



THE ADOPTION OF THE GREEN HOUSE AGRICULTURE PROJECT BY THE RURAL WOMEN, WHICH IS PREPARED BY THE EXTENSION AND AGRICULTURAL TRAINING DEPARTMENT IN THE IMAM DISTRICT OF BABIL PROVINCE, IRAQ

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Abstract

The research aims to identify indicators of rural women's adoption of the greenhouse cultivation of vegetables project in Babil Governorate. As well as to identify the stages experienced by rural women during the adoption of the greenhouses project and identifying the technical practices adopted and non-adopted by rural women in the greenhouses cultivation of vegetables. The research included (research community) rural women in Babil Governorate (654 researched sample). A random sample of 14% was taken as 92 researched samples. The results showed that 51% of the total studied samples applied vegetables cultivation in greenhouses alongside with low indicators of adoption of rural women to grow vegetables in green houses. The researcher recommends the need to find incentives to adopt rural women for the project in green houses and to expand the implementation of extension activities, which aims to increase the awareness of the candidates about the importance of adopting greenhouses agriculture and giving the extension system great importance to the project dissemination and the provision of government support.

Keywords: Adoption, rural women, greenhouse vegetable cultivation.

Introduction

Rural woman is considered the first cell in the rural society and the mainstay In the procession of rural development and one of the important elements in agricultural production processes (Fatima, 2016: 102) (Riad, 2015: 519). Rural woman constitute half of rural society and play multiple roles both at home and at field level (Abd al-Wahhab, 2015). She does not only do her act as wife and mother but does her work outside the home side by side with the man. She does her task of quarrying and plowing, preparing the land, planting, storing, weeding and marketing. Therefore, they represent 43% of the workforce (Agriculture, 2018) (Wade, 18: 18), Lains, 2011). Giving the importance of the roles played by rural women, the Agricultural Extension and Training Department has been able to be an active and productive element in a scientific and simplified way to help them achieve food security (Hasek, 2011) (Alkier, 2013). In addition, enabling them to increase household income through education and training on small projects (Central Administration for Guidance and Environment, Internet, 2018) (Raja, 2013). Including the greenhouse cultivation which aims to increase the vegetables productivity throughout the country (Assaf, 2011) (the reality of African women in Iraq, 2016). Furthermore, providing rural women with sources of knowledge, and to properly guide them to adopt greenhouse vegetable service operations especially those are distant from the sources of agricultural scientific knowledge and their developments over 23 years (Salem, 2011).

Based on the above, and for the importance of the contribution of rural women to economic activity, whose contribution is 87% (Alkire, 2013) (Kanal, 2011) (p1), the current research was conducted to answer the following questions:

1. What are the indicators of the rural women are adopting a plantation project in greenhouses.

2. What are the phases of the adoption process undertaken by rural women during the vegetable cultivation project in greenhouses?
3. What are the technical practices adopted by rural women to cultivate vegetables in greenhouses?

Research goals:

1. Studying the indicators of adoption of rural women for the project of cultivating vegetables in greenhouses.
2. Identifying the stages experienced by rural women during their identification of vegetables cultivation in greenhouses.
3. Identifying the technical practices of the vegetables cultivation project in greenhouses that have not been adopted by rural women.

Materials and Methods

Applying the descriptive approach in conducting the current research, which is based on studying the phenomenon as it is by providing data on the adoption of rural women for the project of growing vegetables in greenhouses.

Imam Township in Babil province was selected to conduct the current research because it is included in the project of greenhouses vegetables cultivation. Number of rural women reached 654 rural women.

A random sample was selected of 14% rural women (92 rural women).

Data were analyzed using Repetitions, percentages and tables. The prevalence of rural women's adoption of the vegetable plantation project in greenhouses was also studied using the logistic equation, the most common equation in determining the level of adoption of modern technologies, which represents:

$$Y=k \backslash (1+e-z-xt)$$

Where:

k = the maximum rate of adoption.

y = the cumulative rate of adoption.

z and x constants is estimated in the form of squares constants.

Data were collected in December 2018 by rural women interviewing.

Results and Discussion

First: The aim of the research is to identify the adoption stages by rural women during the adoption of the vegetables cultivation project.

The results showed that the rural women during the adoption of the project to grow vegetables in greenhouses went through five stages:

- 1) **Stage of knowing the idea:** The results showed that the highest percentage of candidates who heard the idea of the project was 82%, while the percentage of candidates who did not hear the idea was 18% as shown in Table 1.

