ADOPTION OF CROP INSURANCE AMONG PADDY FARMERS IN NINTAVUR DS DIVISION OF AMPARA DISTRICT

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ABSTRACT: Crop insurance is an efficient risk management tool used in agriculture which secures the socio-economic situation of farmers. Crop insurance helps to stabilize farmers' income, encourage farmers to adopt improved technologies and reduce the risk for credit agencies which can result in an increased flow of credit to farmers. This study was aimed to assess the adoption of crop insurance among paddy farmers in Nintavur DS division of Ampara district. Both primary and secondary data were used in the study. The primary data were gathered from randomly selected 100 paddy farmers from 05 Grama Niladhari divisions of Nintavur DS division by using self-administered questionnaires. Collected data were analyzed by using SPSS software. Chi-square and correlation analysis were done to find out the associations and relationships among different variables. There were two types of farmers identified in the sample; insured and non-insured farmers. Around 80% of the farmers had cultivated paddy on their own land and rest on leased land. Extent of paddy cultivation during the *Maha* season and the *Yala* seasons was almost equal in the study area. The average paddy yields in *Maha* and *Yala* were 81.54 bushels/ac and 77.81 54 bushels/ac respectively. Further, only 10% of the farmers in the study area had adopted paddy insurance scheme. All the farmers who obtained credit (10% of the sample) have insured their paddy land. There was a highly significant relationship observed between the extent of insured land and the amount of premium paid. Low farmer participation in crop insurance scheme was mainly due to the reasons that far distance of insurance office and higher premium rate. These factors need to be considered by the relevant authorities when operating the paddy insurance scheme.

Keywords: Credit, Paddy Land Extent, Premium Rate, Risk Management

1. INTRODUCTION

Risk management has become increasingly important in virtually all aspects of the economy, including agriculture which has always been a risky venture. Agriculture production and farm incomes in Sri Lanka are frequently affected due to climate change and natural threats, specially floods, droughts, and pest and diseases. Agriculture sector contributes 10.1% to the Gross Domestic Production (GDP) in 2014 of which 1.2% contribution was from paddy cultivation (Central Bank Annual Report, 2014). Any disturbance in the production has a multiplier effect on the economy of a country like Sri Lanka. Crop insurance which fortifies the socio-economic situation of farmers has been recognized as a basic risk management tool in agriculture. According to the Food and Agriculture Organization's (FAO) survey report published in 1991, crop insurance has been used in more than 70 countries in the world. Crop insurance programs established in developing countries have not only provide farmers with risk management tool, but also to promote other goals; such as improving farmers' access to credit and promoting production of high value crops that might also have higher yield risk (Vandeveer, 2001).

The Agricultural and Agrarian Insurance Board (AAIB), a specialized insurance division of the Ministry of Agriculture, is the main state agricultural insurer in Sri Lanka with network of 26 regional offices and 550 agricultural service centers serving about 15, 000 villages. SANASA Insurance Company Limited (SICL) which was inaugurated in 2003 has now expanded one of the most important cooperative networks in private sector of Sri Lanka, providing financial support for more than 400,000 farmers involved in agriculture (FAO, 2011).

Nintavur is one of the popular paddy cultivating Divisional Secretariat (DS) divisions in Ampara district. Paddy farmers in the Nintavur region facing a number of risks and uncertainties during their cultivation like other paddy farmers in the country. As crop insurance is recognized as an efficient risk management tool, it is very important to analyze its adoption pattern among farmers. With that overview the present study was designed to find out the adoption of crop insurance among paddy farmers in Nintavur DS division of Ampara district.

2. METHODOLOGY

The target population of the study was paddy farmers in Nintavur DS division of Ampara district. There are 25 Grama Niladhari (GN) divisions in Nintavur DS division. Based on the extent of paddy cultivation, 100 farmers were randomly selected from 05 GN divisions in Nintavur DS division. Relevant data were collected through structured questionnaires and analyzed using SPSS 16.0 version. Each statement in the questionnaire was used as a variable. Descriptive statistics provided frequency distribution; percentage of response in each variable, mean medium and standard deviation. Chi square test was used to find out the association between variables. And correlation analysis was done to find out the relationship between two different variables.

3. RESULTS AND DISCUSSION

3.1 Demographic Characteristics of Paddy Farmers

The demographic composition of the paddy farmers is shown in the Table 1.

Table 1. Demographic Characteristics of Paddy Farmers in Nintavur DS Division (N=100)

Trait	Mean	Std. Deviation
1.Age (years)	46.23	4.032
2. Education level (years of schooling)	10.03	1.977
3.Income of respondent (Rs/month)	18,390.00	11,664.41
4.Family size (No. of persons)	4.13	0.991
5.Experience in farming (years)	13.98	2.727

Mean age, level of education, monthly income, number of family members and farming experience is tabulated in Table 1. Results of the study further indicated that all of the paddy farmer in the study area were male and Muslims. Majority of them were married (98%). Further, it was observed that 49% of the respondents involved in paddy cultivation as a part time of occupation.

