THE FARMER'S KNOWLEDGE LEVEL IN THE USE OF ORGANIC FERTILIZERS IN LUBARTOWSKI COUNTY, LUBELSKIE PROVINCE, POLAND

AHMED AWAD TALB ALTALB

[1]Department of Agricultural Extension and Technology Transfer -Faculty of Agriculture and Forestry - University of Mosul – Mosul - Iraq
[2]Faculty of Agro-bioengineering - University of Life Science - Akademicka 15, 20-950 Lublin - Poland
E-mail: ibn_almosul@yahoo.com

Abstract- This research aims to identify the farmer's knowledge level in the use of organic fertilizersin Lubartowski County and identify the farmer's knowledge level in each statements (item) of the use of organıc fertilizers by farmers.
In order toobtain the data of farmers, questionnaire has been designed, it consist of two parts: The first part: includes personal variables that related to farmers (age, education level, size of farm, average production). The second part: includes 20 statement (item) related to the use of organic fertilizers. The total number of farmers in the research sample was 50 farmer.
The results showed that the farmer's knowledge level in the use of organıc fertilizers is medium tends to high degree. The results showed also, that the items which took first three ranks according to the centennial weight of items and respectively, are (I use the organic fertilizers in order to increase the humus content in the soil, I use the organic fertilizers in order to comprehensively supply plants in slowly mobilized, all macro-and microelements, I use the organic fertilizers in the surface and rapidly covered with soil in order to reduce odor and ammonia emission into the atmosphere

Key words- Agricultural, organic, Fertilizers, knowledge.

I. INTRODUCTION

Fertilizers is one of the key factors in the increase of agricultural production as well as other factors such as irrigation and improved seeds and prevention and others.Organic fertilizers are natural materials of either plant or animal origin, including livestock manure, green manures, crop residues, household waste, compost, and woodland litter. It is any organic material added to the ground in order to increase of organic matter and the formation of humic substances in the soil, as a result of the decomposition of the fertilizer into the ground by microorganisms. Organic fertilizers contain lower proportion of elements compared with mineral fertilizers, that is why they are used in large quantities to get the elements and similar results compared with mineral fertilizers, but it considered solved for the problem of waste [Homenauth 2013, Savoy 2015, Kotschi 2015].Organic manures are a natural resource for conserving and sustaining soil productivity. They are a primary substrate for replenishment of soil organic matter, which, supply essential plant nutrients. Additionally, organic manure incorporation can improve soil physical and biological conditions and prevent soil degradation [Dar et al. 2009, FAO 2006]. Organic fertilizers include:
The agricultural extension has important role in this field through the transfer new information and knowledge about the use of organic fertilizers to farmers and also to development of information and the capacity of farmers in all the fields of agriculture, and the educate the farmers about scientific methods in the using of organic fertilizers [Chauhan 2007, Kuepper 2003]. The author wanted from carry out this study in Lubartowski County in Poland to identify the farmer's knowledge level in the use of organic fertilizers and identify the farmer's knowledge level in each item of the use of organıc fertilizers.

II. RESEARCH METHOD

The research community consists of farmers in Lubartowski County. A simple random sample has been taken, the total number of farmers in the sample was 50 farmer. It has been designed questionnaire,it was designed as tool to collect data. It consists of two parts:
The first part: Included personal variables that related to farmers (age, education level, size of farm, average production).
The second part: Included the scale for farmer's knowledge level in the use of organıc fertilizers.This scale consist of 20 statement (item), which related in theuse of organıc fertilizers.

The dependent variable was measuredthrough the scale of farmer's knowledge level in theuse of organıc fertilizers, it consists of 20 statement (item) was put in front of each item (4 alternatives/options), it has been given the following numeric values, namely:

1. I know significantly, it has been given 4 numeric values,
2. I know moderately, it has been given 3 numeric values,
3. I know slightly, it has been given 2 numeric value,
4. I do not know at all, it has been given 1 numeric value.

Through the collected answers of farmers about items for use organic fertilizers, in end, the author will get the final degreeforthe farmer's knowledge level in the use of organıc fertilizers. It has been used (Pearson correlation coefficient, Equation of Spearman-Brown) to find if there is a correlation between farmer's knowledge level in the use of organic fertilizers and independent variables.

It was used the method (Range and category length) to divide the dependent variable"the farmer's knowledge level in the use of organıc" to the (3 categories), as following:

Range = Ymax – Ymin (highest value - lowest value)

$$\text{Category Length} \quad \frac{\text{Range}}{\text{Number of categories}}$$

III. THE RESULTS AND DISCUSSION

3.1 Identify the farmer's knowledge level in the use of organic fertilizers in Lubartowski County:

The results showed that the highest numeric values thatobtained by farmers that represented the farmer's knowledge level in the use of organıc fertilizers, is 82 and lowest numericvalue is 20. Farmers were distributed into three categories according to thefarmer's knowledge inthe use of organıc fertilizers, (table1):

Table 1. The distribution of farmers according to their knowledge in use of organıc fertilizers.

Categories	Frequency	Percentage %
Low (20 – 40)	10	20
Medium (41 – 61)	25	50
High (62 – 82)	15	30
Sum	50	100

Mean of knowledge farmers (45 year).

