increased production cost also somewhat motivated the loanee farmers (35%) to think of crop insurance.

Table 4.25 Factors that forced the non loanee farmers to opt crop insurance

n=40

S No	I Factors	Highly urged	Somewhat urged	Least urged	Index	Zone
S1	High Probability of occurrence of climatic risk	28 (70.00)	12 (30.00)	0 (0)	90	H
S2	Increased production cost	0 (0)	21 (52.50)	19 (47.50)	50.83	M
S3	Compulsion from bank while taking the loan	0 (0)	0 (0)	40 (100.00)	33.33	L
S4	Awareness about benefits of the scheme	21 (52.50)	12 (30.00)	7 (17.50)	78.33	M
S5	An experimental desire	3 (7.5)	3 (7.5)	34 (85.00)	40.83	M
S6	Compulsion from agencies concerned	12 (30.00)	28 (70.00)	0 (0)	76.67	M
S7	Easy access to loan	0 (0)	0 (0)	40 (100.00)	33.33	L
S8	Encouraged by experienced farmer	0 (0)	25 (62.50)	15 (37.50)	54.17	M
S9	Peer group farmers influence	28 (70.00)	12 (30.00)	0 (0)	90	H

Figures in parenthesis show percentage

Source: Compiled from primary data

Overall Index = 60.83

Mean Index (M,I) = 60.83

Standard Deviation (SD)= 21.89

Index	Zone
Above 82.72	High
38.94 –82.72	Medium
Below 38.94	Low

From the table 4.25 it could be understood that the major factors forced the non loanee farmers to go for crop insurance were peer group farmers influence (70%), high probability of occurrence of climatic risk (70%), awareness about benefits of the scheme (52.5%). Compulsion from agencies (70%) and encouragement from the experienced farmers (62.5%) somewhat motivated the farmes to go for crop insurance. Paadashekhara samiti played an important role in influencing farmers towards crop insurance.

4.4.6 Reasons for non-adoption of crop insurance

Table 4.26 Reasons for non-adoption of crop insurance

n=40

S I No	Factors	Highly influenced	Moderately influenced	Least influenced	Index	Zone
1	Less probability of risk occurrence in the study area	14 (35.00)	10 (25.00)	16 (40.00)	65	M
2	Lack of confidence in new insurance product	3 (7.50)	26 (65.00)	11 (27.50)	60	M
3	Lack of awareness about the crop insurance scheme	21 (52.50)	19 (47.50)	0 (0)	84.17	H
4	Bad experience of other fellow farmers	11 (27.50)	21 (52.50)	8 (20.00)	69.17	M
5	Lack of courage for an experiment	6 (15.00)	22 (55.00)	12 (30.00)	61.67	M
6	Inadequate pay out structure to meet out the cost of cultivation	1 (2.50)	13 (32.50)	26 (65.00)	45.83	L
7	Unreachable location of insurance agency	12 (30.00)	24 (60.00)	4 (10.00)	73.33	M
8	Difficulties in procedural formalities	11 (27.50)	24 (60.00)	5 (12.50)	71.67	M
9	Complex documentation	4 (10.00)	14 (35.00)	22 (55.00)	51.67	L
10	Non realisable premium amount	16 (40.00)	18 (45.00)	6 (15.00)	75	M

Figures in parenthesis show percentage

Source: Compiled from primary data

Overall Index = 65.75

Mean Index (M,I) = 65.75

Standard Deviation (SD)= 10.83

Index	Zone
Above 76.58	High
54.92 –76.58	Medium
Below 54.92	Low

The factors which lead to the non-adoption of crop insurance by non loanee farmers are presented in table 4.26. It could be understood that the major factors, which lead to the non-adoption were previous bad experience of others (52.5%), non-realizable premium amount (40%) and less probability of risk occurrence (35%). Factors such as lack of confidence (65%), unreachable location of insurance agency (60%) and cumbersome procedural formalities (60%) also moderately influenced for non-adoption behaviour.

4.4.7 Discontinuation of paddy insurance by the respondents and its reasons

Table 4.27 and 4.28 presents the details of discontinuation from crop insurance and its reasons.

Table 4.27 Discontinuation from crop insurance

n=40

Parameters	Not insures farmers (n=40)	Percentage
Discontinued	16	40.00
Not taken yet	24	60.00
Total	40	100.00

Source: Compiled from primary data

Table 4.28 Factors which led to discontinuation of crop insurance

n=16

SI No	Factors	Highly influenced	Somewhat influenced	Least influenced
1.	Less probability of risk occurrence	7 (43.80)	4 (25.00)	5 (31.30)
2.	Previous bad experience	5 (31.30)	10 (62.50)	1 (6.30)
3.	Inadequate pay out structure to meet out the cost of cultivation	5 (31.30)	7 (43.80)	4 (25.00)
4.	Dissatisfaction in premium structure	9 (56.30)	5 (31.30)	2 (12.50)
5.	Non coverage of complete risk	10 (62.50)	6 (37.50)	0 (0)
6.	Non availability of loans	0 (0)	0 (0)	16 (100.00)
7.	One has to go long distance to access banking facility to remit premium	7 (43.80)	7 (43.80)	2 (12.50)
8.	Lack of information of crop insurance schemes	9 (56.30)	7 (43.80)	0 (0)
9.	More time required for settling claims	10 (62.50)	5 (31.30)	1 (6.30)
10.	Covers only production losses arising out of parametric weather risks	12 (75.00)	4 (25.00)	0 (0)
11.	Absence of insurance agent at the micro level	8 (50.00)	6 (37.50)	2 (12.50)

Figures in parenthesis show percentage

Source: Compiled from primary data

From table 4.27 it could be understood that among the non-insured farmers 40% have taken insurance before and later discontinued. The factors which led to the discontinuation main factors are this crop insurance mainly because it only covers the production losses arising out of parametric weather risks (75%), more time required for settling claims (62.50%) and non-coverage of complete risks (62.50%).

4.5 Attitude of farmers towards crop insurance

Attitude of farmers (loanee and non loanee towards crop insurance was measured by obtaining their responses on twelve different statements constructed for the purpose. The statements and their indices are given in the table 4.29 and 4.30.

4.5.1 Attitude of loanee farmers towards crop insurance

Table 4.29 presents the attitude of loanee farmers towards crop insurance

Table 4.29 Attitude of loanee farmers towards crop insurance

n=40

Sl No	Parameters	SA (4)	A (3)	D (2)	SD (1)	Total score obtained	Total score obtainable	Index	Zone
S1	Successful implementation of crop insurance programme requires community participation	10 (40)	30 (90)	0 (0)	0 (0)	130	160	81.25	H
S2	Crop insurance is not a costly affair	0 (0)	21 (63)	13 (26)	6 (6)	95	160	59.37	M
S3	Crop insurance reduces migration of labour	0 (0)	0 (0)	21 (42)	19 (19)	61	160	38.12	M
S4	Crop insurance is a precautionary measure against crop failure	0 (0)	26 (78)	14 (28)	0 (0)	106	160	66.25	M
S5	Mandatory insurances encourages farmers to avail crop insurances	6 (24)	26 (78)	8 (16)	0 (0)	118	160	73.75	M
S6	Crop insurances helps in getting high turnover	0 (0)	0 (0)	12 (24)	28 (28)	52	160	32.50	L
S7	Crop insurance offers re employment to agricultural labourers	0 (0)	0 (0)	8 (16)	32 (32)	48	160	30.00	L

S8	Crop insurance is not a compulsory programme	0 (0)	0 (0)	15 (30)	25 (25)	55	160	34.37	L
S9	Non-loanee farmers are not encouraged for crop insurance	14 (56)	26 (78)	0 (0)	0 (0)	134	160	83.75	H
S10	Crop insurance does overcome depression due to sudden loss in agriculture	0 (0)	22 (66)	18 (36)	0 (0)	102	160	63.75	M
S11	Crop insurance does not increase the efficiency of farmers	17 (68)	23 (69)	0 (0)	0 (0)	137	160	85.62	H
S12	Crop insurance is an effective risk mitigation measure available for farmers.	0 (0)	0 (0)	27 (54)	13 (13)	67	160	41.87	M

Figures in parenthesis indicate score

Source: Compiled from primary data

Note: "HS" indicates Highly Satisfied, "S" indicates Satisfied, "DS" indicates Dissatisfied and "HDS" indicates Highly dissatisfied.