3.2 Data on Paddy Production and Supply

Table 2 provides detail on paddy production and supply in the study area. The average extent of land owned and leased by the paddy farmers in the study area was 4.84 ac and 6.59 ac, respectively. Results further revealed that the maximum extent of own paddy land cultivated per farmer was 18 ac and leased land cultivated per paddy farmer was16 acres. Extent of paddy cultivation during the *Maha* season and the *Yala* seasons were almost equal in the study area. The average extent of paddy cultivation during the *Maha* season was 4.68 ac and 4.93 ac during the *Yala* season. All the farmers in the study area cultivates paddy under major irrigation system. Senanayeke Samudhra provides enough water for paddy cultivation. The average paddy yield obtained by the farmers in the *Maha* season was 108.82 bushels/ac.

Table 2. Data on Paddy Cultivation

	Mean	Std. Deviation
Land ownership (ac)		
Extent of own land cultivation	4.84	2.37
Extent of leased land cultivation	6.59	2.64
Extent of paddy cultivation (ac)		
Extent of paddy cultivation –*Maha*	4.68	2.90
Extent of paddy cultivation-*Yala*	4.93	3.23
Average yield (bushels/ac)		
Yield-*Maha*	108.82	6.876
Yield-*Yala*	120.90	4.329
Quantity of paddy sold (bushels/farmer)		
Amount sold – *Maha*	509.41	345.18
Amount sold – *Yala*	549.40	353.61
Market price (Rs/Bushels)		
Market price – *Maha*	578.25	25.03
Market price – *Yala*	626.55	54.26

The maximum yield obtained was 120 bushels/ac. In *Yala* season, the average yield obtained by the paddy farmers was relatively higher than in *Maha* season, which was 120.90 bushels/ac.

The average amount of paddy sold in *Yala* season by a farmer was slightly higher than in *Maha* season. It is a general phenomenon that high yield leads to high market sale. The average price of paddy per bushel was high in *Yala* season compared to the price in *Maha* season. The Maximum price per bushel of paddy was Rs 650 in *Maha* season and Rs 750 in *Yala* season.

3. 3 Adoption and Participation in Crop Insurance Scheme

The table 3 provides the information on adoption and participation in crop insurance scheme by the paddy farmers in the study area.

Table 3 Adoption and Participation in Crop Insurance (% of farmers responding)

Adoption and participation	Frequency	Percent
Adopted	10	10
Not Adopted	90	90

The results reveal that only 10% of the farmers in the study area adopted paddy crop insurance scheme and rest of the farmers were not adopted the crop insurance scheme. Further, among the paddy farmers in the study area, only 31% were aware about paddy insurance and the rest were not aware about it. And it was further noted that paddy farmers who adopted the insurance scheme had already exposed to paddy insurance awareness programmes.

3.4 Extent of Insured Paddy Land and Premium Rate

Among the insured paddy lands in the study area, most of the lands insured for flood damages and drought. Anyhow, farmers insured their paddy lands in both seasons to get credit from banks, since they have to insure the land to get credit from banks. The table 4 gives the detail on extent of paddy land insured and premium paid by the farmers in the study area. The maximum acre insured was 8 and the minimum was 3 ac.

Table 4. Extent of Paddy Land Insured and Premium Paid

Traits	Maximum
Extent of paddy land insured (ac)	8.00
Premium rate paid (Rs/ac)	1500.00

The Maximum premium paid per farmers was Rs 1500 per acre. Furthermore, around 20% of the farmers in the study area believed that the premium rate is high and about 80% of the paddy farmers in the study area said that premium rate is affordable to them to make the payment.

3.5 Knowledge on Crop Insurance Scheme

Results on knowledge regarding crop insurance scheme reveal that, less than half of the respondents (47%) in the study area have adequate knowledge about crop insurance. It is evident from the results that awareness and knowledge about crop insurance in the study area was low.

The respondents who were not insured their paddy land were asked about the reasons for their non-participation in crop insurance scheme. More than half of them (68.2%) stated that long distance from their paddy land/home to insurance office is the main reason that they are not interested in participating the insurance scheme. This result is further validated by the findings of Mohapatra *et al.* (2016) who reported that access and availability of agricultural insurance change the attitudes of the farmers to adopt insurance scheme. The results of the present study further reveal that high premium rate was the main reason for their non-participation in the insurance scheme for nearly 32% of the farmers in the study area.

3.6 Crop Loss Assessment

Paddy farmers were asked about their satisfaction regarding the crop loss assessment carried out by the government. Farmers in the study area were with different satisfaction level. The results show that (table 5), half of the paddy farmers satisfied with crop loss assessment carried out by the government so far. Around 33% of the farmers stated that the assessment was usually delayed and nearly 17% of the farmers reported their satisfaction as not bad.

Table 5. Satisfaction on Crop Loss Assessment

Satisfaction	Percent
Not bad	16.66
Delayed	33.32
Satisfied	50.02
Total	100.00

Results on compensation received by the farmers show that only 16.7% of the paddy farmers satisfied with the compensation received for crop damages. On the other hand, 83.3% of the farmers were not satisfied with the amount of compensation received for their crop losses. This needs further attention.

