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**EVALUATING THE EFFECT OF EXTENSION EDUCATION ON CONTROLLING  
THE RICE BLAST DISEASE**

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**ABSTRACT**

The rice blast disease is one of the common diseases in Guilan province, and causes a lot of damage to this crop. In the meantime, extension education can play an important role in control this disease. In a research, the effectiveness degree of extension education and the degree of paddy farmers' interest in participating in extension courses were studied. Data were collected through questionnaires and statistical population consisted of 367 individuals of paddy farmers who were selected by random sampling. And then the data were examined, by using SPSS software. The results obtained from the research showed that among 367 paddy farmers being studied, most individuals (64%, n=234) were among the group of individuals with intermediate educational activities. Thus it is essential that, for controlling the rice blast disease, the broader extension education, in line with the level of education and knowledge of paddy farmers, is considered. Also, it is recommended that the school-in-farm method be used instead of the presence of paddy farmers in theoretical classes.

**Keywords: Extension Education, Rice, Rice Blast Disease, Disease Controlling**

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## INTRODUCTION

Agriculture is the most important and essential part of supplying the requirement of human life, and imagining the developed world without agriculture is not possible. Many scientists believe that achieving the national development is possible through agriculture. Agricultural development, without farmers' access to knowledge and having farmers with knowledge, is not possible, hence, the development of agriculture means more of human development. Efficiently conducting activity requires education and development of human resources, and awareness of the upcoming changes, encouraging responsibility, understanding and solving the problems and finding the solutions are dependent on it [1]. Agricultural extension dates back to agricultural history, so that it can be said that wherever agriculture has been existed, there extension has been existed too, the difference is that in the old traditional agriculture, agriculture undertook multiple and interactive roles, including research, education, extension, and production in the simple manner [2]. Following the industrial revolution and along with expanding and deepening the division of labor and the rise of specialization, the phenomenon of structural and functional segregation was expanded along with the intensification of

interdependencies, so that research, education and extension, as three areas of expertise, while were differentiated in terms of structure and content, yet in the form of an integrated pattern as a network of complementary and distinct roles, were put in an organic interaction with each other, and brought about the cultural dimension of modern agricultural system, aiming to generate, transfer and disseminate the modern culture of the sustainable development of agriculture [2].

Extension is considered the driving force of all active sectors in agricultural system, because on the one hand communicate with the executive and scientific agriculture society and on the other hand communicate with exploiters, and each of these subsections needs this communication mechanism for proper implementation of its programs [3]. The performance of agricultural systems depends on the extension services, and the extension guarantees the sustainability of the agricultural development with the help of producing the appropriate technologies. Developed countries such as America, Australia, Canada and Denmark which have high advanced agriculture, always support the extension services governmentally and privately [3]. Agricultural extension helps agricultural development in developing

countries, in this manner that facilitates the transfer of technology to the agricultural sector, and develops human resources in villages [4]. Rapid technological changes have caused dramatic changes in agricultural production, and have doubled the importance of fast and efficient transfer of new knowledge to the farmers. The farmers' society and individuals benefit from modern information and knowledge, and this emphasizes the importance of creating the communication market [5]. Agricultural extension has an important role in solving the three main and prevailing problems of the rural areas of the Third World, i.e. the weakness and lack of production, inequality in income distribution and the lack of participation and public mobilization of people in civil works [5]. Agricultural extension can have two effects on farmers, personal effect and social effect, personal effect includes the personal promotion in terms of economy, investment and work progress, and social effect includes benefits which are directly and indirectly given to the society in which that person lives, and by increasing the knowledge and awareness level, public expenses decreases, and social participation and cohesion increases [5]. According to what was said, extension education can be considered as an applied science which aims to transfer knowledge, and use it to help to

change people's behavior, and also help them to improve their lives [6]. For mental visualization of the extension concept it should be considered as a process which is the result of the interaction between factors such as technology, extension education, institutions, beneficiaries and communication methods [7].

