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TRAINING REQUIREMENTS FOR FARMERS IN BAGHDAD GOVERNORATE IN THE FIELD OF PROTECTING THE RURAL ENVIRONMENT FROM POLLUTION

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Abstract

The research aimed to determine the level of training requirements for farmers in Baghdad governorate in the field of rural environment protection from pollution in general and to determine the level of training requirements for each axis of the rural environment protection axes from pollution. In order to achieve the objectives of this research, a questionnaire was prepared for the training requirements scale in light of the relevant literature and the opinions of specialized experts. Its included a scale of training requirements in the field of rural environment protection from pollution consisting of 69 paragraphs distributed on (5) axes: soil, surface water, air, plant and animal protection, where the high value of the training requirements scale reached (207) degrees and its minimum value (zero). The data were collected in November and December/2019 by the questionnaire and by a personal interview method with a proportional stratified random sample of the farmers of Baghdad Governorate at a rate of (2%) and by 235 respondents distributed to the agricultural divisions of the Baghdad, Rusafa and Karkh districts covered by the research. The results have shown that the average level of the general training requirements for all respondents in the field of rural environment protection from pollution reached (136, 83) degrees and the percentage (99.58%) of the respondents, their degrees of their training requirements were within a many requirement levels tends to the moderate. The results also showed that there are many training requirements tends to the moderately among the respondents in each axis of rural environment protection axes from pollution. As they reached: (99.15%) in the soil protection axis, (99.15%) in the surface water protection axis, (99.58%) in the air protection axis, (97, 87%) in the plant protection axis and (97, 45%) in the animal protection axis. The researcher has recommended that the Ministry of Agriculture represented by the Agricultural Extension and Training Department in cooperation and coordination with the Environmental Department meet the training requirements of farmers in the field of rural environment protection from pollution, through the preparation. As well as, the implementation of specialized training programs and work to expanding seminars and other extension activities on this, subject.

Keywords **:** Training requirements, environmental protection, pollution

Introduction

The environment is one of the cornerstones of life, which has a significant impact on human lives, directly and indirectly, where the environment includes all the assets of nature, including humans, animals, plants, and inanimate objects. Therefore, it is of great importance because of its directly related to human life and its great impact on his physical and psychological health. (Al-Hussan, 2019). Everything that God Almighty has created in the environment has been created with specific amounts and specific qualities, that ensure the ability to provide adequate ways of life for man and other living organisms that share life on earth as it summarizes the wisdom of balance in the environment (Muhammad, 2015). The human being, through his endeavor, to meet his increasing needs and to provide his livelihoods in line with the times, they used the nature with all its existing resources and capabilities, which increased his productive activities and increased his pollutants and residues. Over time, this waste and residue accumulated so that the environment components could no longer be absorbed and self-disposed, which caused many risks and damages, whether it is on the human himself or on natural resources so that these resources have become less valid and more harmful than they were in their original form. Furthermore, the problem of environmental pollution is one of the most important major problems that all countries of the world pay increasing attention to it. The reason may be due to the close relationship between humans and the environment, which reached to the critical stage due to the increasing severity of environmental pollution in all its forms, until it reached a degree that threatens the life and existence of all living organisms on the surface of earth, especially the human being. As the human is the first responsible for pollution of the surrounding environment in all its aspects, which may be with or without intent, where they are the real stakeholder in protecting and preserving it from pollution. Moreover, the environmental pollution is a global problem that does not belong to a country in itself; on the contrary, it has become a problem across the world (Fadlallah, 2001). Additionally, the industrial revolution and the accompanying major changes on the surface of the earth and in the vegetation and livestock, as well as soil, water and air were due to the human establishment for agricultural, dams and infrastructure projects. In addition, humans have greatly conserved natural resources, polluting the natural environment and threatening its resources, which have been inhabited by the great biodiversity of nature (Murad, 2017). As for the Iraqi environment, it was exposed to a set of threats, including drought and the increase of soil salinity, which reduced the area of arable land, also the damage to the water and sewage networks, where the incorrect disposal of this water. As well as, the problems in the electric power supply led to the discontinuation of sewage discharge pumps that are based on the discharge and treatment of water and the discontinuation of irrigation pumps that remove saltwater from agricultural lands. Moreover, the smoke from oil well fires, the remnants of war, mines, unexploded ordnance and gases emitted from generators and cars in crowded areas, as well as the lack of government oversight of the waste that is

