

The Study Of Effective Factors In Acceptance Of Rice Crop Insurance In Guilan Province

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ABSTRACT

The aim of this study is consideration of effective factors in acceptance and non – acceptance of rice insurance by Guilan's farmers. This research is based on survey search measure and instance volume is 278 people which gained by Multi-stage stratified random sampling and Cochran formula that the above amount has been chosen equally among acceptor and non- acceptor farmers of insurance. For questionnaire validity measurement, views of professors, insurance experts, agriculture bank have been used and for questionnaire reliability measurement, Cronbach's Alpha Coefficient was used that its amount is equal to 86 percent. Research conclusions show that literacy level, agriculture income amount, rice cultivation level, relation with extension agents, participating in training classes as well as attitude about insurance had no effects on acceptance of insurance by farmers. But age, agriculture experience, occupation variety, total income amount, product variety, farm owning kind, use of loan and bank facilities, use of channels and relation sources as well as awareness level about insurance had effects on rice insurance acceptance by farmers. On the other hand, conclusions gained from logistic regression study show that six variables of agriculture experience, occupation variety, product variety, farm owning kind, channels usage level and relation sources as well as awareness level about insurance had the most effects on acceptance of rice insurance by farmers and they specify 71.3 percent of changes dependent variable.

Key words: agriculture insurance, acceptance, rice producer, Guilan

Introduction

Agricultural sector, one of the most important is economic and credit value-added production, the economic sector [22]. The production in this sector with a variety of random shocks and unpredictable weather conditions, pests and other natural faces passed away. These factors cause fluctuations in agricultural products is remarkable [26]. Natural events causing the damage and control hazards indivisible agricultural production in the country that threatens the most important factors in preventing recruitment of private capital in agriculture. These risks regardless of the profitability of production activity in the sector compared to other sectors of the economy decreases, the big challenge facing agricultural development objectives makes [8].

There are various methods for managing risks, among which we can determine the floor price, the use of risk-reducing inputs, diversification of production activities and the implementation and expansion of agricultural insurance pointed [3]. Agricultural insurance is one of the most important work Created security invested in risk taking and deal with the intense activity and investment is. The most important support tool for crisis management to

risk management has become. This type of insurance through premiums collected to data and utilizes subsidy state (as state aid to the premium) to the main has an important financial source is. It possible for farmers to pay damages that the insurer uses. In true partnership with their interests and protect their economic life [15]. The role of agricultural insurance, the risks of damages pressure is adjusted, so that actual damage to a person or a group, to a farm or farms in a region where the particular time, be focused, but also social and economic loss damages the distribution is wide. The gradual adoption of the Financial Times Low Insurance costs on a wide level of individuals to pay premiums, causing sudden paralysis of the economy will be a small group of them [12].

Therefore to role critical insurance in the security, prosperity and increase investment, increase productivity and improve the lives of farmers, the first step to increase the participation of operators in this field is to identify factors affecting adoption of insurance.

The present study followed or that it makes clear what factors, respectively and combined with the acceptance or rejection of rice farmers in Guilan effective insurance to be able to obtain solutions for

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the obstacles and positive reinforcement to encourage exploitation found acceptance of insurance and proper ground for more accurate planning for participation in this project provided farmers. The specific objectives of this research are:

A - The characteristics of Farmers Insurance and acceptor groups are not

B - The effect of individual factors (ge, literacy, attitude towards insurance, agriculture experience), social factors (the use of communication channels and sources), economic factors (type of farm ownership, job diversity, product diversity, rice cultivation level, agricultural income, total income (total income of agricultural and non agricultural), the use of loans and banking facilities) and educational factors (awareness level about rice insurance, relation with extension agents, participating in training classes) on acceptance of rice insurance by farmers and logit model

