



# Application Level of Environmental Safe Agricultural Practices Among Vegetable Farmers In The Nineveh Governorate

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**Abstract:** The aim of this study was to determining the application of vegetable farmers in Qaber Al- abed village/ Hammam AL- Aleel Area / Ninevah governorate, for the agricultural environmental practices in general and arranging these agricultural environmental practices according to the level of application for the vegetables farmers in Qaber Al – abid village /Hammam AL- Aleel / Nineveh governorate and determining the correlation between the vegetables farmers for the agricultural environmental practices and some independent variables . This research included all the farmers' vegetables in Qaber Al- Abid village /Hammam AL- Aleel / Nineveh governorate which are 200 farmers. The data were collected by questionnaire after testing face validity and reliability and then we analyzing the data by used the arithmetic mean, spearman rank and the correlation person. The results showed that the farmers level application for the agricultural environmental practices was moderate tend to increasing and also the results show that were a significant correlation between the farmers' level of application for the agricultural environmental practices and the level of education while the results show also there is no significant correlation with (age, number of working year in agriculture and specialty in planting vegetables). The research included some of conclusions and recommendations

**Keywords:** Agricultural Environmental, Practices, The Farmers' Vegetables, Level Of Education, Age, Experiences and Rural and Cites

## Introduction

The issue of the environment and protected, preserved it from all kinds of pollution and one of the most important issues of the era and one of the most serious problems experienced by the countries of the world and the developing countries in particular, which can leave effects difficult to cure in the long term ([Allam et al., 2015](#)). Over the past three decades, the world has been increasingly aware that the current development model is no longer appropriate after its consumption lifestyle has been linked to serious environmental crises such as loss of biodiversity, The shrinking tropical forest areas and air pollution and water also the high temperature of the earth and the degradation and salinization of

agricultural land, to add to that, increasing the proportion of desertification, Prompting a number of critics of that development model to create a developmental model that works to achieve harmony between the achievement of development goals on the one hand and the protection and sustainability of the environment on the other hand ([Koshash, 2009](#)). And that environmental protection is the proper use of natural resources and to prevent contamination and maintain balance the face of this pollution of the environment to add to that the environmental laws and regulations, The problem of environmental pollution is one of the most serious environmental problems faced by modern-day humans at the same time, this problem must be worked out in order to find quick solutions to it, because the more serious and complicated the solutions become more difficult and expensive. Every resource that is depleted is borne by all members of the community, even those who did not use that resource directly, Therefore, humans should reconsider how they deal with the environment and proper planning to exploit their resources and think about the possible consequences of exploiting these resources. Also, study the risks of industrial waste, fuel combustion products and the increased use of chemical pesticides and other contaminants ([Nusrat, 2011](#)).

In recent years in the context of the rapid change of the food economy, food safety, quality and environmental sustainability of agriculture, the concept of good agricultural practices appeared to reduce risks associated with pesticide use, taking into account public health, safety and environmental considerations ([FAO, 2003](#)). Implementation of good agricultural practices has become in some cases a part of the food chain approach to ensure food safety and quality this approach starts at the farm level with the application of good agricultural practices and then develops along the food chain to include good manufacturing practices and good hygiene practices. FAO, 2006 defines good environmental practices as successive practices that address field processes in terms of the environmental, economic and social aspects and the quality and quality of agricultural products. Agricultural practices are used during the cultivation, harvesting, processing, packing and storage of fruits and vegetables to prevent microbial contamination ([Al-Mahdi and Taha, 2012](#)). Aware from the Arab Organization for Agricultural Development for the importance of disseminating these practices in Arab agriculture and increasing their adoption rates and in line with the directions of the sustainable agricultural development strategy for the coming two decades, The FAO Plan in 2007 has a project to disseminate good agricultural practices in Arab agriculture, the components of which include the preparation of a documentary study on these practices in Arab countries ([Al-Luzi, 2007](#)). It is the responsibility of agricultural extension to transfer the results of research and other agricultural practices and new methods to farmers. the Success to increasing agricultural production without harming natural resources depends on farm use of these agricultural practices and techniques ([Kachash, 2009](#)).

As the conscious use of natural resources depends on the decision taken by the farmer to use a certain quality of resources, fertilizers and pesticides On his information, knowledge and attitude towards the use of environmentally in friendly way, farmers must have the capacity to adopt agricultural practices and techniques to seek healthy food

production and to help farmers manage their farms in a manner consistent with the preservation of the environment. This led to the researcher to carry out this study. Some studies were conducted in the field of agricultural practices, for example the study of ([Abdel Azizokhatun, 2007](#)), which indicated that the level of adoption of agricultural practices amounted to 89% of respondents who fall in the lower and moderate levels, this study showed also there is no significant correlation between the level of adoption and variables like age, educational level of farmers, the type of possession of land and the area of cultivated land. In the study ([Abbas and Abdul Razzaq, 2008](#)), there was a significant correlation between the level of adoption and age and the results shows also there is no significant correlation between the variable of listening to agricultural radio programs and watching agricultural television programs and level of adoption. Tawfiq (2009) found that the average level of application was moderate, and there was a significant correlation between the level of application of wheat farmers to the recommended practices, and the educational level, the type of possession of land, age and there is no significant correlation between the level of application and area of cultivated land The objectives of the current research are as follows:

