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The Needs of Environmental Extension and the Educational Background of Farm Managers in El–Burollos District at Kafr, El–Sheikh Governorate, Egypt: From view points of Knowledge, Implementation and Attitude

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Assessment of the needs of environmental extension is a critical element for policy makers for environment protection. For this reason the study tries to determine the total degree for the needs of environment extension (NEE) based on the interview of farm managers who have different educational background. From view points of knowledge, implementation and attitude, this research attempts to provide a realistic picture about the environmental perception and behavior of farms managers. This research also estimates the need of environmental extension activities based on the gaps between actual and ideal status of the environmental perception and behavior. The results will help policy makers in decision making to plan of suitable extension programs for the environment protection in Egypt.

The survey in this study covered 191 of graduates (Egyptian universities or high technical schools graduates who received plots of land for cultivation), and 100 of non–graduates (who haven't got any formal education or academic degree and received plots of land for cultivation) in three new villages, at El–Burollos District, Kafr El–Sheikh Governorate in Egypt. A systematic random sampling method was employed in the survey.

Results show that 84% of the graduates and 91% of the non–graduates had degree ranged between moderate and high of needs knowledge extension (KEN). Also, the results show that 67% of the graduates and 88% of the non–graduates had degree ranged between moderate and high of needs of environmental extension (NEE). Finally, there are significant differences between the two groups in the needs of environmental extension (NEE), where non–graduate needs are more than graduate needs according to t– value test that is significant at the level of 0.01. This implies that the educational background of farm managers is one of the key factors that determine the degree of the need of environmental extension.

Keywords: Knowledge, Implementation, Attitude, Extension Needs, Environment, Graduates, Non–Graduates, Managers, New Farms, Pollution

INTRODUCTION

Environmental preservation is one of the most important local and global issues on of all various levels, because environment cannot be separated by administrational or political boundaries between different countries. In turn, it requires everyone in each country to preserves the environment. As defined by the World Commission on Environment and Development, "sustainability, or sustainable development" means "providing for current needs without jeopardizing the ability of future generations to provide for their needs" (WCED, 1987).

Consequently, the environmental protection issue has growing interest in Egypt as reflected into a constitutional amendments in March 2007 on the 59th article that "the environment protection is a national duty" (Egyptian Ministry of Communication and Information Technology, 2007, p: 277). The law regulates the necessary procedures for preserving good environment. This is accompanied by global trends to provide a clean environment for citizens. Despite of these legislations and incentives, they are still insufficient; so there is a need for environmental education (Airton *et al*., 2001).

Achieving the sustainable development in all countries, particularly in Egypt, demands the continuation of development activities to achieves an acceptable level of human needs. Beside the preservation of environmental abilities there shouldn't be a degradation of environmental recourses (Ghonimy, 1992). Therefore, the Egyptian policy makers are aiming at creating new and clean communities through the expansion in reclamation and cultivation of the desert land. However, these new communities are considered to be the future hope for increasing agricultural production and decrease the excessive use of old agricultural lands. Also, it will improve the socio–economic and environmental conditions of the new farmers in these areas. Although, they are new societies, we can observe that it started suffering from some environmental problems such as land degradation, soil salinity, water pollution, and declining of land fertility. The majority of these environmental problems are caused by improper environmental behavioral activities. Such a result comes from the decreased environmental awareness of the population. The increased social awareness of the relationship between agriculture and the environment has driven the movement towards a significantly active agri–environmental policy in developed countries (Esperanza *et al*., 2008).

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Agricultural extension system is one of the informal educational systems under continuous pressure to respond to the ever–growing challenges of increasing food production. This pressure is giving rise to call for changes in the traditional public extension systems which are now seen as outdated, top–down, paternalistic, inflexible, subject to bureaucratic inefficiencies and therefore unable to cope with the dynamic demands of modern agriculture (Rivera *et al*., 2000). Also, it can play a major role for changing these harmful behaviors by identifying the situation of humans for determining their environmental needs, providing them with information & knowledge teaching them with new skills, changing their attitudes towards their environment and utilizes the suitable technologies (Airton *et al*., 2006).

The relocation processes of the youths, and their activities of reclamation and cultivation of the new lands besides preserving their environment for the future, is not an easy process. We must require daily change of environmental behaviors to decrease the impacts of the previous environment problems (Elshenawy, 1994).