Overall Index = 57.55

Mean Index (M,I) = 57.55

Standard Deviation (SD) =20.33

Index	Zone
Above 77.88	High
37.22 – 77.88	Medium
Below 37.22	Low

The selected loanee farmers expressed their 'medium' level of attitude towards the statement regarding crop insurance as it is indicated by overall index of 57.55%. It is evident that loanee

farmers couldn't strongly agree with all the matters related to crop insurance. From the table it could be seen that the index for the statement crop insurance is an effective risk mitigation tool is medium. It could be concluded that the crop insurance couldn't become an effective & efficient risk mitigation tool for farmers. It could be inferred from the result that even though the crop insurance covered important risks, the overall performance of the insurance could not be in agree with the needs of the farmers.

4.5.2 Attitude of non loanee farmers towards crop insurance

Table 4.30 Attitude of non loanee farmers towards crop insurance

n=40

SI No	Parameters	SA (4)	A (3)	D (2)	SD (1)	Total score obtained	Total score obtainable	Index	Zone
S1	Successful implementation of crop insurance programme requires community participation	12 (48)	18 (54)	0 (0)	0 (0)	102	160	63.75	M
S2	Crop insurance is not a costly affair	0 (0)	40 (120)	0 (0)	0 (0)	120	160	75	M
S3	Crop insurance reduces migration of labour	0 (0)	0 (0)	18 (36)	22 (22)	58	160	36.25	L
S4	Crop insurance is a precautionary measure against crop failure	0 (0)	31 (93)	9 (18)	0 (0)	111	160	69.37	M
S5	Mandatory insurances encourages farmers to avail crop insurances	7 (28)	24 (72)	9 (18)	0 (0)	118	160	73.75	M
S6	Crop insurances helps in getting high turnover	0 (0)	0 (0)	13 (26)	27 (27)	53	160	33.12	L
S7	Crop insurance offers re employment to agricultural labourers	0 (0)	0 (0)	11 (22)	29 (29)	51	160	31.87	L
S8	Crop insurance is not a compulsory programme	14 (42)	26 (52)	0 (0)	0 (0)	94	160	58.75	M

S9	Non-loanee farmers are not encouraged for crop insurance	0 (0)	15 (45)	25 (50)	0 (0)	95	160	59.37	M
S10	Crop insurance does overcome depression due to sudden loss in agriculture	17 (68)	22 (66)	1 (2)	0 (0)	136	160	85	H
S11	Crop insurance does not increase the efficiency of farmers	18 (72)	22 (66)	0 (0)	0 (0)	138	160	86.75	H
S12	Crop insurance is an effective risk mitigation measure available for farmers.	0 (0)	2 (6)	35 (70)	3 (3)	79	160	49.37	M

Figures in parenthesis indicate score

Source: Compiled from primary data

Note: "HS" indicates Highly Satisfied, "S" indicates Satisfied, "DS" indicates Dissatisfied and "HDS" indicates Highly dissatisfied.

Overall Index = 60.15

Mean Index (M,I) = 60.19

Standard Deviation (SD) = 18.37

Index	Zone
Above 78.56	High
41.82 – 78.56	Medium
Below 41.82	Low

The selected non loanee farmers expressed their medium level of attitude towards the statements regarding crop insurance as it is indicated by the overall index of 60.1563%. It is evident that the non loanee farmers could not strongly agree with all the statements related to crop insurance. From the table we could see that the statement Crop insurance is an effective risk mitigation

measure available for farmers got medium index. It can be interpreted that the crop insurance couldn't become an effective and efficient risk mitigation tool for farmers as it ought to be.

4.6 Satisfaction level of farmers towards crop insurance

Satisfaction level of loanee and non loanee farmers towards crop insurance are measured by obtaining their responses for eight statements. These are presented in table 4.32 and 4.33

Table 4.31 presents the level of satisfaction of loanee farmers towards crop insurance

Table 4.31 Level of satisfaction of loanee farmers towards crop insurance n=40

Sl No	Components	HS (5)	S (4)	SWS (3)	DS (2)	HD S (1)	Total score obtained	Index	Zone
1	Procedural formalities to fill up the policy proposal	2 (10)	24 (96)	14 (42)	0 (0)	0 (0)	148	74	M
2	Facility available for remitting premium	0 (0)	1 (1)	18 (54)	21 (42)	0 (0)	100	50	M
3	Coverage options available for the policy	0 (0)	9 (36)	10 (30)	21 (42)	0 (0)	108	54	M
4	Procedure for settlement of claims	0 (0)	10 (40)	23 (69)	7 (14)	0 (0)	123	61.5	M
5	Premium chargeable	0 (0)	0 (0)	4 (12)	24 (48)	12 (12)	72	36	L
6	Time taken to settle claim for pay out	0 (0)	6 (24)	2 (6)	32 (64)	0 (0)	94	47	M
7	Intervention of AIC	0 (0)	0 (0)	0 (0)	33 (66)	7 (7)	73	36.5	L
8	Bank support extended for policy holders	30 (150)	10 (40)	0 (0)	0 (0)	0 (0)	190	95	H

Figures in parenthesis indicate score

Source: Compiled from primary data

Note: "HS" indicates Highly Satisfied, "S" indicates Satisfied, "SWS" indicates Somewhat satisfied "DS" indicates Dissatisfied and "HDS" indicates Highly dissatisfied.

Overall Index = 56.75

Mean Index (M,I) = 56.75

Standard Deviation (SD) = 18.61

Index	Zone
Above 75.36	High
38.14 – 75.36	Medium
Below 38.14	Low

Overall index of 56.75% indicates that the farmers have medium level of satisfaction with components of crop insurance. The component C8 got the highest indices (95.0). The remaining five components (1=74.0, 2=50, 3=54, 4=61.5 and 6=41) got medium indices and the rest two shows low indices. This shows that the loanee farmers were having medium level of satisfaction with the features of crop insurance.

Table 4.32 presents the level of satisfaction of non loanee farmers towards crop insurance

Table 4.32 Level of satisfaction of non loanee farmers towards crop insurance n=40

Sl No	Components	HS (5)	S (4)	SWS (3)	DS (2)	HDS (1)	Total score obtained	Index	Zone
1	Procedural formalities to fill up the policy proposal	0 (0)	12 (48)	10 (30)	13 (26)	5 (5)	109	54.5	M
2	Facility available for remitting premium	0 (0)	0 (0)	4 (12)	19 (38)	17 (17)	67	33.5	M
3	Coverage options available for the policy	0 (0)	4 (16)	12 (36)	24 (48)	0 (0)	100	50	M
4	Procedure for settlement of claims	5 (25)	12 (48)	18 (54)	5 (10)	0 (0)	137	68.5	H

5	Premium chargeable	8 (40)	23 (92)	9 (27)	0 (0)	0 (0)	159	79.5	H
6	Time taken to settle claim for pay out	0 (0)	0 (0)	4 (12)	28 (56)	8 (8)	76	38	M
7	Intervention of AIC	0 (0)	3 (12)	24 (24)	13 (26)	0 (0)	110	55	M
8	Bank support extended for policy holders	0 (0)	0 (0)	0 (0)	10 (20)	30 (30)	50	25	L

Figures in parenthesis indicate score

Source: Compiled from primary data

Note: “HS” indicates Highly Satisfied, “S” indicates Satisfied, “SWS” indicates Somewhat satisfied “DS” indicates Dissatisfied and “HDS” indicates Highly dissatisfied.

