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IDENTIFYING FACTORS PROHIBITING DEVELOPMENT OF GREENHOUSE AGRICULTURE IN THE PROVINCE OF ILAM

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ABSTRACT

The increasing rise of the world population has imposed a variety of problems; one of the most important of them is supplying food for the 7.6 population of the globe. This has made eradicating poverty and hunger one of the eight development goals of the third millennium for this purpose, developing greenhouse exploitation units is one appropriate option for optimal use of natural resources due to the increasing rise of population. There for the present study aims at identifying the factors prohibiting the development of greenhouse cultivating in the province of Ilam, Iran. The methodology used is descriptional survey. Statistical population includes the owners of greenhouses in Ilam prune which are 50 active units presently and we used whole counting method because of the limitation of the statistical population. We used a questionnaire for data gathering the reliability of which was confirmed by Kronbakh alpha (α=87).

The data was analyzed using spss software and structural equations by LISREL software. The results of analysis was conformity and the structural equations showed that eight factors including economical, factors, government supporting factors, factors, infrastructural factors psychological factors, educational factors, technical factors, and ecological factors have been effective in underdevelopment of greenhouse cultivation in Ilam.

Key words: greenhouse cultivation development, prohibiting factors, analyzing conformity factor

INTRODUCTION

The increasing growth of the world population has imposed a variety of problems including health, education, accommodation, poverty …. One of the most important crises in today life of human is supplying food for the population of 7.6.

This has made eradicating hunger and poverty one of the eight development goals in the third millennium and made all 192 members of United Nations become committed to decrease the ratio of people suffering from hunger and poverty to half by the year 2015. The limitation of natural resources which are decreasing every day, made the people involved seek for new approaches to produce maximum amount of food (Rahmanian, 2008). On the other hand Food and Agriculture Organization of the United Nations (FAO) considers the competitiveness of agriculture the only long-term solution for moving along side with sustainable development (FAO, 1993).

World back and world trade organization also emphasize on competitiveness of agriculture (word bank, 1995).

There for the agriculture sector must be prepared to play new roles not only in living functions but also for optimal use of benefits of agriculture in the scope of production and marketing the agriculture products (the confer of ornamental flowers and plants, the ministry of agricultural Jihad, 2004). One appropriate option for optimal use of natural resources is commercialization and competitiveness in agriculture sector and its active presence in global markets and development of greenhouse exploitation units (Heravi, 2005).

Greenhouse cultivation is the result of various technologies which together will provide the context for controlling the culture conditions (FAO, 2007). Since Iran is located in dry and semi-dry areas on the earth, it is often encountered to water shortage; the problem of famine and drought has also added to this issue. So for continuing to live, water supply is an essential need and to adaptation to environment, optimal use of soil and water is inevitable and any kind of help to improve this situation can be a step toward economical development especially in rural areas.

According to the above mentioned points, greenhouse cultivation is observed as a new phenomenon with little background in Iran; and in spite of the growth in the number of greenhouse units, there are still problems which make the qualitative development difficult (Rahmani and colleagues, 2011). At the moment there are more than 8000 active

greenhouses throughout the country (Ministry of agricultural Jihad, 2010).

Due to inefficiency of greenhouse owners in correctly applying the production factors and low productivity of these factors qualitative and quantitative development of this industry is problematic.

The province of Ilam with 700.96 m2 area of greenhouse (50 units) is at the 30th place among other provinces (statistical document of the Ministry of Agricultural Jihad, 2010). Presently 18 units (31000 m2) of these greenhouses are active and 32 units (65700 m2) are inactive (statistical document of the Ministry of agricultural Jihad, 2011).

This data shows the concerning situation of greenhouses in Ilam. In such circumstances, identifying the factors and components prohibiting the qualitative and quantitative development of this kind seems necessary for appropriate planning.