1. To determine the level of application of vegetable farmers in the village of Qaber Al- Abd ,Hammam AL- Aleel Area Ninevah province the agricultural environmental practices in general
2. To arrangement of agricultural environmental practices according to the level of application to the farmers of vegetables in the village of Qaber Al- Abd ,Hammam AL- Aleel Area Ninevah province
3. To determine the relationship between the level of vegetable farmers to the agricultural environmental practices and for all of the following independent variables (age, educational level, number of years work in agriculture, specialization in vegetable farming)

To identify the reasons that drive farmers to do some agricultural practices wrongly

### Research Method

The number of the respondents of this study was (70) were selected from (200) farmers belong to vegetable farmers in the village of Qaber Al- Abd ,Hammam AL- Aleel Area Ninevah province. We choose the respondents by random sampling. The questionnaire was prepared divided in to two parts: the first part included the following independent variables like, the age was measured by the number of years for farmers, and the educational level was measured by assigning numerical codes for each level (1, literate, 2, Illiterate 3 primary 4, Intermediate elementary 5, Secondary school 6 intermediate 7, Institute 6, College), and the number of years worked in vegetable farm was measured by counting the number of years in which farms are engaged in vegetable growing. The specialization in vegetable farm was measured by assigning numerical symbols to the following levels (vegetables as main crops, secondary crops).

The second part of the questionnaire included (23) statements to measure the level of application of vegetable farmers in agricultural environmental practices and was

identified after reviewing the previous studies and literature related to the research topic (Tawfiq 2009, FAO 2003) and we put three alternatives to each statements (I apply always, apply rarely, don't apply) we numbering the alternatives (3,2,1) respectively, so that the total score is representative of the level of application of agricultural practices by farmers. The validity of the questionnaire was verified after being presented to specialists in the Agricultural Extension Department and the Horticulture in College of Agriculture and Forestry and based on their notes we removed some statements and we redrafted others. The Cronbach alpha value obtained for the level of application of vegetable farmers was (0.91) exceeding. SPSS software was used to analyze the data collected, statistics such as frequency, percentage, mean, standard deviation and correlation was used. The data collected face-to-face interview based on a structured questionnaire.

### Result and Discussion

First: To determine the level of application of vegetable farmers in the village of Qaber Al- Abd, Hammam AL- Aleel Area Ninevah province the agricultural environmental practices in general

The application level was classified into three categories using the mean and the standard deviation. The standard deviation (6.790) was combined with the mean (55.94) and in second steps we mines the standard deviation with the mean to determine the middle category, which ranged between (49- 63). Since the lowest score was 38 and the highest score was 68, the first category was determined between 38-48 and the third category between (64-68) as shown in Table (1)

**Table 1.** Distribution of respondent according to application level of agricultural practices

Percentage	Frequency	Application level
10	7	38 -48 low
71.429	50	49-63 Moderate
18.571	13	64-68 High
100	70	Total

The table above shows the (71.4%) of respondents have a moderate level of agricultural practices, This may be due to the fact that farmers are accustomed to some of the traditional methods they used to grow vegetables, and this result is consistent with what they found (Abdel Aziz and Khattoun, 2007) and the results shows the (10%) of respondents have low level of agricultural practices and for the percentage of high level is (18.5%).

Second: The arrangement of agricultural environmental practices according to the level of application of green farmers in the village of Qabr al-Abd

To achieve this objective, we get the mean of each statements of agricultural environmental practices and then we order of the averages descending as shown in table

**Table 2.** The rank orders agricultural practices items according application level for vegetable growers

Rank	The mean	Items
1	2.942	Farming in a good soil
2	2.8	Purification of seeds before farming them
3	2.785	Avoid the mixing of sewage with the irrigation water
4	2.77	Packing the vegetables crop in a clean cans
5	2.71	Using the organic fertilizers to improve the soil fertility
6	2.657	Getting reliable seeds from trusted resources
7	2.628	Protecting the fields and the resource of water from grazing to prevent the pollution
8	2.585	Recognizing the water resources which are specialized for farming
9	2.557	Using the crop rotation to improve the fertility soil
10	2.5	Protecting the soil superficiality layer washout
11.5	2.48	Avoid wasting by using chemical fertilizers
11.5	2.48	Reducing the use of chemical pesticides
13	2.47	Maintaining the irrigation equipment to limit of water leaking
14	2.442	Perform the process of killing diseases in time
15	2.38	Storing the pesticides in safe places and far from the places of storing the production
16	2.34	Storing the food products under healthy and suitable environmental circumstances
17	2.328	Use the scientific methods for marketing the crops
18.5	2.314	Doing the process of terminating the insects in time
18.5	2.314	Using the scientific ways to keep and store crops
20	2.3	Using the mechanical farming
21	2.28	Using the equipment of woody wind
22	1.54	Doing the process of irrigation at night to reduce the evaporation
23	1.3	Following the system of reusing water after purifying it

According to Table 2, the agricultural environmental practices according to their level of application to the vegetable farmers statement, (fertile soil agriculture) was reported to have the highest mean value (2.942). This is interpreted as that application of these practices has become widespread among most farmers, making them practice at the beginning of each crop. Table 2 also showed the statement, (water purification systems) have the least mean value. This is interpreted as that the respondent's don't have enough knowledge of how agricultural practices related to water reuse systems have been applied. This has been reflected in their low application of these agricultural practices.