Overall Index = 50.50

Mean Index (M,I) = 50.50

Standard Deviation (SD) = 17.76

Index	Zone
Above 68.26	High
32.74 – 68.26	Medium
Below 32.74	Low

Overall index of 50.50% indicates that the non loanee farmers have medium level of satisfaction with components of crop insurance. The component C4 and C5 got the highest indices (68.5 and 79.5 respectively). Remaining components got medium indices except for C8 (25.00) which got a low index.

4.7 Constraints faced by farmers in adoption of crop insurance

Table 4.33 outlines the constraints faced by loanee and non loanee farmers.

Table 4.33 Constraints faced by loanee farmers and non loanee farmers

n=80

SI No	Particulars	Loanee farmers (n=40)		Non loanee farmers (n=40)	
		Average score	Garrett rank	Average score	Garrett rank
1	Pay-outs are not made on time	73.22	2	76.63	1
2	Inadequate payment of compensation	80.07	1	75.25	2
3	Very high premium rates	54.12	5	24.48	10
4	Post-harvest losses are not covered	50.62	6	47.33	7
5	Complex documentation	24.85	10	19.98	11
6	Lack of in depth awareness about crop insurance	64.72	3	69.20	3
7	Procedural formalities are very difficult	36.47	9	47.88	5
8	Scheme does not cover even if beneficiary suffer loss	60.22	4	61.43	4
9	No better transport and communication facilities	21.67	11	32.95	9
10	Distance of PACS/RRB/commercial banks is very long distance	41.62	8	47.13	8
11	Distance of farm from weather station	42.37	7	47.78	6

Source: Compiled from primary data

From the table 4.34 it could be understood that the major constraints faced by both loanee and non loanee are pay-outs are not made on time, inadequate payment of compensation and lack of in depth awareness about crop insurance. For non loanee procedural formalities are difficult as they have to pay the premium themselves in case of absence of insurance agent and for loanee it can be directly remitted in bank while taking loan.

Chapter V

**SUMMARY OF FINDINGS, SUGGETIONS AND
CONCLUSION**

CHAPTER V

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSIONS

Kerala is rich in bio resources. Rice is the main food of Kerala, but area under rice declining from time to time because of risk involved in the farming. In Palakkad, which accounts for the largest acreage under paddy lost around 63,000 hectares in the last 30 years (The Hindu, 2017). It is widely acknowledged that the tremendous technological economic advancement in the past decades has not been inclusive and the economic conditions of the farming community and continue to be extremely unstable due to natural calamities and market fluctuations.

The risk bearing capacity of an average farmer is very limited. Binswanger (1980), after studying the risk in agricultural investments risk averting tendencies of the farmers and available strategies for shifting risk, concludes that farmers own mechanisms for loss management or risk diffusion are very expensive. Comprehensive protective measures and mechanisms to protect interest of ordinary farmers to cushion the shock of crop losses, hence the topic assume importance. Crop insurance can play a significant role as a mechanism to stabilise the farm income and help the farmers to initiate production activity after a bad agricultural year.

The study confined to Alathur, Tharur, Erimayur and Vadakanchery villages of Alathur block in Palakkad. The farmers were categorised in three groups (Loanee, Non loanee and Non loanee not insured.) were selected. A sample size of 120 farmers was selected by applying simple random sampling method (40 loanee and 40 non loanee insured) and convenient sampling (40 not insured farmers). The data required for the study were analyzed with the help of percentages, averages, Garrett ranking, mean index, and standard deviation. The major findings and the conclusions drawn from the study are summarized in the succeeding session

Socio economic characteristics of respondents

- The age group of farmers who are engaged in cultivation are above 60, which comprises of 55% of loanee and 62.5% of non loanee farmers. Younger generations are not shown interest in farming

- Among the sample farmers, the number of male farmers are more in number which comprises of 77.5% loanee , 70% non loanee and 67.5% not insured farmers
- Farmers have relatively less educational status with majority having primary education.
- The main source of income for the paddy growers mainly from agriculture

Crop production details of farmers

- All the farmers cultivating in their own land, and holdings ranged from less than 1 ha to 2 ha.
- The farmers have grown varieties like Jyothi, Kanchana and Uma.
- The farmers, who approach Supply Co, to sell their produce and remaining used for self-consumption.
- The major production risks, reported in the study area were pests and diseases. It is learnt that farmers are comfortably safer with the production process concern.

Sources of information in creating awareness, interest and adoption

- Co-operative banks, Paadashekhara samiti and Krishi Bhavan played a good role in creating awareness about crop insurance
- Compared to Krishi Bhavan and Co-operative bank, Paadashekhara samiti has played a good role in creating interest among paddy farmers. Co-operative banks played a vital role in influencing loanee farmers for adopting crop insurance. Paadashekhara samiti has a great influence on the non loanee farmers to adopt of crop insurance.

Awareness of crop insurance among farmers

- Majority of farmers in this category have awareness about the basic components of the scheme, but lack proper awareness in further details of the scheme.
- Non loanee farmers are aware about the components of the crop insurance scheme. They are mainly unaware of in-depth details of the scheme.
- All farmers of both categories have awareness about the premium paid. For loanee farmers even it was mandatory, they keep a check on the premium.

- About fifty percent of the loanee farmers opinioned that the premium paid was high. In case of non-loanee farmers majority (72.5%) of them could afford the premium amount.
- Majority of loanee (80%) and non-loanee (82.5%) known about the sum insured.
- 62.5 per cent loanee farmers shown dissatisfaction with the sum insured. In case of non-loanee category majority of farmers (87.5%) satisfied with the existing sum insured.

Factors influencing the farmers to adopt the crop insurance scheme

- For loanee farmers, the main factors for adoption are easy access to loan and compulsion from bank while taking loan for which all farmers were highly motivated.
- The major factors forced the non-loanee farmers to opt crop insurance are
 - i) Peer group farmers influence (70%),
 - ii) High Probability of occurrence of climatic risk (70%),
 - iii) Awareness about benefits of the scheme (52.5%).
- The major factors which lead to the non-adoption were
 - i) Bad experience of others (52.5%),
 - ii) Non-realizable premium amount (40%)
 - iii) less probability of risk occurrence (35%).
- 40% of the not insured farmers discontinued the insured for which the main reasons were crop insurance mainly covers the production losses arising out of parametric weather risks (75%), more time required for settling claims (62.50%) and non-coverage of complete risks (62.50%).

Attitude of farmers towards crop insurance

- The selected loanee farmers expressed their 'medium' level of attitude towards the crop insurance as it is indicated (Index value: 57.55%).
- The non loanee farmers expressed their medium level of attitude towards the crop insurance (Index value: 60.15%).

Satisfaction level of farmers towards crop insurance

- Loanee farmers have medium level of satisfaction with components of crop insurance (Index value: 56.75%).



- The non loanee farmers have medium level of satisfaction with components of crop insurance (Index value: 50.50%).