Therefore the present study seeks to answer the question what are the factors prohibiting greenhouse cultivation in Ilam? In a study, Heravi (2005) investigated the costs of launching a greenhouse (from preparing the land before cultivation, watering, preparing the land after launching the greenhouse, cultivation, human forces, and packaging costs and transportation) and found the financial limitations as important factors in developing greenhouse cultivation.

In his study Husseini Nia (2005) found that providing job for women is the most important benefit of greenhouse cultivation and suggested that the most important problems for the women to do greenhouse jobs include cultural and moral factors, mechanization of the processes, the necessity of supporting facilities, lack of awareness of their own rights, having multiple roles, and discrimination in income between men and women. He also suggested that knowledge and information required for women to do greenhouse affairs including marketing skills, management skills, acquiring financial and accounting knowledge of law are effective factors in developing greenhouse cultivation.

Rahmani and colleagues (2011) in their study titled “evaluating the factors effecting on optimal management of fruit greenhouses in the province of Khouzestan” express that age, field of study, and work experiences of greenhouse owners can make meaningful differences in optimal management level.

There is also a meaningful difference between skill knowledge of greenhouse owners and their insight into sustainable agriculture with optimal management.

Sharifi and colleagues (2011) in their study titled “investigating the factors effecting on

the sustainability of greenhouse cultivation system in the region of Jiroft and Kahnouj" declare that the results of regression analysis revealed that about 53.9% of the changes in sustainability level of greenhouse agriculture are determined by five variables including the knowledge level of sustainable agriculture, education level, perspective toward sustainable agriculture, the extent of attending in educational-promotional classes and experience in greenhouse activities.

METHODOLOGY

The present study is functional in that it is expected to apply the results of it to resolve at least part of the issues of identifying the factors prohibiting development of greenhouse cultivation. Data gathering was done in a survey manner. So, the study is descriptional-survey methodology and the nature of the data is quantitative. In terms of the control the study is a field study and in terms of data gathering it is a descriptional study and among the description methods it used survey. 8 component including economical factors, factors related to government support, legal factors, infrastructural factors, psychological factors, educational factors, technical factors, and ecological factors are investigated to identify how each component affects the development and underdevelopment of greenhouse cultivation in the province of Ilam.

CONCLUSION

The results of descriptional statistics

Age of respondents

According to table 1, 14% of the respondents were bellow 30 years, 34% were between 30 and 40, and 52% were above 40 years.

Marital status

According to table 2, 11% of the respondents were single and 89% were married.

Question 1: do the economical factors influence underdevelopment of greenhouse cultivation?

Statistical hypotheses:

H0: economical factors are not effective in underdevelopment greenhouse agriculture in Ilam.

H1: economical factors are effective in underdevelopment greenhouse agriculture in Ilam.

$$\begin{cases} H0: \rho_{xy} = 0 \\ H1: \rho_{xy} \neq 0 \end{cases}$$

Table 1: frequency distribution of respondents based on age

Row	Age range	frequency	Integration percentage
1	Bellow 30 years	5	14%
2	Between 30 and 40	12	34%
3	Above 40 years	18	52%
	Total	35	100%

Table 2, frequency distribution based on marital status

row	category	frequency	Percentage
1	Single	4	11%
2	Married	31	89%
	Total	35	100%

Table 3, the results of structural equation model analysis

Standard coefficient	t-value	Independent variable	Dependent variable	result
74%	6.80	Economical factors	Under development green house agriculture	H0 rejected

H1 claims that the economical factors do have effects on under development green house cultivation in Ilam. According to the table 4, the standard coefficient between two latent variables, economical factors and under development greenhouse agriculture is 0.74 and based on the obtained t-value (6.80) which is higher than 1.96, H0 hypothesis is rejected and H1 hypothesis is confirmed. So it can be concluded that the economical factors are effective in under development greenhouse agriculture in Ilam. So the research question is confirmed.

Question 2: do the factors related to government support affect underdevelopment greenhouse cultivation?

