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Environmental Pollution Knowledge Level of Farmers in Najaf Governorate, Republic of Iraq

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ABSTRACT

This research focused to identify the level of knowledge of farmers to environmental pollution damages and risks and their relationship with some of the variables where the taking of a random sample of (200) farmer in Najaf governorate Republic of Iraq, and for this purpose form has been designed a questionnaire that included a group of statements and questions and preliminary testing to ensure its sincerity and constancy, where the results of the search of a marked decline in the level of knowledge of farmers to environmental pollution damages where there are about (52.5%) of farmers are among the average level while there was (26%) and (21.5%) are among the low level of tertiary respectively. As indicated by the results of research that there is a moral relationship between the level of knowledge of farmers with variables (level of education and the type of possession of rocket-propelled grenades z agricultural) for farmers as the value of Chi-square was (13.8 and 23.24) respectively at significance level of (0.05), while there was no relation with variable (age) where the value of Chi-square was (7.72) on significance level of 0.05. This calls attention to the awareness of these farmers to the risks of environmental pollution damages through various media and the involvement of farmers' courses and seminars on the subject to contribute to raising the level of their knowledge and to avoid its risks and damages.

1. Introduction

Environment pollution is an important problem faces mankind in the modern era. This problem emerged since the industry era started, as the environment pollution concept means: Qualitative and quantitative changes in the components of the living and non-living environment [1]. Pollution is caused by some polluting materials or factors that directly or indirectly harm public health [2], so environmental pollution is caused by some pollutants which can be classified according to their source and cause [3]. In terms of source, pollutants are classified into natural pollutants which are produced by the environment itself such as volcanic gases, and induced pollutants which are produced as a result of the technologies and industries developed by man in the environment and their resulting wastes in countryside and cities. As for other kinds of pollutants that are classified according to causes include biological pollutants, which are living organisms that cause sickness to mankind, animals and plants, physical pollutants such as noise, radioactive and thermal pollution and chemical pollutants which are all kinds of pesticides and gases emitted by machines and cars.

Most researchers confirmed [4] that environmental pollution by chemicals various, especially chemical fertilizers, pesticides and poisons are considered one of the most important challenges of the current era. Chemical fertilizers and pesticides cause great damage when the rain-borne or irrigation water to water of streams and lakes. The report of the Environmental Protection Act of 1990 noted that 10% of the wells that were examined containing pesticides [5], and some others pointed out [6] that exposure to dirt and dust cause serious diseases of human respiratory system, a study showed [7] that the amount of waste produced by the agricultural sector which cause environmental pollution than all other waste which requires attention and study, especially on the part of the agricultural extension, however, that the task of agricultural extension is educated rural people how to live a better life [8] through the comprehensive programs of (agriculture, health, veterinary, cooperative, etc.) [9,10], that must approach the farmers to determine the level of knowledge with environmental pollution, its damages and risks, which were the focus of this research and its relationship to some social variables

of farmers (age, level of education, type of agricultural land tenure). Therefore this search help specialists, including extension workers to develop plans and appropriate programs for farmers, especially with regard to environmental pollution for the purpose of making them aware of the dangers and to avoid harm as a result of their cognitive, social and economic and agricultural production.

1.1 Research Objectives

1. Identify level of farmer's knowledge to environmental pollution, its damages and risks.
2. Identify relationship of level of farmer's knowledge to environmental pollution, its damages and risks with each of the following social variables:
 - a) Farmer age.
 - b) Farmer level of education.
 - c) Type of agricultural land tenure of farmer.

2. Experimental Methods

2.1 Community and Sample

Random sample of 200 farmers were selected from the hole research community of 24128 farmers in the governorate of Najaf.

2.2 Tool of Data Collection

Information and data collection by the questionnaire with personal interview, it formed by a group of statements and questions, it had been pre-test of the questionnaire to ensure of credibility and stability of the gauge. The questionnaire contains two sections:

First Section: contained 25 questions related to environmental pollution, especially the agricultural environment surrounding to clarify the meanings of some of the words of farmers and measurement for each of the three levels of values included the following answers: Yes certainly (3), Yes (2), I do not think so (1), and calculating the knowledge to farmers collect numerical values, which obtained from farmers, which consist of the highest summit value of 75 and the lowest value of 25.