Constraints faced by farmers in adoption of crop insurance

- In case of loanee farmers the major difficulties they face are pay-outs are not made on time, inadequate payment of compensation and lack of indepth awareness about crop insurance.
- The major constraints faced non-loanee are also the same such as pay-outs are not made on time, inadequate payment of compensation and lack of in depth awareness about crop insurance. For non-loanee procedural formalities are difficult as they have to pay the premium themselves in case of absence of insurance agent.

SUGGESTIONS

1. Intensification of promotional efforts by the Insurance service providers using modern and traditional media, so as to keep the paddy farmers well informed about the schemes which could increase adoption of crop insurance.
2. Educate and empower the farmers about each and every aspects of the scheme to ensure transparency.
3. The awareness about features of Crop Insurance directly influences the attitude towards adoption of crop insurance. So the insurance service providers should focus on clear explanation of the features to the paddy famers to improve their level of attitude and to increase adoption.
4. AIC should arrange training for all the insurance service providers especially about the details of programme, procedural formalities etc., for better serving its beneficiaries and satisfying all of them.
5. There should be permanent area level agent/ para extension worker to communicate with farmers, to ensure the adoption of crop insurance and to collect periodic feedback from the farmers. Some could be appointed from the paadashekhara samitis as they have direct and a good influence the farmers.

6. The insurer should communicate the result of the scheme season wise after the end of each risk period to the insured paddy farmer even if it is favourable or unfavourable through quick way of communication. Otherwise they will simply discontinue or have a bad impression on the crop insurance without knowing the real reason behind non receipt of pay out or the taking to receive it. .
7. Systematic and timely disposal of claim should be ensured to avoid discontinuation of crop insurance schemes by the farmers.
8. AIC should make periodical changes/ amendments based on the feedback of farmer received from time to time for the effective programme implementation.
9. New media tools like whatsapp could be used for communicating and transfer of information among farmers and officials in charge.
10. Motivating graduate youngsters to take agriculture and as they are educated they could influence others also to adopt insurance.
11. Restructuring sum insurance according to the changes in expenses such as expense for agri inputs, fuel charges etc.
12. Including loss occurrence caused by wild animals such as pig, monkeys and peacock as the study area faces much loss due to wild animals.

CONCLUSION

Crop insurance is purchased by agricultural producers, including farmers, to protect themselves against either the loss of their crops due to natural disasters, such as hail, drought, and floods, or the loss of revenue due to declines in the prices of agricultural commodities. Agriculture in India is highly susceptible to risks like droughts and floods. It is necessary to protect farmers from natural calamities and ensure their credit eligibility for the next season. For this purpose, the Government of India introduced many agriculture crop insurance schemes throughout India. In this context, insurance companies are playing a major role to help the farmers. To encourage the farmers, the insurance company should understand the needs of the farmers, but understanding farmers is complex, as it is related to psychology of farmers and also depends on various factors, which have a direct bearing on climatic changes.

Predominance of much experienced and educated paddy farmers might provide an ample scope for crop Insurance as it is a new insurance product in terms of spread and acceptance among the paddy farmers. But the acceptance of Crop insurance in terms of features such as area approach, premium subsidy and level of indemnity is very limited. Farmers would like to have individual approach rather than area approach. Farmers are able to understand the newly emerged policies and programmes related to agriculture and most of them are ready to experiment these nowadays compared to previous years. High reduction in paddy yield due to pests and diseases, flood and drought force the farmers to adopt risk mitigation tool available. But, the lack of satisfaction in Crop Insurance and bad experience from the same made reduction in the spread and acceptance of Crop Insurance among paddy farmer.



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APPENDIX

ADOPTION OF CROP INSURANCE SCHEMES IN ALATHUR,

PALAKKAD DISTRICT

INTERVIEW SCHEDULE FOR FARMERS

(Academic purpose only)

1. Name and address of farmer:

2. Age:

Less than 20 years	21-40 years	41-60 years	Above 60 years

3. Sex

Male	Female

4. Educational Qualification

Not accessed with formal education	Primary	Secondary	Graduate	Post Graduate

5. Panchayat : _____

6. Ward No: _____

7. Contact No: _____

8. Unit of insurance with name:

9. Annual income (Rs):

10. Sources of income:

Agriculture	Non-Agriculture	Agriculture & allied activities

11. Total size of land holdings(in acres):

Owned		Leased in		Leased out		Total	
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12. Crops grown:

SL no	Crops grown in your land	Season	Annual yield obtained(in kg)

13. Details of paddy cultivation:

SEASONS	VARIETY	AREA (IN ACRES)	ANNUAL YIELD OBTAINED (IN KG/ACRE)	REMARKS
Kharif – Virippu (April to September)				
Rabi-I - Mundakan (October to December)				
Rabi-II – Puncha (January to March)				

14. Details of yield obtained over years:

YEAR	VARIETY GROWN	ANNUAL YIELD (IN KG/ACRE)	REMARKS
2013			
2014			
2015			
2016			
2017			

15. Details of other enterprises:

ENTERPRISES	UNIT	INSURED	REMARKS
Animal husbandry			
Poultry			
Diary			
Piggery			

16. Income obtained from the allied enterprise over years:

YEAR	ANNUAL INCOME (IN RS)			
	ANIMAL HUSBANDRY	POULTRY	DIARY	PIGGERY
2013				
2014				
2015				
2016				
2017				

17. Where the produce obtained being marketed:

Supply co	Private agents	Self consumption	Both Supply co and private

18. Major agricultural risks encountered in your area in the last five years:

FACTORS	DEGREE OF RISK		
	LOW (25%)	MEDIUM (50%)	HIGH (75%)
Production risks			
Marketing risks			
Human resource risks			
Economic risks			
Political risks			

19. Indicate the major production risks encountered in paddy cultivation as experienced by you:

FACTORS	DEGREE OF RISK IN TERMS OF YIELD REDUCTION		
	LOW (25%)	MEDIUM (50%)	HIGH (75%)
Pest			
Diseases			
Both pest and diseases			
Weeds			
Rainfall			
Wind			
Temperature			
Humidity			
Other risks if any (specify)			

20. How will you meet out the fund required for cultivation?

Own fund		borrowed	
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21. Please provide the sources of borrowing:

INSTITUTIONAL SOURCES		NON-INSTITUTIONAL SOURCES			
Bank	Co-operatives	Private money lender	Agents	Friends	Others

22. Details of crop loan taken for cultivation from the financial institution

YEAR	AREA (in acres)	LOAN AMOUNT (in Rs)	REPAYMENT OF LOAN	SOURCE OF FINANCE	REMARKS/ REASONS
2013					
2014					

2015					
2016					
2017					

23. Are you aware about crop insurance scheme operated to paddy crop in your area?

YES/NO	If Yes, mention the name of the schemes operated				

24. Did you take crop insurance for your paddy crop?

YES/NO	If yes, whether you belongs to loanee or non loanee category			Other crops insured	
	Loanee		Non- loanee		

25. Kindly provide following information regarding paddy insurance taken:

Year	Season	Area (in acres)	Category L/NL*	Premium paid (in Rs)	Channel through which premium paid	Mode of Payment for Non- loanee			Remarks /Reasons
						Cash	DD	e-transaction	

*L-Loanee, NL Non loanee

26. Channels of information sources regarding crop insurance:

Channels of information source	Mode of communication	Effectiveness of communication (VG/G/B/VB)*	Relationship & linkage with the channels (VG/G/B/VB)*	Suitability of channels for communication (MS/S/SW/NS)*

VG- Very Good, G. Good, B- Bad, VB- Very Bad

MS-Most Suitable, S. Suitable, SW. Some What Suitable, NS- Not Suitable

27. Access to information sources and its role in creating awareness & adoption

Source	Rank in the order of degree of influence		
	Awareness	Interest	Adoption
Co-Operative Banks/ Society			
Commercial Banks			
Krishi Bhavan			
Service Providing agency			
Paadashekhara samiti			