discharged into the Tigris and Euphrates rivers (Muhammad *et al*., 2014). The Iraqi Ministry of Environment also explained that one of the reasons that played an important role in environmental pollution was the population increase, desertification and agricultural land degradation. As the proportion of desert lands reached about 42% of the Iraqi area (Ministry of Environment, 2017), as well as the inappropriate use of the Iraqi citizen to their environment, which caused by ignorance and lack of environmental awareness, which led to defects and changes in the Iraqi environmental systems (Al-Marayati, 2014). Environmental pollution is not only limited to urban societies, but it also threatens the rural societies. Because the majority of the rural population has resorted to some negative practices to adopting some negative practices in their dealings with the environment, including most farmers resorting to excessive use of different types of chemical fertilizers, pesticides, and toxins. These actions left a large part of this fertilizer in the soil, which caused its pollution, in addition to the leakage of part of this fertilizer with rainwater or with irrigation water, resulting in surface water pollution (Abbas, 2005). Furthermore, there are also other negative practices that contributed to the rural environment pollution, including the dumping of dead animals, garbage, household and farm waste, pesticide and fertilizer residues in rivers, drainage of sewage and wastewater into surface waters that affected the water quality and led to damage to the fisheries in the rivers (Kazem, 2003). In addition, the unjust cutting of trees and overgrazing, the use of toxic materials and explosives in fishing and waterfowl, burning of solid waste and agricultural waste. As well as, the lack of environmental awareness among farmers and the lack of effectiveness of the competent and regulatory authorities in this field, which led to soil and water and air pollution (Ahmed, 2005). According to the foregoing, preserving the rural environment from pollution and protecting its resources from depletion is affected by the level of knowledge and information possessed by farmers in this field. (Abbas, 2005) indicated that there is a relationship between the level of farmers' knowledge of environmental pollution in terms of its causes and dimensions and the protection of their rural environment from pollution. However, in order to make the farmers aware of the recommended scientific information and knowledge in the field of protecting the rural environment from pollution, where they must be trained. The training programs are an important source of preparing human cadres, developing their competencies, improving work performance and increasing production (Al-Khatib & Al-Enzi, 2002). Therefore, the training represents the effective means for developing farmers by providing them with the appropriate knowledge, experiences, directions, and skills necessary to perform their businesses (Al-Khulaifat, 2010). Finally, In order to succeed the training programs in the field of rural environment protection from pollution, their actual training requirements must be recognized and precisely defined, as the training requirements are the deficiencies in the knowledge and skills of the individual, whether he or she understands it (Noureddine, Alambay, 2002). Due to the importance of identifying training requirements for farmers in the field of protecting the rural environment from pollution, and the scarcity of extension studies dealing with training requirements, therefore this research was aimed to answer the following questions. What is the level of training requirements for farmers in Baghdad governorate in the field of rural environment protection from pollution, and what is the level of training requirements for farmers in each axis of the rural environment protection axes from pollution, which represented by (soil protection, surface water protection, air protection, plant protection, animal protection). Furthermore, the research aims were determining the level of training requirements for farmers in Baghdad governorate in the field of rural environment protection from pollution. As well as, Determining the level of training requirements for farmers in each axis of the rural environment protection axes from pollution through the following axes; Soil, Surface water, Air, Plant and Animal protection. There are many training requirements for farmers in Baghdad governorate in the field of rural environment protection from pollution, which considered as the main Research hypothesis

Materials and Methods

Research community and sample

The study search includes all of the agricultural divisions of the Baghdad/Rusafa Agriculture Directorate, their number (5), and by 6137 farmers. A Random sample (50%) of these divisions was selected, and by (3) agricultural divisions, where a proportional stratified sample was selected (2%) and by (100) farmers. In addition to all the agricultural divisions of the Baghdad/Karkh Agricultural Directorate, their number (13) and by 11,448 farmers. Similarly, a random sample (50%) of the agricultural divisions was selected, and by (7) agricultural divisions, a proportional stratified sample was selected (2%) and by (135) farmers, as shown in Table 1.