Materials and Methods

Study quantitative studies of the nature, purpose of application and evaluation methods of descriptive data - is a correlation. A survey of farmers in gold Ay 2009-2010 At very high risk areas planting rice in Guilan province to have. Sample size using Cochran Formula, 278 people were. Using stratified sampling - random multistage equal numbers of both groups (139 person) and in proportion to the number they in each of the selected villages were selected. In order to assess the validity of questionnaire from the university teachers, professionals and experts in the insurance of agricultural products were used and corrections were made. Reliability research tool, the questionnaire designed between two groups of 30 farmers in the villages, the distribution was completed. Then enter the information gained in SPSS, the coefficient Cronbach's alpha 86% was obtained, indicating that this factor is reliability and trust of an acceptable research tool. Analysis of data includes two parts: descriptive and inferential statistics is that descriptive statistics including frequency, percent, percent cumulative, standard deviation, mean and inferential statistics, including test Chi-square, Kramer and Phi correlation coefficients in order to examine the relationship between variables and analysis Logistic regression is. Condition using multiple regression, being a dependent variable is quantitative. Dependent variable in this study related to the nominal two-sided (acceptance and non - acceptance of rice insurance) is. Can accept only one of two values zero or one. One value means that is an event occurs the about (acceptance) and a value of zero means that the (non- acceptance). In such cases, instead multiple regression of Logistic regression is used.

In logistic regression to the mean Odd Ratio ($P_i/(1-P_i)$) probably no accident that the accident

probability is desired) and the logarithm of the odds ratio based on equation (1) is calculated. The model Logit is known [16].

$$\text{Ln} \left(\frac{P_i}{1 - P_i} \right) = \beta_0 + \beta_i x_i \quad (1)$$

In this study to investigate factors that most influence acceptance Insurance have in rice, the logistic regression method Backward Stepwise is used.

Results and Discussion

Individual characteristics, social and economic:

Farmer age of 25 years (minimum age) to 80 years (maximum age) is variable, so the study age ranges of young people to be in adults. Average age 50.6 years, SD 11.02. In terms of education, research findings indicate low literacy levels were farmers, so the average education level as for the range of scores category (illiterate: 1, primary: 2, guidance: 3, diploma: 4, higher diploma: 5) 2.24 (Almost in primary education).

In both groups of farmers, acceptor farmer's insurance and not insurance, individuals of high employment history. So in total 69.1% of farmers over of 20 years are employed. Average employment in history acceptor insurance 34.32 and in group not insured 24.86 are. More than half of the farmers (65.5%) agriculture as the main business and main source of income have mentioned and must not have side jobs. Average area under cultivation, farmers 1.41 Acres and 67.3 % of farmers have not diversified their product. 60.4% of people with personal property and 39.6% of rental property, private and rented as together are. More than half of the farmers (56.8 %) have annual incomes are less than 2 million USD. 41% of loans and banking facilities are used. According to Table (1) in the case of farmers using and of communication channels and sources, the results show that farmers and were more willing to establish personal relationships, including relationships with other farmers and Their relatives and neighbors and local leaders in rural areas and channels of communication such as radio and television, magazines and publications as well as classes and any extension they are less.

In this study to measure attitudes toward rice insurance from 8 items were used that four of these eight items were negative items which the code shouts all were positive, and the farmers were asked to evaluate each question by choosing options from "completely agree There M "," agree There M "," no idea "," disagree There M "and" completely disagree There M "to indicate that the sum of relevant items according to Table (3), can be said that farmers in general, both insured and uninsured

acceptor have a favorable attitude towards rice insurance.

Table 1: Distribution of farmers according to the usage of communication channels and resources.

Type of channel or source	Average [*]		SD		Rating	
	A	B	A	B	A	B
Other farmers	4.3	4.12	0.69	0.76	1	1
Neighbors and relatives	3.83	3.68	0.74	0.74	2	2
Local leaders	2.94	2.62	0.69	0.87	3	3
Agricultural extension agents and service centers	2.60	2.53	0.73	0.84	4	4
Radio	2.09	1.87	0.57	0.73	5	5
Courses	2.02	1.78	0.59	0.71	6	6
Journals and extension publications	1.79	1.75	0.59	0.65	7	7
TV	1.40	1.58	0.49	0.82	8	8

* The ratings range: Very Low = 1, Low = 2, Moderate = 3, Much = 4, Very much = 5

A : Acceptor farmers B : Non- acceptor farmers

Table 2: Questions prioritize related farmers' attitudes toward rice insurance.