3.7 Suggestions to improve the Adoption Rate of Crop Insurance

Paddy farmers were asked about their own suggestions to enhance the adoption rate of paddy insurance among them. They turned up with various suggestions and are tabulated in table 6.

Most of the paddy farmers discussed about the knowledge regarding crop insurance and compensation amount. Nearly 38% of the farmers reported that by providing adequate knowledge and awareness on crop insurance scheme will further enhance the adoption rate. This is in accordance with the findings of Bordey and Arida (2015) who stated that non-awareness and low knowledge regarding the crop insurance scheme was the main reason for non-adoption of rice crop insurance among the farmers in the Philippines. In addition, around 33% of the farmers pointed out that increase in compensation amount will further enhance the adoption of crop insurance among the paddy farmers.

Table 6. Suggestions to enhance the Adoption Rate of Crop Insurance

Suggestions	Percent
Reduce the premium rate	12.20
Provide sufficient knowledge about Crop insurance	37.80
Increase the compensation amount	32.92
Provide the compensation amount on time	10.98
Increase the availability of Islamic Crop insurance policies	06.10
Total	100.00

Further, 11% of the farmers expecting the compensation amount on time. Another 12% of the farmers suggested that reducing the premium rate will enhance the adoption rate. It is also important to note that nearly 6% of the paddy farmers in the study area suggested increasing the availability of Islamic Crop insurance policies.

3.8 Chi-square Analysis between Adoption of Crop Insurance Scheme and selected Independent Variables

Chi-square analysis was carried out to find out the association between adoption of crop insurance and selected independent variables. The results of the analysis are shown in table 7.

Table 7. Chi-square Analysis between Adoption of Crop Insurance and Selected Independent Variables

Independent variables	X^2	df	p value	Decision
Credit obtained	100.0	5	0.000	Highly significant
Knowledge on crop insurance	3.252	1	0.071	Not significant
Awareness on crop insurance	0.629	1	0.428	Not significant
Age of respondent	2.053	2	0.358	Not significant

Among the tested variables, credit obtained by the paddy farmers shows highly significantly association with adoption of crop insurance scheme. Further, the adoption of crop insurance scheme is not influenced by the knowledge on crop insurance, awareness on crop insurance and age of respondent. It is also observed that, among the farmers who obtained credit (10 farmers) all of them (100%) were insured their paddy land and among the farmers who were not obtained credit (90 farmers) 100% of the farmers were not insured their paddy land.

3.9 Correlation Analysis between Extent of Insured Land and selected Independent Variables

Correlation analysis was carried out to measure how well two sets of variables correlates with each other. The co-efficient of correlation of each tested variables with extent of insured land is shown in table 8.

Result shows that there is a highly significant relationship between the extent of insured land and the premium paid. It is also noted that no significant relationship exists between extend of land insured and age of respondent, years of schooling, monthly income, experience in paddy farming and extent of cultivation.

Table 8. Correlation analysis between Extent of insured land and selected independent variables

Independent Variables	Correlation Coefficient (r)
Age of respondent	0.033
Years of schooling	0.179
Monthly income	0.144
Experience in paddy farming	-0.003
Extent of paddy cultivation	-0.114
Premium rate paid	0.837**

** Correlation is significant at the 0.01 level

4. CONCLUSIONS

This study was conducted to find out the adoption of crop insurance among the paddy farmers in Nintavur DS Division of Ampara district. The study concluded that only a few percentages of farmers in the study area had adopted paddy insurance. Although majority of the farmers engaged in paddy cultivation in their own land the adoption rate of crop insurance scheme among them was very low. It is also found out from the study that most of the farmers in the study are cultivate paddy in both *Maha* and *Yala* seasons. It is therefore insuring the paddy land become more important because of risks and uncertainties in both seasons. Moreover, almost all the farmers insured their paddy land to obtain credits. It is therefore; insuring paddy land in the study area is influenced by the pattern of obtaining credits. Only a few portion of the farmers satisfied with the compensation paid for the crop losses. And because of that majority of paddy growers in the study area suggested that increasing the compensation rates could help to improve the adoption of crop insurance among them. In addition, premium rate paid by the paddy farmers in the study area appears to affect the extent of land insured by them.

Furthermore, it is essential to conduct suitable extension and advisory programs to make aware about the rules and regulations of the insurance scheme and importance of crop insurance among the paddy farmers. There should be a direct linkage with farmers and the insurance board/company. There is a need for supervision and assessment of crop damages and timely payments of indemnities to enhance satisfaction among farmers toward the scheme. Most of the farmers obtained agricultural loans from banks, and it was the main reason to go for crop insurance by farmers. The study has clearly brought out the urgency of developing more innovative crop insurance schemes as highlighted by Shi and Jiang (2016) as the efficiency of traditional crop insurance schemes has been questioned now a days and there is a need to reconsider them and introduce new schemes. It is good to note that crop insurance has become compulsory when granting loans by the government and private banks in Sri Lanka.

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