28. Awareness level of farmers on crop insurance scheme/ programme

Sl No	Items	Awar e	Somewhat aware	Not aware	Remark s
1.	All farmers including share croppers & tenant farmers growing the notified crops in notified areas are eligible for coverage				
2.	WBCIS uses weather parameters as “proxy” for crop yields in compensating the cultivators for deemed crop losses.				
3.	Under WBCIS, insurance coverage is compulsory for all loanee farmers availing seasonal agricultural loans				
4.	WBCIS also covers non-loanee farmers on voluntary basis who grow the notified crops in notified area				
5.	Risk period would ideally be from sowing period to maturity of the crop.				
6.	Sum insured would be equal to Scale of Finance for that crop as fixed by District Level Technical Committee (DLTC)				
7.	The Sum Insured (SI) for each notified crop is pre-defined and will be same for loanee and non-loanee farmers,				
8.	Non-loanee farmers shall submit prescribed proposal forms to the nearest selected commercial bank or RRB branch/PACBs				
9.	There is a prescribed cut-off dates for the premium Payment (in the case of non-loanee farmers)				
10.	The service area branch/PACB are the collaborative agency for WBCIS in the micro level				
11.	WBCIS operate on the basis of area approach i.e., defined area for each crop called Insurance unit in selected notified Reference Unit Areas (RUAs)				
12.	Adverse Weather Indices leading to crop loss and subsequent indemnity are rainfall, relative humidity,				

	temperature, wind speed, hail storms & cloud burst.				
13.	Loanee farmers will be insured under compulsory category while non-loanee farmers will be insured under voluntary category				
14.	In case of loanee farmers settlement of claim is through bank/PACB				
15.	Coverage of crops under WBCIS (Food Crops, oil seeds, commercial/ horticultural crops)				
16.	In case of adverse weather incidence all the insured cultivators growing the notified crop in a RUA shall be deemed to have suffered the same level of adverse weather condition & same proportion of crop loss and become eligible for the same rate of claims.				
17.	Claims shall be assessed only on the basis of weather data recorded by the notified RWSs or BWS				
18.	All standard Claims should be processed and paid within 45 days from the end of the risk period.				
19.	The loss exclusion due to war and nuclear risks malicious damage like theft and fire other than natural				
20.	Claim settlement is an automatic process based on weather readings recorded at the Reference Weather Station (RWS)				
21.	In a RUA, for a given crop. Payments given per unit area will be the same for all insured cultivators under the same RWS				
22.	WBCIS addresses the production losses arising out of parametric weather risks only				

29. Awareness about premium and subsidy component of crop insurance

Category of farmers (L/NL)*	Are you aware about the premium amount paid (A/NA)*	Opinion about the premium (A/SA/H/NA)*	Are you aware about the % of premium subsidy (YES/NO)	If yes How much?	Opinion about the premium subsidy (L/E/NE)*	Remarks

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* L-Loanee, NL-Non-loanee

*A-Aware, NA-Not Aware

"A- Affordable, SA- Some What Affordable, H-High, NA- Not Affordable

*L- Little, E- Enough, NE- Not Enough

30. Awareness about sum insured and pay out:

Category of farmers (L/NL)*	Are you aware about the sum insured amount (YES/NO)	Opinion about sum insured (HS/S/D S/HDS)*	Have you got any payout so far (YES/NO)	If yes in which year? Please mention	If yes, was it enough to cover the loss occurred (Y/SW/N)*	Remarks

*L-Loanee, NL-Non-loanee

*HS- Highly Satisfied, S- Satisfied, DS- Dissatisfied, HDS- Highly Dissatisfied

*Y- Yes, SW- Somewhat, N- No

31. Amount loss due to production risk, paid out so far

Year	Amount loss	Amount payout
2013		
2014		
2015		
2016		
2017		

32. Indicate the factors which forces you to go for crop insurance

Sl No	Factors	Rank in the order of degree of motivation		
		HI	SWM	LM
1.	High Probability of occurrence of risk			
2.	Increased production cost			
3.	Compulsion from bank while taking the loan			
4.	Proper awareness about the scheme			
5.	An experimental desire			
6.	Compulsion from agencies			
7.	Easy access to loan			
8.	Encouraged by experienced farmer			
9.	Other factors (if any)			

HM – Highly motivated, SWM – Somewhat motivated, LM – Less motivated

33. Attitude of paddy farmers towards crop insurances

Sl No	Parameters	SA	A	DA	SDA
1.	Successful implementation of crop insurance programme requires community participation				
2.	Crop insurance is not a costly affair				
3.	Crop insurance reduces migration of labour				
4.	Crop insurance is a precautionary measure against crop failure				
5.	Mandatory insurances encourages farmers to avail crop insurances				
6.	Crop insurances helps in getting high turnover				
7.	Crop insurance offers re employment to agricultural labourers				
8.	Crop insurance is not a compulsory programme				
9.	Non-loanee farmers are not encouraged for crop insurance				
10.	Crop insurance does overcome depression due to sudden loss in agriculture				
11.	Crop insurance creates disparity among farmers				
12.	Crop insurance does not increase the efficiency of farmers				
13.	Crop insurance decreases the self reliance				

SA- Strongly Agree, A- Agree, DS- Disagree, SDA- Strongly disagree

34. Level of satisfaction of paddy farmers on crop insurance scheme/ programme

Sl No	Components of PMFBY/ other crop insurance	HS	S	SW	DS	HDS	Reasons
1.	Procedural formalities to fill up the policy proposal						
2.	Coverage options available for the policy						
3.	Procedure for settlement of claims						
4.	Maximum sum insured						
5.	Indemnity level fixed						
6.	Premium chargeable						
7.	Time taken to settle claim or payout						
8.	Promotional efforts made by banks/ PACBs						
9.	Intervention of AIC						
10.	Bank support extended for policy holders						
11.	Facility available for remitting premium						

HS- Highly Satisfied, S- Satisfied, SW-Some What Satisfied, DS- Dissatisfied

HDS-Highly Dissatisfied

35. Whether the existing/ on-going crop insurance scheme suited for your area? If no, what kind of modification you suggest to improve the scheme for maximum reach out effect?

Yes	No	Suggestions

36. To what extend the crop insurance scheme taken support sustainable income from farm?

Did the insurance compensate the loss incurred/ safe guard from to total crop loss due to natural calamities:

37. To what extend the crop insurance scheme operated in your area safe guard you from the recent Kerala flood 2018

38. Constraints encountered in adoption of crop insurance

SI No	PARTICULARS	RANK ACCORDING TO DEGREE OF DIFFICULTY
1.	Pay-outs are not made on time	
2.	Inadequate payment of compensation	
3.	Very high premium rates	
4.	Post-harvest losses are not covered	
5.	Subsidy amount of premiums is very low	
6.	Complex documentation	
7.	Lack of in depth awareness about crop insurance	
8.	Procedural formalities are very difficult	
9.	Scheme does not cover even if beneficiary suffer loss	
10.	No better transport and communication facilities	
11.	Distance of PACS/RRB/commercial banks is very long distance	
12.	Distance of farm from weather station	

39. Other details

Insurance orientation	Yes/No	Details
1. Did you insure your life (self)		
2. Did you insure for your family members		

3. Did you take cattle insurance		
4. Did you insure your house		
5. Did you insure your vehicle		
6. Did you insure your go down		
7. Did you insure valuable household articles (TV, fridge, laptop etc)		
8. Did you take health insurance policy (self/family members)		