Questions	Average [*]		SD		CV		Rank
	A	B	A	B	A	B	
Rice farmers in favor of accepting insurance	4.60	4.46	0.62	0.74	0.13	0.16	1
Agricultural work is always faced with the risks	4.42	4.45	0.59	0.64	0.13	0.14	2
Rice Insurance for Farmers is a kind of confidence...	3.69	3.65	0.94	0.93	0.25	0.25	3
These risks fate is divine and there is no choice ...	3.42	3.63	1.06	0.98	0.31	0.27	4
Compensation to farmers is the task of government	3.34	3.62	1.09	0.99	0.33	0.27	5
Rice Insurance is compulsory for farmers	2.19	2.06	1.09	1.01	0.50	0.49	6
Insurance for retail owners do not profit	2.03	2.03	0.81	0.91	0.40	0.45	7
Agriculture is not the extent of damage that needs...	1.64	1.78	0.52	0.75	0.36	0.42	8

* The ratings range: Fully disagree = 1, Disagree = 2, No idea = 3, Agree = 4, Completely agree = 5

A : Acceptor farmers B : Non- acceptor farmers

Table 3: Distribution of farmers' attitude towards rice insurance.

Attitude towards insurance	Acceptor farmers		Non- acceptor farmers		Total farmers	
	Frequency	percent	Frequency	percent	Frequency	percent
Excellent	27	19.4	27	19.4	54	19.4
Average	94	67.7	100	71.9	194	69.8
Weak	18	12.9	12	8.7	30	10.8
Sum	139	100	139	100	278	100

Test the relationship between variables:

Table (4) the results concerning the relationship between dependent variable (insurance acceptance rice) with independent variables is shown. The variable table, age and profession history of agricultural employment in the 99% level positive and significant impact on insurance acceptance by farmers is rice. In other words, older and more experienced farmers are more willing to accept rice have insurance, because with age, risk factors and prevent falls and to ensure the potential risk for the insurance to its product.

Torkamani and Ghorbani Studies [27], Darbane Astaneh and Eravani [3], Tiraei Yari and Zarei [25], the result obtained or resists the urge to. The variable literacy is not affected acceptance of rice insurance from farmers. The results confirm that is the intended victim Darijani and Ghorbani [4], Yaghubi Farani [28], Kohansal and Zare [13] and study results Smith and Baquet [23] reject. Having at the 99% level of occupation variety or negative and significant influence on the acceptance of insurance has, the main source of income for farmers and their agricultural jobs are more willing to accept the insurance have. The result confirmed that the Shah Pasand [21], Karbasi [9]. The result study Eynollahi

Ahmadabadi and Salami [5] based on the lack of relationship between employment and insurance denies admission. Variable area under rice cultivation and annual income in agriculture accept or not accept rice insurance from the farmers' insurance or has no influence. The result seems to confirm that the order in Kashani [11] and the Darbane Astaneh and Ervani [3]. Rate the total annual income (total non-farm income and income agriculture) or negative and significant influence in accept rice insurance from farmers has. In this relationship can be said that in addition to agricultural farmers, they have other income sources, due to better economic situation and therefore having a margin of safety during the earthquake risk and damage on their farms, have the ability to seek redress. Therefore less likely to show insurance. Having a variety of product or negative and significant influence in accept has insurance. In other words, risk or hazard farmers to diversify their products are divided between the product and the more traditional methods with innovative solutions such as insurance risk to prefer. Abyar and Ghadirian [1], Hoffman [7], Sumner [24] in their studies, to have achieved this result. Type of farm ownership or Positive and significant influence in accept Have insurance. The controversial the

farmer and laird (personal property) for insurance is becoming more. Studies that Darijani and Ghorbani [4], Rostami and colleagues [18] the results obtained or to resist the urge. At the 95% level of loans and banking facilities or positive and significant influence on rice insurance acceptance by farmers has. Thus that's more opportunity to familiarize farmers with the agricultural bank with crop insurance services provided. Loans and banking facilities, financial capability and controversial them to further insure the product in the farmer provides the results obtained in the or button Karami [10] . Study results Goodwin [6] there's no relationship

between the two variables rejects . Contact extension agents is and participate in classes and courses in accept or not accept rice insurance from the farmers or not influence is. Agricultural bank officials in this regard to the lack of attention to the issue of insurance promote agricultural insurance, lack of consistent and logical connection between insurance and agricultural service centers, lack of advertiser and lack of trained classes. Training in the areas of general insurance products can be pointed that result confirmed the Shah Pasand [21] and Einollahi Ahmadabad [5].

Table 4: The results concerning the relationship between the dependent variable independent variables research.