With regard to agricultural diseases and pests, extension services can also be very efficient, and provide the farmers with the new methods of controlling the diseases and pests. Rice blast disease is caused by the fungus *Pyricularia grisea* which is considered one of the most harmful fungal pathogens in rice. So far, this disease have been reported in 85 countries and exists wherever the rice is commercially cultivated, and attacks the rice in the stages of transplanting, tillering and heading. That is why extensive researches have been done on it in the world. But it is still considered the most harmful rice disease [8].

In 1949, observed the disease in Lahijan, and then the disease has been reported in other regions of the Caspian coast, Isfahan, Ghasreshirin, Gilangharb, Minab, Ramhormuz and other areas [9]. In a study on the spread of this disease in Iran, was separated the fungus pathogen from the 10 varieties among the 15 varieties and the infected varieties include Tarom, Rashti, Shastras, Mehran, Salari, Hasan Tarom,

Dom-Sefid, Dom-Sorkh and a variety of Sadri-Binam which is cultivated in most northern areas of Iran [10]. This disease, due to the wide and devastating spread in good conditions of relative humidity at saturation point, is usually the main disease of rice and destroys rice plantlets in the tillering stage. Heavy pollutions on the tail of the ear often harm. The damage of the disease in Iran in some parts of Roudsar have been reported 20% on average, in 1974 [11]. The loss of this disease was estimated 7% on average in Guilan and Mazandaran provinces, and the damage has been up to 80% in some farms [12]. In this research, while studying the rice blast disease, the farmers' knowledge degree and their caring about the extension education is studied too, and the extent of their attendance in the extension courses was evaluated.

#### **MATERIALS AND METHODS**

This research in terms of the research paradigm is among quantitative researches, because it is related to statistics and the data collected through the questionnaires. In terms of the objective it goes in the realm of applied researches, because the obtained results aim at problem solving and access to the information which is required for decision making and to meet the needs and problems. In other words, findings of this research and its analysis can be used to solve the executive problems in the field of

controlling the rice blast disease. Also this research, in terms of the way of controlling the research variables, is among descriptive researches (non-experimental) and the type of survey researches and cross-sectional method, and try to describe the relationship between the phenomena in a specified time limit. Eventually, this research in terms of data collecting method is of the field research type, because the required data collected using the questionnaires. Since a part of the data collected through library and Internet studies, it can be classified in this area too. This research was performed in Langarud county, one of the Guilan Province's counties, in agricultural season, 2013-14. The statistical population included the paddy farmers of the county, and by using the random sampling method the obtained sample volume was 370 individuals, and 367 questionnaires are valid and the rest is deleted. About "the farmers' extension educational activities" and also "the technical knowledge of the paddy farmers" a number of questions was introduced, in the form of five-level Likert spectrum (from none to very high), and the reliability and validity of the questionnaire was assessed. The results obtained from Cronbach's alpha coefficient showed that the reliability of the first section was 0.856 and that of the second section was 0.837 which indicates the high reliability and

validity of the questions in the questionnaire. And then the obtained data were evaluated by using SPSS statistical software.

## RESULTS AND DISCUSSION

Evaluation of the data was performed in two ways of descriptive and inferential statistics. The results obtained from the inferential statistics about the personal characteristics of the respondents indicated that the average age of the samples in this research was 55.5 years (SD=9.98) and the maximum age frequency belonged to the age group of 51-70 (60.75 percent) and the minimum age frequency belonged to the age group of younger than 30 years (1.25 percent). The variable of sex showed that the majority of the respondents in this research are men (97.2 percent). Also, in terms of the level of education the maximum frequency belonged to the individuals who completed the secondary school (30.5 %), and the minimum frequency belonged to the individuals who had an academic degree (14.2%). In terms of the variable of experience in rice cultivation the maximum frequency belonged to the group of 11-20 years of experience (34.75%), and the minimum frequency belonged to the group of less than 10 years of experience (7.25%). The average of the respondents' experience in rice cultivation was 27.32 years (SD=13.33). To evaluate the extension

educational activities of the paddy farmers 4 statements were designed and the findings of the research showed that among 367 paddy farmers being studied, in terms of educational activities, most individuals (64%, n=234) were among the group of individuals with intermediate educational activities (**Tables 1 , 2**).