Third: To determine the relationship between the level of vegetable farmers to the agricultural environmental practices and for all of the following independent variables (age, educational level, number of years work in agriculture, specialization in vegetable farming).

1. (Age): In order to find the correlation between age and farmers' application of agricultural environmental practices, the correlation coefficient was (0.077) this mean that there is no significant correlations according to the value of (t) (0.636), which is less

than value tabular (1.671) this is interpreted as that the age Has nothing to do with farmers' application of agricultural environmental practices.

2. level of education: In order to find the correlation of the level of education and farmers' application of agricultural environmental practices, we used the Spearman coefficient which was (0.333) which is significant at (0.01) according to the value (t) calculated (2.912) Which is larger than the tabular value (2.390) This indicates that there is a significant correlation between the level of education and the level of application of farmers to agricultural environmental practices. This may be due to the fact that the high level of education of the farmer makes it more receptive to the application of agricultural practices and this is reflected in the practice of agricultural work for the cultivation of vegetables.
3. The number of working years in agriculture: To determine the correlation between the number of working years in agriculture and the level of farmers' application of agricultural environmental practices, the simple correlation coefficient was used, the value was (0.184), which is no significant according to the calculated value (t) (1.542) this degree less than the tabular value (1.671), this indicates that there is no significant correlation between number of working years in agriculture and the level of farmers' application of agricultural environmental practices.
4. Specialization in in vegetable farming: To determine the correlation between the specialization in in vegetable farming and the level of farmers' application of agricultural environmental practices, we used the Spearman correlation the value was (0.018) which is no significant according to the value of (t) calculated (0.148), which is less than the tabular value (1.671). This result indicates that there is no significant correlation between the specialization in in vegetable farming and the level of farmers' application of agricultural environmental practices.

**Table 3.** The correlation between application level of agricultural environmental practices and some variables

	T	rvalue	r value	%	Frequency	Variables
<b>Table</b>	<b>Calculated</b>					
1.671	0.636	_____	0.077	31.429	22	age (47-30)year
				57.143	40	(65-48)year
				11.428	8	(83-66)year
2.390	2.912	0.333	_____	0	0	Level of education
				30	21	Lit rate
				27.142	19	Illiterate
				21.429	15	Primary
				8.571	6	Intermediate
				4.286	3	Secondary school
				8.571	6	Institute
						College
						Number of working years in Agriculture

1.671	1.542	_____	0.184	42.857	30	(less than 30)
				41.429	29	(49 - 30 )
				15.714	11	(49 More than)
1.671	0.148	0.018	_____	72.857	51	Main crop
				27.143	19	Secondary crop

**Table 4.** Illustrate the distributing of researchers according to the reasons that makes them to perform some wrong practices

%	Frequency	Reasons
89	62	There is no rules prevent to the farmers from doing the wrong practices
86	60	The firm belief with the importance of chemical fertilizers to increase the production
70	49	lack of experience and the consciousness of wasting damages from using fertilizers and pesticides
70	49	The unawareness of the farmers with the scientific methods for marketing crop
64	45	lack of experience and the consciousness with the safety ways to use irrigation water
33	23	The farmers used to do the wrong practices

Table (4) shows that the main reasons were the lack of controls that prevent farmers from doing some wrong practices by 89% of the total sample of farmers, Followed by a strong belief in the importance of using chemical fertilizers to increase production by 86%, then lack of experience and awareness of the harmful effects of the use of fertilizers and pesticides and the ignorance of farmers by scientific methods to market crops by 49% and lack of experience and awareness of the proper methods of irrigation water use by 45% followed by farmers return to practice Wrong with 23%.

### Conclusion

1. Most of the farmers in the research area have moderate level of application in agricultural environmental practices. This indicates that farmers in the research area still maintain some traditional methods and did not grow up to the required level of application of agricultural environmental practices to add to that the lack of requirements for implementing these practices
2. The educational level is related to farmers' level of application in agricultural environmental practices compared to other variables
3. The most agricultural practices applied by farmers are agriculture in fertile soil and purification of seeds before planting and the least applied is to follow the systems of reuse of water after purification

4. One of the most important reasons for farmers to do some of the practices wrongly is the lack of controls that prevent farmers from doing the wrong practices followed by the farmers' belief in the importance of using chemical fertilizers to increase production

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