	Variable Independent	Variable Dependent	χ^2	P	V	P	Phi	p
Individual Factors	Age	Acceptance	19.539 ^{**}	0.001	0.265	0.001	-	-
	Literacy Level	Acceptance	1.107 ^{n.s}	0.775	-	-	-	-
	Agriculture experience	Acceptance	32.903 ^{**}	0.000	0.344	0.000	-	-
	Attitude	Acceptance	3.151 ^{n.s}	0.369	-	-	-	-
Economic Factors	Cultivation Level	Acceptance	1.802 ^{n.s}	0.406	-	-	-	-
	Product variety	Acceptance	49.418 ^{**}	0.000	-	-	-0.422	0.000
	Agriculture income	Acceptance	9.403 ^{n.s}	0.094	-	-	-	-
	Total income	Acceptance	33.086 ^{**}	0.000	-0.345	0.000	-	-
	Occupation variety	Acceptance	20.621 ^{**}	0.000	-	-	-0.272	0.000
	Farm owning kind	Acceptance	26.536 ^{**}	0.000	-	-	0.309	0.000
	Use of loan	Acceptance	4.818 [*]	0.028	-	-	0.132	0.028
Social& Educational Factors	Relation with extension agents	Acceptance	0.060 ^{n.s}	0.806	-	-	-	-
	Participate in class	Acceptance	0.028 ^{n.s}	0.868	-	-	-	-
	Use of relation sources	Acceptance	12.531 ^{**}	0.006	0.212	0.006	-	-
	Awareness level	Acceptance	82.213 ^{**}	0.000	0.544	0.000	-	-

* P ≤ 0.05

** P ≤ 0.01

Table 5: Independent variables with most significant influence on the dependent variables (forth step).

Independent variable	B	SD	Wald	df	P
Agriculture experience (X ₁)	0.962	0.196	24.082	1	0.000
Occupation variety (X ₂)	-1.159	0.459	6.370	1	0.012
Product variety (X ₃)	-2.391	0.456	27.475	1	0.000
Farm owning kind (X ₄)	1.229	0.430	8.158	1	0.004
Awareness level about insurance (X ₅)	2.357	0.328	51.596	1	0.000
Use of relation sources (X ₆)	0.577	0.235	5.611	1	0.018

Two variable-rate farmer awareness and use of communication channels and sources of positive and significant impact on insurance is accepted. In fact, communication channels and communication resource information is a good opportunity for new ideas and provide more information about them. The result confirmed that the Omani and Chizari [17], Baker [2]. Farmer attitudes health insurance than or having an impact on accept rice has no insurance from them. Denial of insurance on behalf of farmers, most of the issues apart from the type of insurance are related to. In this context, factors such as "lack of sufficient rice farmers of the benefits and results of the insurance plan," "do not feel the need to insure against other needs immediate and more tangible", and "the inability of some farmers in the appointment between now and the benefits of buying insurance that they will be granted in the future" can be verified.

Model Logit:

In the first stage of 15 independent variables, 9 variables: age, agriculture history, employment diversity, the total annual revenue, product variety, type of farm ownership, the use of loans and banking facilities, The use of communication channels and resources and awareness level about rice insurance with the dependent variable (rice insurance acceptance) had a significant relationship, were entered into logistic regression equations. Regression analysis has gone up four steps. In each stage Software based on the significant level Wald Test, the elimination of independent variables with the or has less influence. Thus the first variable loans and banking facilities, the income variable and the variable age were excluded from the regression equation. Chi square model index in the fourth step is equal to 212.826. This is significant at the 99% level, so the independent variable has had the desired effect on the dependent variable. Represents good value.

Value Negelkerk R Square which is equivalent to R^2 in linear regression. The fourth step is equal to 0.713. Shows that 71.3% of the variability (at rice insurance acceptance) by agricultural background variables, job diversity, product diversity, type of farm ownership, the amount of insurance awareness and usage of communication channels and resources is explained. In fact, these variables as independent

variables in the presence of other significant variables those influence the acceptance of rice insurance from farmers who have. The variable coefficients, Wald test and significance level for each table (5) is shown. Based on values B Table and constant in the last step of the regression analysis-is equal to 11.514. Regression equation is obtained as relation (2).

$$\ln\left(\frac{P}{1-P}\right) = -11/514 + 0/962 x_1 - 1/159 x_2 - 2/391 x_3 + 1/229 x_4 + 2/357 x_5 + 0/557 x_6 \quad (2)$$