Most paddy farmers, in terms of educational activities, were in intermediate level. In this regard, rising the motivation of control by participating in the rice blast control classes was known as the paddy farmers' most important priority in the field of extension educational activities, and holding the classes in the field of controlling the rice blast was known as the least important issue for the paddy farmers' extension educational activities. The farmers' technical knowledge in the field of controlling the rice blast has been excellent. The farmers' technical knowledge, about eliminating the weeds alongside the farm to control the rice blast, plowing the land in autumn and cutting off the rice stalks from their lowest part to control the rice blast was relatively in low level, respectively. Since most of the farmers in the region had an average level of education, the extension department authorities should adopt educational methods so that paddy farmers have effective learning. Results of Nazarzadeh Zare *et al.* research [7] on the barriers and

problems in the extension education courses from the points of view of the farmers showed that barriers and problems existed in the courses which were held, for instance extension agents did not visit the farm during the extension courses, lack of using experienced extension agents who were aware of agricultural issues, extension agents' merely use of the uniform educational methods especially speech, extension agents' low use of educational aids. Since most audience of extension courses are farmers who do not have high levels of education, and considering their age conditions, sitting in a stiff educational environment and listening to the extension agents' speeches is boring to them. The extension authorities have to adopt the time of holding the courses tailored to the farmers' time conditions for the farmers' continued presence in the courses. In this regard, the results of this research are consistent with the results of Weir's [13] and Karbasioun's [14] researches.

## CONCLUSION

Since most of the farmers in the region had an average level of education, the extension department authorities should adopt educational methods so that paddy farmers have effective learning. In this regard, the continuous and scientific educations are effective so that they are more willing to use farming methods. A big problem which has

always threatened the agricultural sector is farmers' lack of proper education, and farmers are usually traditional and with very low literacy, therefore, trying to increase the farmers' level of education will make them familiar with the advantages of modern methods such as biological control.

Since the farmers have high technical knowledge, the indigenous knowledge and findings which they have acquired over the years can be used to educate the farmers who have just entered this area and/or their experience is low in rice cultivation.

In order to do any fighting against rice blast disease, understanding the life stages of the fungus pathogen and its outbreak time is necessary, and since many farmers are not aware of the prognosis method to control the blast disease, it is necessary to provide the farmers with adequate education in this field.

- Using educational aids in extension courses
- Holding explanation-based classes for extension agents, and teaching new ways to fight the rice blast disease in order to continuously educate the farmers.

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**Table 1: The extension to the importance of educational activities (n =367)**

<b>Variable</b>	<b>Count</b>	<b>Average</b>	<b>Variance</b>	<b>Standard deviation</b>	<b>Maximum</b>	<b>Minimum</b>
<b>Education - Promoting</b>	<b>367</b>	<b>10.3</b>	<b>10.7</b>	<b>3.3</b>	<b>20</b>	<b>0</b>

**Table 2: Distribution of farmers surveyed in terms of educational activities (n =367)**

<b>Promoting educational activities</b>	<b>Abundance</b>	<b>Percent</b>	<b>Cumulative percentage</b>
<b>Weak</b>	<b>46</b>	<b>12.5</b>	<b>12.5</b>
<b>Average</b>	<b>49</b>	<b>13.4</b>	<b>25.9</b>
<b>Good</b>	<b>234</b>	<b>63.8</b>	<b>86.7</b>
<b>Excellent</b>	<b>56</b>	<b>15.3</b>	<b>100</b>