The table1 shows that the highest proportion of farmers was in the medium category, which accounted 50%. This means that the farmer's knowledge level in the use of organıc fertilizers is medium tends to high degree. This may be because the farmers have medium information and knowledge in the use of organic fertilizers. Especially the information that related to the benefit of using organic fertilizers.

3.2 Identify the farmer's knowledge level in each item of the use of organıc fertilizers:

It has been found the farmer's knowledge level in the use of organıc fertilizers in each item. The items have been ranking in descending order based on centennial weight of items. As shown in table 2.

Table 2. Rank the items of the use of organic fertilizers according to the centennial weight of items.

No.	Statements (Items)	centennial weight of items
1	I use the organic fertilizers in order to increase the humus content in the soil.	89.66
2	I use the organic fertilizers in order to comprehensively supply plants in slowly mobilized, all macro-and microelements.	88.56
3	I use the organic fertilizers in the surface and rapidly covered with soil in order to reduce odor and ammonia emission into the atmosphere.	88.10
4	I use the organic fertilizers in order to increase resistance in order chemical degradation of soils.	85.78
5	I use organic fertilizers in order reduce of production cost.	84.98
6	I use the organic fertilizers in order to increase the buffering capacity of the soil.	83.54
7	I use the compost in temperature (75 ° C) in order to eliminate weeds and harmful microbes.	80.34
8	I use the slurry together with cereal straw in order to reduce the C: N ratio in the soil.	78.12
9	I use the organic fertilizers in order to offset the balance of carbon in the soil.	75.55
10	I use the organic fertilizers in order to increase soil carbon sequestration.	73.78
11	I use the organic fertilizers during cold and windless weather.	71.87
12	I use the organic fertilizers in the autumn before sowing plants.	65.22
13	I use the slurry on pasture, but with a 3-week grace period.	62.17

14	I use the straw as a fertilizers soon after harvesting of cereals with an additional dose of nitrogen to reduce the value of the C: N ratio.	59.24
15	I don't use organic fertilizers during hot and windy weather.	58.90
16	I avoid the emptying the containers with liquid manure, because there is a danger of sulfide hydrogen poisoning.	55.44
17	I avoid handling slurry over long distances because it is expensive due to high water content.	52.65
18	I do not keep ruminants in the farm because it is a source of methane (one of the GHG) emissions from enteric fermentation.	50.12
19	I avoid the use of organic fertilizers because it is the source of GHG (ammonia, nitrous oxide, carbon dioxide, methane) emissions into the atmosphere.	49.88
20	I avoid the use of slurry on pastures because may increase the spread of animal diseases.	44.23

The table 2 shows that the itemswhich took the first three ranks according to the centennial weight of items and respectively, are (I use the organic fertilizers in order to increase the humus content in the soil, I use the organic fertilizers in order to comprehensively supply plants in slowly mobilized, all macro-and microelements, I use the organic fertilizers in the surface and rapidly covered with soil in order to reduce odor and ammonia emission into the atmosphere).This mean that farmers have the information in the use of organic fertilizers, special in the benefits of using the organic fertilizers.

The items that took the last three ranks according to the centennial weight of items and respectively, are (I avoid the use of slurry on pastures because may increase the spread of animal diseases, I avoid the use of organic fertilizers because it is the source of GHG "ammonia, nitrous oxide, carbon dioxide, methane" emissions into the atmosphere, I do not keep ruminants in the farm because it is a source of methane (one of the GHG) emissions from enteric fermentation). This mean that farmers have low knowledge in these topics, special in the use of slurry on pastures.

CONCLUSIONS

Depending on the results of this research. The author conclude the following:

1. Farmers in Lubartowski County have knowledge in the use of organic fertilizers in general.
2. Farmers have high knowledge in the use the organic fertilizers in order to increase the humus content in the soil.
3. Farmers have low knowledge in the effect of use of slurry on pastures to prevent increase the spread of animal diseases.

REFERENCES

[1] Chauhan J 2007: Agricultural extension education, communication in agriculture, Raja Balwant Singh College, India, p.14-16.

[2] Dar Sh., Thomas .T, Khan I.,Dagar J., Qadar A., Rashid M., 2009: Effect of Nitrogen fertilizer with mushroom compost of varied C: N ratio on nitrogen use efficiency, carbon sequestration and rice yield. International Journal of the Faculty of Agriculture and Biology., Vol. 4, No. 1: 31-39.

[3] Food and Agriculture Organization of the United Nations (FAO), 2006: Fertilizer use by crop,information division, fifth edition, Rome, Italy, p.3-63.

[4] Homenauth O., 2013: Fertilizer manual (Concepts, Application, storage and Handling), National agricultural Research and Extension Institute. P.12-16.

[5] Kuepper G., 2003:Manures for organic crop production, soil systems guides oil Systems guide, Approach Technology Transfer for Rural Areas (ATTAR), USA, p. 3-9.

[6] KotschiJ., 2015: Adverse impacts of mineral fertilizers in tropical agriculture, A soiled reputation, (Heinrich Böll Foundation), Germany, p. 37-42.

[7] Savoy H ., 2015: Fertilizers and their use, A State Partner in the Cooperative Extension System, Agricultural Extension Service, The University of Tennessee, USA, pp. 4-23.

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