Conclusion:

The present study was to examine factors affecting the rice crop insurance. In this regard, the results show that this is a mass scale. Several factors in the decision process for acceptance or rejection of persons involved. Among the factors that predispose individuals to accept personal characteristics and receptor status, economic, social and cultural issues and also features a tool is presented. Compliance with conditions and opportunities of individual characteristics and can be pointed. The results are based on the recommendations presented below:

* Due to the low average education level of farmers, is being offered in collaboration with the Provincial Agricultural Management Agricultural Insurance Fund to provide educational services - promotional and educational classes and preferred spoken and written in simple language with local language spoken in insurance and its benefits with regard to notification and information to farmers to take action.

* In order to provide necessary funds for extension services is recommended that insurance is based on the experience of countries such as Japan, part of the premium collected is allocated to education. This can result in significant health insurance may be in the following years.

* The results show that agricultural production to avoid risk and income risk, diversification of production in the field of insurance are substitutes. For farmers to resort to this method, which has little land they may be reducing their efficiency. It is recommended that appropriate training courses and advertising and eliminate potential barriers in the way health insurance and income insurance for the insurance product to reduce the need for farmers to diversify production. The conditions necessary for the proper use of the land comes into operation.

* The research findings show that the agricultural history of the rise, due to various risks facing and experiencing all kinds of damages, the percentage of health insurance will increase. Farmers so far have not attempted to cover your product; your product will be insured. Given the existence of a positive attitude toward insurance in farmer training, will soon be time for people to accept. They need to be strengthened in insurance.

* The survey found that farmers used communication channels and resources, personal communication, have spread in the community desired. It is proposed that this area of the village council members to raise awareness and inform villagers and farmers about the benefits and results to be insured. Satisfaction insurer can be accepted as a powerful tool in rice insurance acceptance.

* Radio and television as the media, at least in rice have information about insurance plans. It is necessary, through a network of provincial, national media properly in the introduction and expression of rice insurance plan benefits and results, must play a role.

* Based on the results obtained by farmers with private ownership are more likely to have insurance for their product. That are recommended in this area, insurance for people with non-private ownership are in the area of the concession fee Insurance is attached. For example, these premiums are paid in several installments. Paid time and harvest time when farmers are having cash-match. That these measures will provide these people gradually in the field of health insurance.

* The results obtained show that the use of farmer loans and banking facilities has had a positive effect on the premium rice from them. In this context it is suggested that the Agricultural Bank for two farmers who have the same conditions, but one of them is not insurance and other insurance, consider a different interest rates. Insured loans with lower interest rates to the farmer. The price difference compared to establish conditions under which the insurance is a prerequisite of having support programs, has a greater role in encouraging farmers to buy insurance.

References

1. Abyar, N., H. Ghadirian, 2001. Review of factors affecting the tendency of insurance products to soybeans in Golestan province. Proceedings of Conference on Agricultural Insurance, ego development and investment. Publications of Agricultural Products Insurance Fund. Tehran, pp: 61-79.
2. Baker, E.J., 1990. Demand for rainfall insurance in the semi-arid topics in India. Resource management program., 4: 101-151.