Table 1 : Distribution of sample numbers of farmers registered under Agricultural divisions of the Baghdad, Rusafa and Karkh agriculture directorates

Agricultural divisions	Number of farmers	Sample at 2%
A- Baghdad Rusafa Agriculture Directorate		
1- Nahrawan Agriculture Division	3110	62
2- Al- jasser Agriculture Division	1089	22
3- Madaen Agriculture Division	790	16
B- Baghdad Al-Karkh Agricultural Directorate		
1- Al-Kadhimiya Agriculture Division	1619	32
2- Yusufiyah Agriculture Division	602	12
3- Tarmiyah Agriculture Division	1767	35
4- Mahmoudiyah Agriculture Division	440	9
5- Baghdad Agriculture Division / Center	1492	30
6- Abu Ghraib Agriculture Division	770	15
7- Radwania Agriculture Division	86	2
Total		**235**

The data collection tool was a questionnaire prepared in order to achieve the research objectives as a tool to collect data related to the training requirements of farmers in the field of rural environment protection from pollution for its suitability to the d research methodology. Moreover, it is one of the commonly used methods in order obtain information and facts related to the opinions and directions of the respondents on the research subject (Khamqani, 2017). The questionnaire consisted of training requirements scales for farmers in the field of rural environment protection from pollution, where the preparation of the questionnaire has passed in a series of stages, namely:

- Preparing the questionnaire in its primary form: In light of the previous literature and studies related to the research subject and the opinions of experts and specialists in this field. The scale of training requirements for farmers was prepared in its initial form, which included (83) paragraphs distributed on (7) axes, which are: (legislation, soil protection, water protection, air protection, human protection, plant protection, animal protection).
- Developing the questionnaire: The questionnaire was presented in its initial form to a group of experts specialized in the field of agricultural and environmental extension, which their number (21) experts respectively to indicate the degree of their agreement to the axes and paragraphs of the questionnaire. In light of the approval scale that is on three levels: (agree, agree with the modification, disagree), and specified for these expressions the following weights (Zero, 1, 2), respectively. The degree of expert agreement has been calculated on the axes and paragraphs of the questionnaire, and this procedure is considered to verify the face validity and content validity. The face validity is that the tool measures the general overview in terms of the paragraph types, how they are formulated, and how clear they are, where it does not indicate what the tool actually measures, but rather what the scale shows in its surface image (Al-Zuhairi, 2013). Similarly, the content validity indicates the degree to which the scale measures what was designed to measure it in specific content, meaning that the sample of the paragraphs is representative and appropriate to the range of behavior to be measured (Jabr and Ibrahim, 2012).
- Determining the criteria of expert agreement (threshold cut) on the axes and paragraphs of the questionnaire: The standard or threshold cut is the basis for the existence of the axis or paragraph in the questionnaire. The threshold cut is set at 75% or more, which equals (1.5) degrees or more than the upper degree of the agreement scale, which is (2) degrees. As an agreement between 75% and more of the arbitrators or experts on the axes and paragraphs of the questionnaire indicates the validity of the performance (Naji, 2019: Research Methods Lecture), (Abu Samra and Al-Taiti, 2019).
- Fourth: Preparing the questionnaire in its final form: In light of comparing the averages of the expert's agreement levels on the axes and paragraphs of the questionnaire with the standard (or threshold cut) for the purpose of preparing the questionnaire in its final form. All the components of the questionnaire (axes and paragraphs) have achieved the threshold cut and more, as the threshold cut for the scale of training requirements for farmers in the field of rural environment protection from pollution (92.74%), where the legislation axis and the human protection axis were deleted. Thus, the number of the training requirements scale paragraphs (69) divided into (5) axes, namely (soil protection, surface water protection, air protection, plant protection, animal protection).
- Reliability test: Reliability is the accuracy or consistency of the scale, which gives the same results if the same object or sample is measured consecutive times (Mustafa, 2012). In order to measure the reliability, a pre-test was conducted to a questionnaire on 1/10/2019 on a sample of (25) farmers chosen randomly from among the farmers registered within the Al- Istiklal Agriculture Division, Baghdad Agricultural Directorate, Rusafa, which did not appear within the research sample. Furthermore, its measure the reliability of the training requirements scale in the field of rural environment protection from pollution was used Alpha Cronbach coefficient, which values reached (0,89) degrees, the reliability factor values of the measures used in the questionnaire are scientifically acceptable, as the ratio (80%) is acceptable as a minimum for the reliability factor value (Tegza, 2009). After conducting the initial test of the questionnaire, the data were collected through the questionnaire and in a personal interview with the respondents during the period from 25/10/2019-30/12/2019.
- Data tab: Weights (Zero, 1,2, 3) were given to the levels of the four-point scale of training requirements (many requirements, moderately requirements, few requirements, no requirements) respectively, and since the number of training requirements paragraphs is (69), the highest degree that the respondent can obtain is (207) degrees and the lowest degree is (zero). In order to describe the respondents, the training requirements were classified into three levels based on dividing the range of scale degrees (theoretical range) into three categories (a few, moderately, and many).