H0: the factors related to government support do not affect under development greenhouse cultivation in Ilam.

H1: the factors related to government support affect under development greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 4, the results of structural equation model analysis: question 2

Standard coefficient	T-value	Independent variable	Dependent variable	result
79%	7.16	Government support	Under development greenhouse agriculture	H0 rejected

H1 claims that government support affects under development green house cultivation in Ilam. According to table 4, the standard coefficient between two latent variables, government support and under development greenhouse cultivation obtained as 0.79 and regarding the t-value obtained (7.16) which is higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that government support affects under development greenhouse cultivation in Ilam. So the question 2 is confirmed.

Question 3: do legal factors affect under development greenhouse cultivation?

Hypotheses:

H0: the legal factors do not affect under development greenhouse cultivation in Ilam.

H1: the legal factors affect under development greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 5: the results of structural equation model analysis: question 3

Standard coefficient	T-value	Independent variable	Dependent variable	Result
84%	8.57	Legal factors	Under development greenhouse agriculture	H0 rejected

H1 claims that the legal factors do affect under development greenhouse cultivation in Ilam. According to table 5, the standard coefficient between two latent variable, legal factors and under development greenhouse cultivation is obtained as 0.84, and according to the t-value obtained (8.57) which is higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that legal factors do have effects of under development greenhouse cultivation in Ilam. So the question 3 is confirmed.

Question 4: do infrastructural factors affect underdevelopment of greenhouse cultivation?

Hypotheses:

H0: infrastructural factors do not affect under development greenhouse cultivation in Ilam.

H1: infrastructural factors do affect under development greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 6, results of structural equation model analysis: question 4

Standard coefficient	T-value	Independent variable	Dependent variable	Result
95%	6.37	Infrastructural factors	Under development greenhouse cultivation	H0 rejected

H1 claims that the infrastructural factors do affect under development greenhouse cultivation in Ilam. According to table 6, the standard coefficient between two Latent variables, infrastructural factors and under development greenhouse cultivation, is 0.95 and according to the t-value obtained (6.37) which is higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that the infrastructural factors do affect under development greenhouse cultivation in Ilam. Therefore the question 4 is confirmed.

Question 5: do the psychological factors affect underdevelopment greenhouse cultivation in Ilam?

H0: the psychological factors do not affect under development greenhouse cultivation in Ilam.

H1: the psychological factors do affect under development greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 7, structural equation model analysis: question 5

Standard coefficient	T-value	Independent variable	Dependent variable	Result
94%	7.91	Psychological factors	Under development greenhouse cultivation	H0 rejected

H claims that psychological factors do affect under development greenhouse cultivation in Ilam. According to table 7, the standard coefficient between two latent variables, psychological factors and under development greenhouse cultivation, is 0.94, and according to the t-value obtained (7.91) which is higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that the psychological factors do affect under development greenhouse cultivation in Ilam and question 5 is confirmed.

Question 6: do educational factors affect under development greenhouse cultivation?

Hypotheses:

H0: educational factors do not affect under development greenhouse cultivation in Ilam.

H1: educational factors do affect developing greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 8, the results of structural equation model analysis: question 6

Standard coefficient	T-value	Independent variable	Dependent variable	Result
84%	7.89	Educational factors	Under development greenhouse cultivation	H0 rejected

H1 claims that educational factors do affect under development greenhouse cultivation. According to table 8, the standard coefficient between two latent variables, educational factors and under development greenhouse cultivation, is 0.84, and according to the t-value obtained (7.89) which higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that educational factors do affect under development greenhouse cultivation. And question 6 is confirmed.

Question 7: do technical factors affect under development greenhouse cultivation?

Hypotheses:

H0: technical factors do not affect under development greenhouse cultivation in Ilam.