**ADOPTION OF CROP INSURANCE SCHEMES IN ALATHUR,
PALAKKAD DISTRICT
INTERVIEW SCHEDULE FOR FARMERS**

(Academic purpose only)

1. Name and address of farmer:
2. Panchayat : _____
3. Ward No: _____
4. Contact No: _____
5. Age:

Less than 20 years	21-40 years	41-60 years	Above 60 years

6. Sex

Male	Female

7. Educational Qualification

Not accessed with formal education	Primary	Secondary	Graduate	Post Graduate

8. Unit of insurance with name:
9. Annual income (Rs):
10. Sources of income:

Agriculture	Non-Agriculture	Agriculture & allied activities

11. Total size of land holdings(in acres):

Owned	Leased in	Leased out	Total

12. Crops grown:

SL no	Crops grown in your land	Season	Annual yield obtained(in kg)

13. Details of paddy cultivation:

SEASONS	VARIETY	AREA (IN ACRES)	ANNUAL YIELD OBTAINED (IN KG/ACRE)	REMARKS
Kharif – Virippu (April to September)				
Rabi-I - Mundakan (October to December)				
Rabi-II – Punched (January to March)				

14. Details of yield obtained over years:

YEAR	VARIETY GROWN	ANNUAL YIELD (IN KG/ACRE)	REMARKS
2013			
2014			
2015			
2016			
2017			

15. Details of other enterprises:

ENTERPRISES	UNIT	INSURED	REMARKS
Animal husbandry			
Poultry			
Diary			
Piggery			

16. Income obtained from the allied enterprise over years:

YEAR	ANNUAL INCOME (IN RS)			
	ANIMAL HUSBANDRY	POULTRY	DIARY	PIGGERY
2013				
2014				
2015				
2016				
2017				

17. Where the produce obtained being marketed:

Supply co	Private agents	Self-consumption	Both Supply co and private

18. Major agricultural risks encountered in your area in the last five years:

FACTORS	DEGREE OF RISK		
	LOW (25%)	MEDIUM (50%)	HIGH (75%)
Production risks			
Marketing risks			
Human resource risks			
Economic risks			
Political risks			

19. Indicate the major production risks encountered in paddy cultivation as experienced by you:

FACTORS	DEGREE OF RISK IN TERMS OF YIELD REDUCTION		
	LOW (25%)	MEDIUM (50%)	HIGH (75%)
Pest			
Diseases			
Both pest and diseases			
Weeds			
Rainfall			
Wind			
Temperature			
Humidity			
Other risks if any (specify)			

20. How will you meet out the fund required for cultivation?

Own fund		Borrowed		Both	
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21. Please provide the sources of borrowing:

INSTITUTIONAL SOURCES			NON-INSTITUTIONAL SOURCES							
Bank		Co-operatives	Private money lender		Agents		Friends		Others	

22. Are you aware about crop insurance scheme operated to paddy crop in your area?

YES/NO	If Yes, mention the name of the schemes operated							
	MNAIS		RWBCIS		PMFBY		STATE CROP INSURANCE	

23. Did you take crop insurance for your paddy crop?

YES/NO	If yes, whether you belongs to loanee or non loanee category			Other crops insured
	Loanee		Non- loanee	

24. Kindly provide following information regarding paddy insurance taken:

Year	Season	Area (in acres)	Category L/NL*	Premium paid (in ₹)	Channel through which premium paid	Mode of Payment for Non-loanee			Remarks /Reasons
						Cash	DD	e-transaction	

*L-Loanee, NL Non loanee

25. Channels of information sources regarding crop insurance:

Channels of information source	Mode of communication	Effectiveness of communication (VG/G/B/VB)*	Relationship & linkage with the channels (VG/G/B/VB)*	Suitability of channels for communication (MS/S/SW/NS)*

VG- Very Good, G. Good, B- Bad, VB- Very Bad

MS-Most Suitable, S. Suitable, SW. Some What Suitable, NS- Not Suitable

26. Access to information sources and its role in creating awareness & adoption

Source	Rank in the order of degree of influence		
	Awareness	Interest	Adoption
Co-Operative Banks/ Society			
Commercial Banks			
Krishi Bhavan			
Service Providing agency			
Paadashekhara samiti			

27. Awareness about State Crop Insurance Scheme

Are you aware about State Crop Insurance Scheme (YES / NO)

If Yes

Have you taken that insurance	Yes			No
	individual		Group	
Are you satisfied with the scheme(Yes / No)				
If yes, why?				
What are the difficulties you face under this scheme				
Suggestions for improvement, if any				

28. Awareness level of farmers on crop insurance scheme/ programme

Sl No	Items	Aware	Somewhat aware	Not aware	Remarks
1.	All farmers including share croppers & tenant farmers growing the notified crops in notified areas are eligible for coverage				
2.	WBCIS uses weather parameters as "proxy" for crop yields in compensating the cultivators for deemed crop losses.				
3.	Under WBCIS, insurance coverage is compulsory for all loanee farmers availing seasonal agricultural loans				
4.	WBCIS also covers non-loanee farmers on voluntary basis who grow the notified crops in notified area				
5.	Risk period would ideally be from sowing period to maturity of the crop.				
6.	Sum insured would be equal to Scale of Finance for that crop as fixed by District Level Technical Committee (DLTC)				
7.	The Sum Insured (SI) for each notified crop is pre-defined and will be same for loanee and non-loanee farmers,				
8.	Non-loanee farmers shall submit prescribed proposal forms to the nearest selected commercial bank or RRB branch/PACBs				
9.	There is a prescribed cut-off dates for the premium Payment (in the case of non-loanee farmers)				
10.	The service area branch/PACB are the collaborative agency for WBCIS in the micro level				
11.	WBCIS operate on the basis of area approach (defined area for each crop called Insurance unit in selected notified Reference Unit Areas (RUAs)				
12.	Adverse Weather Indices leading to crop loss and subsequent indemnity are rainfall, relative humidity, temperature, wind speed, hail storms & cloud burst.				

13.	In case of loanee farmers settlement of claim is through bank/PACB				
14.	Coverage of crops under WBCIS include Food Crops, oil seeds, commercial/ horticultural crops				
15.	Notified crops in a RUA shall assumes similar adverse weather conditions, crop loss and rate of claims				
16.	There is one RWS and BWS for each RUA (AWS at Alathur and Nemmara respectively)				
17.	Claims shall be assessed only on the basis of weather data recorded by the notified RWSs or BWS				
18.	All standard Claims should be processed and paid within 45 days from the end of the risk period.				
19.	The loss exclusion due to war and nuclear risks, malicious damage and other preventable risks				
20.	Claim settlement is an automatic process based on weather readings recorded at the Reference Weather Station (RWS)				
21.	In a RUA, for a given crop. Payments given per unit area will be the same for all insured cultivators under the same RWS				
22.	WBCIS addresses the production losses arising out of parametric weather risks notified only				
23.	Farmers have to pay 2% of sum insured or actuarial premium rate whichever is lower for food crops, 5% for commercial or horticultural crops as premium.				
24.	It is not yield guarantee insurance				
25.	Triggers are broadly fixed to capture the incidence of weather parameters on crop yield				
26.	When actual weather parameter within time period mentioned in benefit table differ compared to specified trigger leading to crop loss then eligible for claim.				