Results and Discussion

The first objective: Determining the level of training requirements for farmers in Baghdad Governorate in the field of rural environment protection from pollution

The research results showed that the highest actual value of the training requirement degree for farmers in Baghdad Governorate in the field of rural environment protection from pollution is (189) degrees. While the lowest actual value is (57) degrees, with arithmetic mean value of (136, 83) paragraphs degrees, and a standard deviation of (22, 324) on the four-point scale of the training requirement, its degrees ranged between (zero-207) degrees. The respondents were distributed into three categories according to the degrees of the training requirements scale (few, moderately and many), and as shown in Table 2.

Table 2 : Distribution categories of respondents according to the level of their training requirements in the field of rural environment protection from pollution

Seq.	Categories	Training requirement degrees	Number	%	Average training requirement	$\bar{X}$	S.D	N
1	Few	0-69	1	0.42	57	136.83	22.324	235
2	Moderately	70-139	110	46.81	118.7			
3	Many	140-209	124	52.77	153.5			
Total			235	100				

The above Table indicates that the highest percentage (52.77%) for respondents which is within the many categories, with an average training requirement of (153.5) degrees, followed by the respondent's percentage (46.81%), which is within the moderately category with an average training requirement (118.7) degrees. This means that most of the respondents (99.58%) their training requirements level in the field of rural environment protection from pollution were describe as a many, and tend to the moderately, where the reason for this may be due to the lack of expertise and knowledge of respondents in the field of rural environment protection from pollution. As well as the lack of extension programs in rural reigns (Al-Rajhi, 2017).

The second objective: Determining the level of training requirements for farmers in each axis of the rural environment protection axes from pollution

The research results showed that the highest actual value of the training requirement degree for the respondents, the research sample in the soil protection axis is (51) degrees. While the lowest actual value is (12) degrees, with arithmetic mean value of (34, 16) degrees and a standard deviation of (6,071) on a four-point scale of the training requirement, its degrees ranged between (0-51) degrees. The respondents were distributed into three categories according to the degrees of the training requirements scale (few, moderately and many), as shown in Table 3.

Table 3 : Distribution of the respondent's categories according to the level of their training requirements in the soil protection axis

Seq.	Categories	Training requirement degrees	Number	%	Average training requirement	$\bar{X}$	S.D	N
1	Few	0-17	2	0.85	14.5	34.16	6.071	235
2	Moderately	18-35	100	42.55	29.27			
3	Many	36-53	133	56.60	38.13			
Total			235	100				

The above Table indicates that the highest percentage (56.60%) for respondents which is within the many categories, with an average training requirement of (153.5) degrees, followed by the respondent's percentage (42.55%), which is within the moderately category with an average training requirement (29.27) degrees. This means that most of the respondents (99.58%) their training requirements level in the soil protection axis were describe as a many, and tend to the moderately. The reason for this may be due to that the respondents feel to need information and skills to help them protect the soil from pollution, as well as the lack of specialized training in this axis. Furthermore, the research results showed that the highest actual value of the training requirement degree for the respondents, the research sample in the surface water protection axis is (39) degrees. While the lowest actual value is (6) degrees, with arithmetic mean value of (26.30) degrees and a standard deviation of (5.031) on a four-point scale of the training requirement, its degrees ranged between (0-39) degrees. The respondents were distributed into three categories according to the degrees of the training requirements scale (few, moderately and many), as shown in Table 4.

Table 4 : Distribution of the respondent's categories according to the level of their training requirements in the surface water protection axis

Seq.	Categories	Training requirement degrees	Number	%	Average training requirement	$\bar{X}$	S.D	N
1	Few	0-13	2	0.85	8.5	26.30	5.031	235
2	Moderately	14-27	110	46.81	22.59			
3	Many	28-41	123	52.34	29.91			
Total			235	100				

The above Table indicates that the highest percentage (52.34%) for respondents which is within the many categories, with an average training requirement of (29.91) degrees, followed by the respondent's percentage (46.81%), which is within the moderately category with an average training requirement (22.59) degrees. This means that most of the respondents (99.15%) their training requirements level in the surface water protection axis were describe as a many, and tend to the moderately. The reason for this may be attributed to the expansion of the surface water pollution phenomenon due to the lack of experience of the respondents to sources of information related to methods of protecting

surface water from pollution, which led to a decline in their information and expertise in this aspect. Moreover, the research results showed that the highest numerical value of the training requirement degree for the respondents, the research sample in the air protection axis is (42) degrees. While the lowest actual value is (13) degrees, with arithmetic mean value of (28.76) degrees and a standard deviation of (5.49) on a four-point scale of the training requirement whose degrees ranged between (0-42) degrees. The respondents were distributed into three categories according to the degrees of the training requirements scale (few, moderately and many), as shown in Table 5.