3. Darbane Astaneh, A., H. Ervani, 2007. Factors affecting adoption of crop insurance products: case study of wheat farmers in Tehran. *Iranian Journal of Village & Development.*, 10(2): 109-135.
4. Darijani, A., M. Ghorbani, 1998. Factors affecting adoption of crop insurance in Mazandaran Province. *Proceedings of the Second Meeting of the agricultural economy of Iran.* Agricultural Faculty of Tehran University, pp: 145-159.
5. Eynollahi Ahmadabadi, M., 2008. Factors affecting acceptance of Wheat Farmers Insurance Zanjan Province: a case study Khodabandeh city. *Iranian Journal of Agricultural Economics and Development.*, 16(63): 51-70.
6. Goodwin, B.K., 1993. An empirical analysis of the demand for multiple peril crop insurance. *American Journal of Agricultural Economics.*, 75: 425-434.
7. Huffman, W.E., 1980. Farm and off – farm work decisions: The role of human capital. *Rev. Econ. Stat.*, 62: 14-23.
8. Javadian, A., D. Farzaneh, 2004. Performance and experience in agricultural insurance in Iran. *Proceedings of the Second Scientific Conference of agricultural insurance, development and investment security.* Publications of Agricultural Products Insurance Fund. Tehran, pp: 14-44.
9. Karbasi, A., 2001. Factors affecting the attitude of farmers and agricultural insurance: a case study of Khorasan. *Proceedings of Conference on Agricultural Insurance, investment and security development.* Publications of Agricultural Products Insurance Fund. Tehran.
10. Karami, E., 1983. The differential characteristics of farmers with regards to their innovativeness in Fars Province. *IRAN. Iran Agricultural Research.*, 2: 121-129.
11. Kashani, M., 1991. Factors affecting the cultivation of maize by farmers in Esfahan Province. MA thesis, Agricultural Extension and Education. Department of Agriculture. Tehran University.
12. Khadem Adam, N., 1991. Agricultural economics and policies of the Iranian regime. *Publication of information.* Tehran.
13. Kohansal, M., S. Zare, 2007. Factors affecting demand for almonds insurance: a case study city of Taft. *Iranian Journal of Insurance & Agricultural.*, 5(17): 21-52.
14. Mishra, P.K., 1999. Planning for development and operation of agricultural insurance schemes: Development and operation of agricultural insurance schemes in Asia. *Report of the APO Seminar on Agricultural Insurance Held in Manila. Philippines,* pp: 27-40.
15. Comprehensive Consulting Engineers of Iran & *et al*, 2001. Outlook and recommendations relating to insurance policies for agricultural products in Iran. *Proceedings of Conference on Agricultural Insurance tripartite meetings, development and investment security (third session).* Publications of Agricultural Products Insurance Fund. Tehran.
16. Momeni, M., 2007. Statistical data analysis using SPSS. *Publishing new book.* Tehran.
17. Omani, A., M. Chizari, 2006. Determine the characteristics of social, economic wheat farmers city of Ahvaz, Dezful and Behbahan according to the method of Low Input Sustainable Agriculture (LISA). *Iranian Journal of Agricultural Sciences and Natural Resources.*, 10(1): 107-119.
18. Rostami, F., H. Shabanali Fami, H. Movahed Mohammadi and H. Ervani, 2007. Factors affecting the Insurance: A Case Study of wheat farmers Harsin Township. *Iranian Journal of Agricultural Economics and Development.*, 15(60): 1-21.
19. Rydant, A.L., 1979. Adjustment to natural Hazard: Factors affecting the adoption of crop hail insurance. *Professional Geographer.*, 31: 312-320.
20. Salami, H., M. Eynollahi Ahmadabadi, 2001. Factors tend to sugar beet farmers to buy crop insurance: Case Study in Khorasan Province. *Proceedings of Conference on Agricultural Insurance, development and investment security.* Publications of Agricultural Products Insurance Fund. Tehran, pp: 9-22.
21. Shah Pasand, M., 1998. Factors in the pressurized irrigation systems in Tehran Province. MA thesis, Agricultural Extension and Education. Department of Agriculture. Tehran University.
22. Shakeri, A., M. Musavi, 2003. Factors affecting private and public investment in agriculture. *Iranian Journal of Agricultural Economics and Development.*, 11(43-44): 91-117.
23. Smith, V., A.E. Baquet, 1996. The demand for multiple peril crop insurance: Evidence from Montana wheat farm. *American Journal of Agricultural Economics.*, 78:189-201.
24. Sumner, D.A., 1982. The off – farm labor supply of farmers. *Amer. J. Agr. Econ.*, 64:499-509.
25. Tiraei Yari, N., H. Zarei, 2004. Factors affecting the acceptance of modernism in the agricultural insurance scheme for agricultural operators in Khuzestan province. *Iranian Journal of Insurance & Agricultural.*, 1(3-4): 39-61.
26. Torkamani, J., 1996. Risk involved in planning the agricultural economy: the use of quadratic programming coupled Risk. *Iranian Journal of Agricultural and Development Economics.*, 4(15) :113-130.

27. Torkamani, J., M. Ghorbani, 1999. Factors affecting demand for agricultural insurance: a case study in Sari city. *Iranian Journal of Agricultural Sciences.*, 2:233-240.
28. Yaghubi Farani, A., 2000. Factors affecting the acceptance and rejection of livestock insurance in Esfahan Province. MA thesis, Agricultural Extension and Education. Department of Agriculture. Tehran University.