Second Section: contained 3 questions relating some characteristics variables of farmers: 1. Number of years of farmer age until the questionnaire date. 2. The educational level of farmer determine the

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following: (Illiterate, Primary school, Medium school, High school, University degree) and determining numerical values of (1 2 3 4 5). 3. Type of agricultural land tenure, it has been identified as (Owner, contracted, rent) and included numerical values (3 2 1).

2.3 Statistical Tools

After data collection, compilation, compilation and then analyzed using the statistical analysis of social sciences application (SPSS) where use of statistical methods (Percentage and Chi-square).

3. Results and Discussion

3.1 First Object

Level of farmer's knowledge to environmental pollution, its damages and risks, degrees of the level distributed between (25) less value and (75) highest value with three categories as indicated in the Table 1. The category of the average level was large about more than half of the members of the sample (52.5%), while the proportion of high level about (21.5%) and the low level of (26%), this indicates that there is a marked decline in the large majority of farmers in their knowledge and understanding of the environmental pollution damages and risks which may be due to a weak knowledge of the aspects of this problem and its negative dimensions.

Table 1 The level of knowledge of farmers to environmental pollution damages and risks

Categories	Numbers of Farmers	Percentage
Low level (less than 25)	52	26%
Middle level (26-51)	105	5.52%
High level (more than 52)	43	5.21 %
Total	200	100%

From, Table 2 noted that most of the ratios of answer farmers related to environmental pollution refers to the negative side of their knowledge and understanding of the environmental pollution and its causes and its effects on their health, animals, and plants in the environment surrounding them.

Table 2 Farmers answer of environmental pollution questions

Questions	Answers					
	Yes certainly		Yes		I don't think so	
	No.	%	No.	%	No.	%
Trees help to clean and renovated air	52	26	95	47.5	53	26.5
The escalating gases of fires, cars, and factories lead to air pollution	66	33	70	35	64	32
Intensively and selective use of chemical pesticides has negative effects on human, plants and animals	35	17.5	101	50.5	64	32
The dusty storms caused by soil erosion and non-cultivation.	48	24	107	53.5	45	22.5
Redirect trocar water to rivers lead to pollution and non-validity of cultivation and fisheries	52	26	110	55	38	17.5
Throwing explosive remnants of animals in the rivers lead to pollution and non-validity of drinking water.	50	25	102	51	48	24
Increasing use of fertilizers without controls lead to water pollution	52	26	97	48.5	51	25.5
Sludge polluter on the ground lead to damage of human health, plants and animals	50	25	109	54.5	41	20.5
Use sewage water as fertilizer lead to pollution of soil, water, plants and animals	48	24	104	52	48	24
Ozone layer damage lead to significant damages for plants and trees	49	24.5	104	52	47	23.5

Redirect waste to rivers lead to pollution of water, plants and animals	51	25.5	110	55	39	18
Animals in field affected by contaminated air especially by smoke	50	25	112	56	38	19
Radioactive materials lead to pollution of soil, water, plants and animals feeds, as well as human	55	27.5	110	55	35	17.5
Smoking is considered one of the air pollutants and harmful to the health of smoker	47	23.5	111	55.5	42	21
Throwing factory solid and liquid wastes in rivers water lead to bio-pollution especially for fishes	50	25	107	53.5	43	21.5
Noise effect low productivity of some animals especially poultry and cows	35	17.5	105	52.5	60	30
Mineral pollutants and dust on plants surfaces lead to problems with plants breathe	49	24.5	110	55	41	20.5
Presence of some kinds of algae different colored is evidence of water pollution.	48	24	115	57.5	37	18.5
Fruits that was exposed by pesticides should not be harvest immediately but after a sufficient period of time	50	25	109	54.5	41	20.5
Use of bio-resistance helps to protect the environment	52	26	110	55	38	19
Throwing oil and its derivatives in soil or water leads to loss of fish and other biota	52	26	107	53.5	41	20.5
Soil intensive tillage lead to pollution of soil by nitrate	47	23.5	111	55.5	42	21
Uncontrolled irrigation lead to pollution of soil by accumulation of salt	50	25	107	53.5	43	21.5
Cheese and dairy industry used unsterile waters lead to pollution	53	26.5	105	52.5	42	21
Unjust herding harvesting of trees lead to environmental damage	53	26.5	110	55	37	18.5

3.2 Second Object: Independent Variables

Age of Farmer: Results shown that the youngest age of farmers is 19 years and the eldest age is 70 years old, after the classification of the interrogators to age groups as shown in the Table 3 where we note that there are abnormally different arguments and the biggest of these percentages included category (40-50 years) where 40%.