Table 5 : Distribution of the respondent's categories according to the level of their training requirements in the air protection axis

Seq.	Categories	Training requirement degrees	Number	%	Average training requirement	$\bar{X}$	S.D	N
1	Few	0-14	1	0.42	14	28.76	5.49	235
2	Moderately	15-29	97	41.28	23.5			
3	Many	30-44	137	58.30	32.6			
Total			235	100				

The above Table indicates that the highest percentage (58.30%) for respondents which is within the many categories, with an average training requirement of (32.6) degrees, followed by the respondent's percentage (41.28%), which is within the moderately category with an average training requirement (23.5) degrees. This means that most of the respondents (99.58%) their training requirements level in the air protection axis were describe as a many, and tend to the moderately. Whereas the reason for this may be the respondents are still following wrong practices in their daily life and farm work, which in turn constituted damage to the surrounding air and contributed to its pollution. Thus, they feel need to know the correct scientific methods and practices to reduce air pollution. Additionally, the research results showed that the highest actual value of the training requirement degree for the respondents, the research sample in the air protection axis is (37) degrees. While the lowest actual value is (7) degrees, with arithmetic mean value of (25.57) degrees and a standard deviation of (5.27) on a four-point scale of the training requirement whose degrees ranged between (0-39) degrees. The respondents were distributed into three categories according to the degrees of the training requirements scale (few, moderately and many), as shown in Table 6.

Table 6 : Distribution of the respondent's categories according to the level of their training requirements in the plant protection axis

Seq.	Categories	Training requirement degrees	Number	%	Average training requirement	$\bar{X}$	S.D	N
1	Few	0-13	5	2.13	11	25.57	5.27	235
2	Moderately	14-27	110	46.81	21.70			
3	Many	28-41	120	51.06	29.73			
Total			235	100				

The above Table indicates that the highest percentage (51.06%) for respondents which is within the many categories, with an average training requirement of (29.73) degrees, followed by the respondent's percentage (46.81%), which is within the moderately category with an average training requirement (21.70) degrees. This means that most of the respondents (97.87%) their training requirements level in the plant protection axis were describe as a many, and tend to the moderately. The reason for this may be attributed to the poor level of knowledge and skills of the respondents in modern agricultural scientific practices that reduce or limit plant pollution, as well as the lack of extension activities related to this axis. Furthermore, the research results showed that the highest actual value of the training requirement degree for the respondents, the research sample in the animal protection axis is (36) degrees. While the lowest actual value is (6) degrees, with arithmetic mean value of (24.28) degrees and a standard deviation of (5.180) on a four-point scale of the training requirement whose degrees ranged between (0-36) degrees. The respondents were distributed into three categories according to the degrees of the training requirements scale (few, moderately and many), as shown in Table 7.

Table 7 : Distribution of the respondent's categories according to the level of their training requirements in the animal protection axis

Seq.	Categories	Training requirement degrees	Number	%	Average training requirement	$\bar{X}$	S.D	N
1	Few	0-12	6	2.55	14	24.28	5.180	235
2	Moderately	13-25	104	44.26	23.5			
3	Many	26-38	125	53.19	32.6			
Total			235	100				

The above Table indicates that the highest percentage (53.19%) for respondents which is within the many categories, with an average training requirement of (32.6) degrees, followed by the respondent's percentage (44.26%), which is within the moderately category with an average training requirement (23.5) degrees. This means that most of the respondents (97.45%) of their training requirements level in the animal protection axis were describe as many and tend to the moderately. This may be attributed to the fact that animal protection from pollution and preserving from epidemic and infectious diseases need to identify appropriate preventive and curative methods and special skills in animal breeding methods in terms of nutrition, pest. As well as, insect control and the use of veterinary medicines, which led the respondents to feel the need for knowledge and skills related to this aspect, as well as the lack of training courses in this axis.

It can be concluded from the research that the general nature of the training requirements level for farmers in the field of rural environment protection from pollution in general, and in each axis of its axes was many, and tend to the moderately. This indicates that they need training and increase their knowledge, information and skills related to protecting the rural environment from pollution.

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