Abbreviations used: RUA -Reference Unit Area, AWS- Automated Weather Station

RWS – Reference Weather station, BWS – Back up Weather Station

29. Indicate the factors which led to non-adoption of crop insurance

SI No	Factors	Rank according to degree of influence		
		HI	MI	SWI
1.	Less probability of risk occurrence			
2.	Lack of confidence in new product			
3.	Lack of awareness about the scheme			
4.	Bad experience of others			
5.	Lack of courage for an experiment			
6.	Inadequate pay out structure to meet out the cost of cultivation			
7.	Unreachable location of insurance agency			
8.	Difficulties in procedural formalities			
9.	Complex documentation			
10.	Non realisable premium amount			
11.	Other factors (if any)			

HI – Highly influenced, MI – Moderately influenced, SWI – Somewhat influenced

30. Attitude of paddy farmers towards crop insurances

SI No	Parameters	SA	A	DA	SDA
1.	Successful implementation of crop insurance programme requires community participation				
2.	Crop insurance is not a costly affair				
3.	Crop insurance reduces migration of labour				
4.	Crop insurance is a precautionary measure against crop failure				
5.	Mandatory insurances encourages farmers to avail crop insurances				
6.	Crop insurances helps in getting high turnover				
7.	Crop insurance offers re employment to agricultural labourers				
8.	Crop insurance is not a compulsory programme				
9.	Non-loanee farmers are not encouraged for crop insurance				
10.	Crop insurance does overcome depression due to sudden loss in agriculture				
11.	Crop insurance creates disparity among farmers				
12.	Crop insurance does not increase the efficiency of farmers				
13.	Crop insurance decreases the self-reliance				
14.	Crop insurance is an effective risk mitigation measure available for farmers.				

SA- Strongly Agree, A- Agree, DS- Disagree, SDA- Strongly disagree

31. Have you ever discontinued the earlier/present crop insurance scheme

Yes							No		
NAIS		MNAIS		WBCIS		RWBCIS		PMFBY	

If yes, please indicate the factors which led you to discontinue the particular crop insurance:

SI No	Factors	Rank according to degree of influence		
		HI	MI	SWI
1.	Less probability of risk occurrence			
2.	Previous bad experience			
3.	Inadequate pay out structure to meet out the cost of cultivation			
4.	Dissatisfaction in premium structure			
5.	Non coverage of complete risk			
6.	Non availability of loans			
7.	One has to go long distance to access banking facility to remit premium			
8.	Lack of information of crop insurance schemes			
9.	Credit assessment is low from government			
10.	More time required for settling claims			
11.	Covers only production losses arising out of parametric weather risks only			

HI – Highly influenced, MI – Moderately influenced, SWI – Somewhat influenced

32. To what extent the crop insurance scheme operated in your area safe guard you from the recent Kerala flood 2018

33. Other details

Insurance orientation	Yes/No	Details
1. Did you insure your life (self)		
2. Did you insure for your family members		
3. Did you take cattle insurance		
4. Did you insure your house		
5. Did you insure your vehicle		
6. Did you insure your go down		
7. Did you insure valuable household articles (TV, fridge, laptop etc)		
8. Did you take health insurance policy (self/family members)		

ADOPTION OF CROP INSURANCE SCHEMES IN ALATHUR,

PALAKKAD DISTRICT

INTERVIEW SCHEDULE FOR FARMERS

(Academic purpose only)

1. Name and address of farmer:
2. Panchayat : _____
3. Ward No: _____
4. Contact No: _____
5. Age:

Less than 20 years	21-40 years	41-60 years	Above 60 years

6. Sex

Male	Female

7. Educational Qualification

Not accessed with formal education	Primary	Secondary	Graduate	Post Graduate

8. Unit of insurance with name:

9. Annual income (Rs):

10. Sources of income:

Agriculture	Non-Agriculture	Agriculture & allied activities

11. Total size of land holdings(in acres):

Owned	Leased in	Leased out	Total

12. Crops grown:

SL no	Crops grown in your land	Season	Annual yield obtained(in kg)

13. Details of paddy cultivation:

SEASONS	VARIETY	AREA (IN ACRES)	ANNUAL YIELD OBTAINED (IN KG/ACRE)	REMARKS
Kharif – Virippu (April to September)				
Rabi-I - Mundakan (October to December)				
Rabi-II – Punched (January to March)				

14. Details of yield obtained over years:

YEAR	VARIETY GROWN	ANNUAL YIELD (IN KG/ACRE)	REMARKS
2013			
2014			
2015			
2016			
2017			

15. Details of other enterprises:

ENTERPRISES	UNIT	INSURED	REMARKS
Animal husbandry			
Poultry			
Diary			
Piggery			

16. Income obtained from the allied enterprise over years:

YEAR	ANNUAL INCOME (IN RS)			
	ANIMAL HUSBANDRY	POULTRY	DIARY	PIGGERY
2013				
2014				
2015				
2016				
2017				

17. Where the produce obtained being marketed:

Supply co	Private agents	Self-consumption	Both Supply co and private

18. Major agricultural risks encountered in your area in the last five years:

FACTORS	DEGREE OF RISK		
	LOW (25%)	MEDIUM (50%)	HIGH (75%)
Production risks			
Marketing risks			
Human resource risks			
Economic risks			
Political risks			

19. Indicate the major production risks encountered in paddy cultivation as experienced by you:

FACTORS	DEGREE OF RISK IN TERMS OF YIELD REDUCTION		
	LOW (25%)	MEDIUM (50%)	HIGH (75%)
Pest			
Diseases			
Both pest and diseases			
Weeds			
Rainfall			
Wind			
Temperature			
Humidity			
Other risks if any (specify)			

20. How will you meet out the fund required for cultivation?

Own fund		Borrowed		Both	
----------	--	----------	--	------	--

21. Please provide the sources of borrowing:

INSTITUTIONAL SOURCES				NON-INSTITUTIONAL SOURCES							
Ban		Co-operatives		Private		Agent		Friends		Other	
k				money lender		s				s	

22. Are you aware about crop insurance scheme operated to paddy crop in your area?

YES/NO	If Yes, mention the name of the schemes operated						
	MNAIS		RWBCIS		PMFBY		STATE CROP INSURANCE

23. Did you take crop insurance for your paddy crop?

YES/ NO	If yes, whether you belongs to loanee or non loanee category			Other crops insured
	Loanee		Non- loanee	

24. Kindly provide following information regarding paddy insurance taken:

Year	Season	Area (in acres)	Category (L/NL*)	Premium paid (in ₹)	Channel through which premium paid	Mode of Payment for Non- loanee			Remarks /Reasons
						Cash	DD	e-transaction	

*L-Loanee, NL Non loanee

25. Channels of information sources regarding crop insurance:

Channels of information source	Mode of communication	Effectiveness of communication (VG/G/B/VB)*	Relationship & linkage with the channels (VG/G/B/VB)*	Suitability of channels for communication (MS/S/SW/NS)*

VG- Very Good, G. Good, B- Bad, VB- Very Bad

MS-Most Suitable, S. Suitable, SW. Some What Suitable, NS- Not Suitable

LSH

26. Access to information sources and its role in creating awareness & adoption

Source	Rank in the order of degree of influence		
	Awareness	Interest	Adoption
Co-Operative Banks/ Society			
Commercial Banks			
Krishi Bhavan			
Service Providing agency			
Paadashekhara samiti			

27. Awareness about State Crop Insurance Scheme

Are you aware about State Crop Insurance Scheme (YES / NO)

If Yes

Have you taken that insurance	Yes			No
	individual	Group		
Are you satisfied with the scheme(Yes / No)				
If yes, why?				
What are the difficulties you face under this scheme				
Suggestions for improvement, if any				