Table 3 The distribution of farmers by age

Categories	Numbers of Farmers	Percentage
Less than 20 years old	35	17.5%
20-40 years old	39	19.5%
41-50	80	40%
More than 51 years old	46	23%
Total	200	100%

Farmer level of education: Table 4 showed that the proportion of illiterate farmers had the highest percentages of (31%) while the farmers who can read and write and obtaining the certificate of primary intermediate and junior high schools had proportion of (26.5%) (19%) (12.5%) (11%) Respectively.

Table 4 Farmer level of education

Education level	Numbers of Farmers	Percentage
Illiterate	62	31%
Read and write only	53	26.5%
Primary school	38	19 %
Intermediate school	25	12.5 %
Junior high school	22	11%
Total	200	100%

Type of agricultural land tenure of farmer: The result showed that owners of agricultural land proportion was (29.5%) and contractors proportion was (45%) and tenants proportion was (25.5%) as in the Table 5, which means to increase the proportion of contracted farmers.

Table 5 Frequency distribution of farmers by agricultural land tenure type

Tenure type	Numbers of Farmers	Percentage
Own	59	29.5%
Contract	90	45%
Rent	51	25.5%
Total	200	100%

3.3 Third Object: The Relationship between Dependent and Independent Variables

Chi-square was used to determine the relationship between the level of knowledge of farmers and the following variables:

Relationship between the level of knowledge of farmers with environmental pollution harms and risks with farmer age: Table 6 shows that there is no significant relationship between the level of knowledge of farmers with environmental pollution and harms with age as Chi-square = 7.72 reached at the abstract level of (0.05).

Table 6 The relationship of level of knowledge of farmers with environmental pollution harms and risks with age

Level of knowledge	Farmers ages					
	Young		Mid		Old	
	No.	%	No.	%	No.	%
Low	13	35%	29	23%	10	27%
Mid	13	35%	77	61%	15	40.5%
High	11	30%	20	16%	12	32.5%
Total	37		126		37	

The relationship between the knowledge level of farmers with environmental pollution and harms with their level of education: Table 7 shows that there are significant differences between the level of knowledge of farmers with the level of education at the level of significance (0.05) Chi square = 13.8, and this certainly indicates the importance of farmers' education as an important factor in their understanding of environmental pollution and harms and risks.

Table 7 Relationship between the knowledge level of farmers with environmental pollution and harms with their level of education

Level of Knowledge	Level of Education					
	Illiterate		Can read and write only		Have primary or more education	
	No.	%	No.	%	No.	%
Low	19	31%	14	26%	16	19%
Mid	33	53%	26	49%	50	59%
High	10	16%	13	25%	19	22%
Total	62		53		85	

The relationship between the knowledge level of farmers with environmental pollution and harms with their agricultural land tenure

type: Table 8 showed that there was a significant relationship between the level of knowledge of farmers with environmental pollution and harms with their agricultural land tenure type at a significance level of (0.05), Chi square = 23.24.

Table 8 Relationship between the level of knowledge of farmers with environmental pollution harms and risks with agricultural land tenure type

Level of Knowledge	Agricultural land tenure type					
	Own		Contract		Rent	
	No.	%	No.	%	No.	%
Low	15	25%	24	27%	10	20%
Mid	24	41%	54	60%	32	63%
High	20	34%	12	13%	9	17%
Total	59		90		51	

4. Conclusion

The following suggestions have to be implemented to improve environmental safety knowledge, and to avoid the environmental pollution risk.

1. Educate farmers about environmental pollution by using various media such as programs, posters and television images aimed risks.
2. Coordination between Agricultural Extension workers, organizations and bodies responsible for the environment for the involvement of farmer's sessions about environmental pollution and risks to human, animal and plant health as well as to carry out meetings and information sessions for farmers.
3. Need to work with individuals who cause environmental pollution by put waste into rivers to deter others from doing so accountable.

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