H1: technical factors do affect under development greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 9, structural equation model analysis: question 7

Standard coefficient	T-value	Independent variable	Dependent variable	Result
98%	8.80	Technical factors	Under development greenhouse cultivation	H0 rejected

H1 claims that technical factors do affect under development greenhouse cultivation. According to table 9, the standard coefficient between two latent variables, technical factors and under development greenhouse cultivation is 0.98, and according to the t-value obtained (8.80) which is higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that the technical factors do affect under development greenhouse cultivation in Ilam. And the question 7 is confirmed.

Question 8: do ecological factors affect under development greenhouse cultivation in Ilam?

Hypotheses:

H0: ecological factors do not affect under development greenhouse cultivation in Ilam.

H1: ecological factors do affect under development greenhouse cultivation in Ilam.

$$\begin{cases} H0 : \rho_{xy} = 0 \\ H1 : \rho_{xy} \neq 0 \end{cases}$$

Table 4-22, structural equation model analysis: question 8

Standard coefficient	T-value	Independent variable	Dependent variable	Result
67%	4.99	Ecological factors	Under development greenhouse cultivation	H0 rejected

H1 claims that ecological factors do affect under development greenhouse cultivation in Ilam. According to table 4-22, the standard coefficient between two latent variables, ecological factors and under development greenhouse cultivation is 0.67, and according to the t-value obtained (4.99) which is higher than 1.96, H0 is rejected and H1 is confirmed. So it can be concluded that ecological factors do affect under development greenhouse cultivation. And the question 8 is confirmed.

SUGGESTIONS

According to the results of the research, the lack of educational and consultant resources and centers is one main reason for under development greenhouse cultivation in the province of Ilam. In this line, it is suggested that the authorities and policy makers provide efficient centers to develop educational and consultant services for the greenhouse owners or applicants to launch greenhouses, whether in the public sector or in the private sector. The corporations can also have significant roles; greenhouse corporations can collaborate with public and private sector to launch short-term courses for greenhouse keeping skills and provide necessary council, and inform the opportunities and threats in the future.

The results of the study show the high effect of technical knowledge of greenhouse keepers on development/ underdevelopment of greenhouses; so the managers and policy makers should put their effort on increasing the awareness at first step and providing council and appropriate control on the structure of greenhouses. It is also recommended that specialty centers be launched to experiment water and soil and also identify and fight with the pests throughout the province.

It is suggested that the agent banks provide loans and while generating necessary approaches to direct the loans, provide the ground for low interest loans with more favorable pay back conditions.

It is recommended that the Ministry of agricultural Jihad provide maximum support for greenhouse units. In addition, according to special situation of the province of Ilam and due to its proximity to the international border of Mehran and possibility of export greenhouse products to neighborhood countries, it is suggested that the policy makers collaborate with greenhouse owners and help them to export their products, specially off season products, and ornamental plants and flowers, so that this province becomes a pole in greenhouse industry.

On the other side the results of the study showed that the bureaucracy affairs and legal factors are among the factors that inhibit the activity procedures of greenhouses; so it is suggested that the rules and provisions related to the Natural Resources Organization and the organization of land affairs be reviewed periodically and be changed as necessary depending on the situation of each province.

Today world is the world of quick changing and evolving of technologies and methods of doing things, every day we see a variety of changes related to optimal methods for doing things and modern technology plays a significant role. Therefore it is recommended that align with decreasing the end price of the products relative to the production costs which is considered as one obstacle to the development of greenhouse cultivation in Ilam, the authorities constantly update the knowledge related to the jobs and the equipments, so that they can help decease the final price of the products while keeping competitiveness.

The results showed that not accessing to a secure power distribution network and the high price of fuel is a prohibiting factor in greenhouse cultivation in Ilam. Due to the weather of the region which is located in highland areas and the low temperature

during winter and even spring and fall, this factor is important for production of off season products which is the main income source for greenhouse. So it is suggested to provide gas for this province in order to develop more greenhouse units. Also it is recommended to the applicants when localizing their greenhouse considers factors such as easy access, and accessibility of gas supply to the location.

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