28. Awareness level of farmers on crop insurance scheme/ programme

Sl No	Items	Aware	Somewhat aware	Not aware	Remarks
1.	All farmers including share croppers & tenant farmers growing the notified crops in notified areas are eligible for coverage				
2.	WBCIS uses weather parameters as "proxy" for crop yields in compensating the cultivators for deemed crop losses				
3.	Under WBCIS, insurance coverage is compulsory for all loanee farmers availing seasonal agricultural loans				
4.	WBCIS also covers non-loanee farmers on voluntary basis who grow the notified crops in notified area				
5.	Risk period would ideally be from sowing period to maturity of the				

LS3

	crop.				
6.	Sum insured would be equal to Scale of Finance for that crop as fixed by District Level Technical Committee (DLTC)				
7.	The Sum Insured (SI) for each notified crop is pre-defined and will be same for loanee and non-loanee farmers,				
8.	Non-loanee farmers shall submit prescribed proposal forms to the nearest selected commercial bank or RRB branch/PACBs				
9.	There is a prescribed cut-off dates for the premium Payment (in the case of non-loanee farmers)				
10.	The service area branch/PACB are the collaborative agency for WBCIS in the micro level				
11.	WBCIS operate on the basis of area approach (defined area for each crop called Insurance unit in selected notified Reference Unit Areas (RUAs)				
12.	Adverse Weather Indices leading to crop loss and subsequent indemnity are rainfall, relative humidity, temperature, wind speed, hail storms & cloud burst.				
13.	In case of loanee farmers settlement of claim is through bank/PACB				
14.	Coverage of crops under WBCIS include Food Crops, oil seeds, commercial/ horticultural crops				
15.	Notified crops in a RUA shall assumes similar adverse weather conditions, crop loss and rate of claims				
16.	There is one RWS and BWS for each RUA (AWS at Alathur and Nemmara respectively)				
17.	Claims shall be assessed only on the basis of weather data recorded by the notified RWSs or BWS				
18.	All standard Claims should be processed and paid within 45 days from the end of the risk period.				
19.	The loss exclusion due to war and nuclear risks, malicious damage and				

	other preventable risks				
20.	Claim settlement is an automatic process based on weather readings recorded at the Reference Weather Station (RWS)				
21.	In a RUA, for a given crop. Payments given per unit area will be the same for all insured cultivators under the same RWS				
22.	WBCIS addresses the production losses arising out of parametric weather risks notified only				
23.	Farmers have to pay 2% of sum insured or actuarial premium rate whichever is lower for food crops, 5% for commercial or horticultural crops as premium.				
24.	It is not yield guarantee insurance				
25.	Triggers are broadly fixed to capture the incidence of weather parameters on crop yield				
26.	When actual weather parameter within time period mentioned in benefit table differ compared to specified trigger leading to crop loss then eligible for claim.				

Abbreviations used: RUA -Reference Unit Area, AWS- Automated Weather Station

RWS – Reference Weather station, BWS – Back up Weather Station

29. Awareness about premium and subsidy component of crop insurance

Category of farmers (L/NL)*	Are you aware about the premium amount paid (A/NA)*	Opinion about the premium (A/SA/H/NA)*	Remarks

* L-Loanee, NL-Non-loanee

*A-Aware, NA-Not Aware

"A- Affordable, SA- Some What Affordable, H-High, NA- Not Affordable

*L- Little, E- Enough, NE- Not Enough

30. Awareness about sum insured and pay out:

Category of farmers (L/NL)*	Are you aware about sum insured amount (YES/NO)	Opinion on sum insured (HS/S/D S/HDS)*	Have you got any payout so far (YES/NO)	If yes in which year? Please mention	If yes, was it enough to cover the loss occurred (Y/SW/N)*	Remarks

*L-Loanee, NL-Non-loanee

*HS- Highly Satisfied, S- Satisfied, DS- Dissatisfied, HDS- Highly Dissatisfied

*Y- Yes, SW- Somewhat, N- No

31. Amount loss due to production risk, paid out so far

Year	Amount loss	Amount pay-out
2013		
2014		
2015		
2016		
2017		

32. Indicate the factors which forced you to go for crop insurance

Sl No	Factors	Rank in the order of degree of motivation		
		HI	SWM	LM
1.	High Probability of occurrence of climatic risk			
2.	Increased production cost			
3.	Compulsion from bank while taking the loan			
4.	Awareness about benefits of the scheme			
5.	An experimental desire			
6.	Compulsion from agencies			
7.	Easy access to loan			
8.	Encouraged by experienced farmer			
9.	Peer group farmers influence			
10.	Other factors (if any)			

HM – Highly motivated, SWM – Somewhat motivated, LM – Less motivated

33. Attitude of paddy farmers towards crop insurances

Sl No	Parameters	SA	A	DA	SDA
1.	Successful implementation of crop insurance programme requires community participation				
2.	Crop insurance is not a costly affair				
3.	Crop insurance reduces migration of labour				
4.	Crop insurance is a precautionary measure against crop failure				
5.	Mandatory insurances encourages farmers to avail crop insurances				
6.	Crop insurances helps in getting high turnover				
7.	Crop insurance offers re employment to agricultural labourers				
8.	Crop insurance is not a compulsory programme				
9.	Non-loanee farmers are not encouraged for crop insurance				
10.	Crop insurance does overcome depression due to sudden loss in agriculture				
11.	Crop insurance creates disparity among farmers				
12.	Crop insurance does not increase the efficiency of farmers				
13.	Crop insurance decreases the self-reliance				
14.	Crop insurance is an effective risk mitigation measure available for farmers.				

SA- Strongly Agree, A- Agree, DS- Disagree, SDA- Strongly disagree

34. Level of satisfaction of paddy farmers on crop insurance scheme/ programme

Sl No	Components of PMFBY/ other crop insurance	HS	S	SW	DS	HDS	Reasons
1.	Procedural formalities to fill up the policy proposal						
2.	Coverage options available for the policy						
3.	Procedure for settlement of claims						
4.	Indemnity level fixed						
5.	Premium chargeable						
6.	Time taken to settle claim or payout						
7.	Promotional efforts made by banks/ PACBs						
8.	Intervention of AIC						
9.	Bank support extended for policy holders						
10.	Facility available for remitting premium						

HS- Highly Satisfied, S- Satisfied, SW-Some What Satisfied, DS- Dissatisfied
HDS-Highly Dissatisfied

35. Whether the existing/ on-going crop insurance scheme suited for your area? If no, what kind of modification you suggest to improve the scheme for maximum reach out effect?

Yes	No	Suggestions

36. To what extend the crop insurance scheme taken support sustainable income from farm?

Did the insurance compensate the loss incurred/ safe guard from to total crop loss due to natural calamities:

37. To what extend the crop insurance scheme operated in your area safe guard you from the recent Kerala flood 2018

38. Other details

Insurance orientation	Yes/No	Details
1. Did you insure your life (self)		
2. Did you insure for your family members		
3. Did you take cattle insurance		
4. Did you insure your house		
5. Did you insure your vehicle		
6. Did you insure your go down		
7. Did you insure valuable household articles (TV, fridge, laptop etc)		
8. Did you take health insurance policy (self/family members)		

39. Constraints encountered in adoption of crop insurance

Sl No	PARTICULARS	RANK ACCORDING TO DEGREE OF DIFFICULTY
1.	Pay-outs are not made on time	
2.	Inadequate payment of compensation	
3.	Very high premium rates	
4.	Post-harvest losses are not covered	
5.	Complex documentation	
6.	Lack of in depth awareness about crop insurance	
7.	Procedural formalities are very difficult	
8.	Scheme does not cover even if beneficiary suffer loss	
9.	No better transport and communication facilities	
10	Distance of PACS/RRB/commercial banks is very long distance	
11	Distance of farm from weather station	



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