Table 1 : Numbers and percentage of candidates according to their hearing about the idea of growing vegetables in greenhouses.

Hearing the idea category	Number	%
Heard the idea	75	82
Did not heard the idea	17	18
Total	92	100

It is concluded from the above table that most of the candidates heard about the idea of vegetables plantation in greenhouses. The reason is that rural women are aware of the importance of the project to increase their household income.

Sources of hearing: The results showed that the source on which the rural women relied when they heard about the vegetables project is from the agricultural divisions, followed by neighbors and agricultural guides, and 29%, 26% and 22% respectively. While the media were the least sources on which rural women relied on to obtain information about the project of vegetable growing in greenhouses, which amounted to 15% as shown in Table 2.

Table 2. Numbers and percentage of candidates according to the sources on which rural women relied upon to hear about the vegetables project.

Source of knowledge category	Number	%
Neighbours	24	26
Agricultural extension workers	20	22
Agricultural divisions	27	29
Bulletins	12	13
Media	9	10
Total	92	100

It is concluded from the table 2 that rural women have heard of the project of growing green vegetables in greenhouses in rural areas, and this may be due to the fact that rural women have confidence in information obtained by the agricultural divisions.

The stage of interest in the project of greenhouses vegetable plantation

The results showed that the agricultural divisions helped to raise the interest of the candidates in the project, which was the highest percentage of 46%, while the Agriculture Directorate in the province the lowest rate of 11%, as shown in Table 3.

Table 3 : Numbers and percentages of the parties that raised the interest of the candidates in the project of vegetables planting in greenhouses.

Parties that raised the interest of the candidates in the project	Numbers	%
Extension and Agricultural Training directorate	0	0
Directorate of Agriculture in the province	10	11
Agricultural divisions	42	46
Extension Farm	40	43
Total	92	100

The above table concludes that the majority of the sources of access of candidates to the information that raised their interest in the project is the agricultural division and extension farm by 46% and 43%, respectively, and this was due to the proximity of these directorates to the residence of the candidates.

Project evaluation: The results showed that 55% of the candidates who evaluated the project compared to those who did not evaluate the project are 44%, as shown in Table 4.

Table 4: Numbers and percentages of female candidates according to their project evaluation and comparison with old practice.

Project evaluation category	Number	%
Evaluated the project	51	55
Did not evaluated the project	41	45
Total	92	100

It is concluded from the table above that half of the candidates evaluated the project and compared it to old practices, due to the awareness and interest of rural women in agricultural practices and the pursuit of additional opportunities.

Project Experience: The results showed that 72% of the candidates had tried the project on a small scale compared to those who did not try the project on a small scale by 28%. As shown in Table 5.

Table 5 : Numbers and percentages of female candidates according to their piloting the project on a small scale.

Project Workout Category	Number	%
Tried the project	66	72%
Did not tried the project	26	28%
Total	92	100%

It is concluded from the above table that more than one-third of the candidates tried the project on a small scale. This is due to the fact that the participation of rural women in the project is evidence of their interest in the services provided by the extension agencies which provides them with an opportunity to learn about agricultural developments.

Application of the project: The results showed that the highest percentage of candidates who applied the project is 57%, compared to those who did not implement the project as they reached 43% as shown in Table 6.

Table 6 : Number and percentage of candidates according to their application of the project.

Application of the project category	Number	%
Applied the project	52	57
Did not apply the project	40	42
Total	92	100

It is concluded from the above table that about half of the candidates applied the project, amounting to 52%. This is due to their participation in this project, which may help to

develop their knowledge and skills in the field of vegetable growing in greenhouses as well as opportunities to increase production.

Second: Identification of the technical practices adopted by the rural women for the project of vegetable growing in greenhouses.

The results indicated that there are a number of technical practices adopted by rural women in vegetable planting in greenhouses, as shown in Table 7.

Table 7 : Distribution of the respondents according to the agricultural technical practices adopted and not adopted from the vegetable plantation project.

Field	Technical practices	Adopted practices		Non-adopted practices	
		Number	%	Number	%
	Farming in the form of plates in dishes	60	65.2	32	34.7
cultivation method	Planting in vitreous dishes by Betemus	34	36.9	58	63
	Planting in single house lines	33	35.8	59	64.1
	Planting in the dishes in a permanent place	79	85.8	13	14.1
	Distance between line and another is 80 cm	54	58.6	38	41.3
	Use of Tomato Seeds (Wijdan), Eggplant Seeds (Barcelona), Cucumber (Super)	53	57.6	39	42.3
	The use of cork dishes with a capacity of 15 wells	18	19.5	74	80.4
Pesticides and fertilizers	Addition of balanced leaf compost (NPK)	69	75	23	25
	Addition of potassium fertilizer	15	16.3	77	83.6
	Use of herbicides	66	71.7	26	38.2
	The use of pesticides	48	52.1	44	47.8

It is concluded from the above table that the highest agricultural practice adopted by rural women in the field of agriculture method is (the method of agriculture in the permanent place), which amounted to 85.8%, followed by (agriculture in the form of plates in dishes) by 65.2%. On the other hand, the highest percentage of non-adopted practice by the rural women was (adding potassium fertilizer) by 83.65 followed by (use of 15-well cork dishes) by 80.4%.

Third: Identifying the indicators of rural women adoption for the project of vegetables growing in greenhouses.

The results showed that the rate of adoption of rural women in the greenhouses in Babil governorate was 45.78% at the sample level, while the non-adopted sample in Babil governorate was 40.84% and 34.66% respectively. The percentage of adoption density was 34.66% as shown in Figure 1.

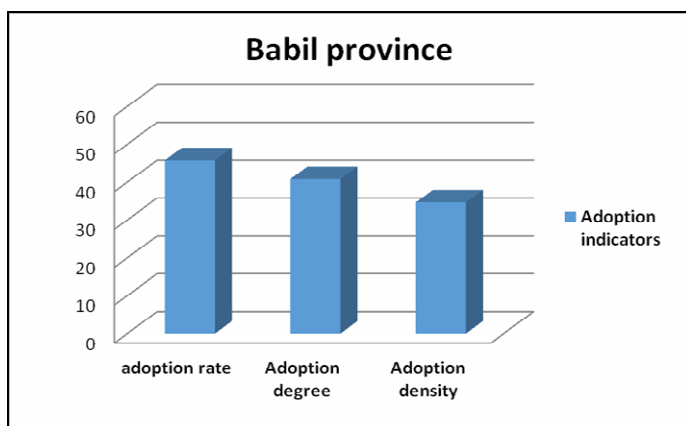


Fig. 1 : The rate of adoption of rural women for the project of vegetable growing in greenhouses and their degree and density.

The phenomenon of the adoption of rural women for the vegetable plantation project in greenhouses was studied as the roof of adoption $K = 95$, reaching the current rate of adoption 45.78% in 2017, while it was expected to reach 90.15% for the same year. The model indicates that this rate will reach 95% growth in 2025, a mean growth rate of about 1.15% per year. As shown in Figure 2.

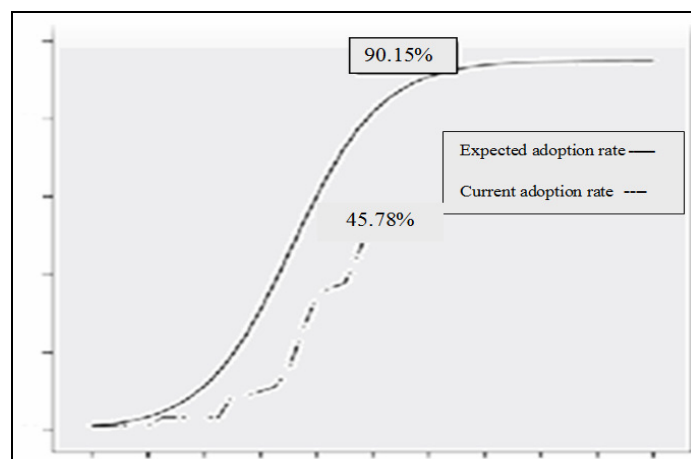


Fig. 2 : Current and expected rate of adoption of rural women for green vegetables project.

The results of the study indicate that there is a decrease in the indicators of rural women adoption to grow vegetables in greenhouses. The agricultural divisions play a large role in spreading the technology of vegetables planting in greenhouses. The researcher recommends the need to find incentives to adopt rural women to grow vegetables in greenhouses and to expand the implementation of extension activities aimed at increasing the awareness of candidates

about the importance of adopting agriculture in greenhouses. In addition, showing the project effectiveness and activating the guidance agencies to educate rural women about the importance of the project and the provision of government support.

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