Therefore, this research is an attempt to provide a realistic picture about the environmental behavior for farm managers in a newly developed area. The results will help policy makers in decision making to plan suitable extension programs in the environment protection field in these areas. Kafr El–Sheikh governorate is one of the governorates which have many new communities. Also, El–Burollos district is one of the new districts at this governorate, that includes a new area for youth farmers of graduates or non–graduates, El–Zahraa area includes three new communities and there are about 1115 managers living there.

RESEARCH OBJECTIVES

The specific objectives of this study therefore are as follows:

1) Determine the degree of knowledge extension needs (KEN) for interviewees of some environment harmful practices to the (soil, water and air) fields.
2) Determine the degree of implementation extension needs (IEN) for interviewees to avoid some environment harmful practices to the (soil, water and air) fields.
3) Determine the degree of attitude extension needs (AEN) for interviewees towards some environment harmful practices to the (soil, water and air) fields.
4) Determine the total degree of the needs of environment extension (NEE) for interviewees (graduates, non–graduates) of some environment harmful practices.
5) Identifying significance differences between means of the needs of environmental extension (knowledge, implementation, and attitude, total) for interviewees (graduates, non–graduates groups).

Maybe this objective might be arranged as follows: Identify the main differences on the needs of environmental extension among interviewees farm managers.

RESEARCH AREA AND METHODS

Research area

This study was conducted in the new area of El–Burollos district, at Kafr El–Sheikh governorate in Egypt. And it focused specially on managers (graduates, non–graduates) of new farms in this area. This region has been planned for young farmers from graduates or non–graduates and includes three villages as a nucleus to build new communities that are clean and free of environmental problems.

Data sampling

Three villages inhabited by 1115 farm managers represent the research community. A systematic sampling was further carried out to select 291 managers from these villages (100 managers from El–Zaharaa, 104 from El–Doaa, 87 from El–Mostakabal). The interviewees were divided into two groups (191 of graduates, 100 of non–graduates).

Data collection and analysis

A personal questionnaire was carried out to collect the data. Statistical analysis such as frequencies, percentages, means, standard–deviation and t–test is used to examine the significance differences between means of graduates and non–graduates managers in their needs of environmental extension.

Research hypothesis

Research hypothesis in this paper are the following;

1) There are no significant differences between means of graduates and non–graduates regarding their knowledge extension needs of some environment harmful practices (KEN).
2) There are no significant differences between means of graduates and non–graduates regarding their implementation extension need to avoid some environment harmful practices (IEN).
3) There are no significant differences between means of graduates and non–graduates regarding their attitude extension needs towards some environment harmful practices (AEN).
4) There are no significant differences between means of graduates and non–graduates regarding their total needs of environmental extension of some environment harmful practices (NEE).

Operational definitions

Knowledge Extension Needs (KEN): can be identified as the difference between actual knowledge degree of the managers of some environment harmful practices to the fields (e.g. soil, water, air fields) and the maximum ideal degree of their knowledge in these fields.

In the soil field: it has been measured by five axes (excessive use of agro–chemicals, using of drainage water in irrigation process, using of farm manure fertilizers, uncultivated or sweeping of agricultural land, using of artificial plant hormones). Each of these axes contains the following number of questions (3, 3, 4, 4, 4) respec-

tively. The maximum ideal degree that can be obtained by the interviewee in each axis is 7, while the actual degree is the degree obtained by the interviewee based on the correct answer to the questions. For example, the first axis contains the following questions: what is the meaning of excessive use of agro–chemicals? What are the appropriate rates of agro–chemicals which you will use in rice and wheat fields? and what are the harmful affects of using excessive agro–chemicals? Hence the maximum ideal degree to this axis is 7, while the actual degree depends on the correct answers of the interviewee.

In the water field: it has been measured by five axes (dumping of farm and human wastes into water canals, spraying water weeds by insecticides, using canal water for the household purposes, uncontinual of cleaning drink water reservoirs, dumping wastes of spraying process into water canals). Each of these axes contains 4 questions. The maximum ideal degree that can be obtained by the interviewee in each axis is 7.

In the air field: it has been measured by five axes (breeding birds and animals inside households, collecting manure fertilizers in front of the households, using pesticides to control house pests, burning household and farm wastes, cutting of green trees). Each of these axes contains the following number of questions (4, 4, 4, 5, 4) respectively. The maximum ideal degree that can be obtained by the interviewee in each axis is 7.

Implementation Extension Needs (IEN): can be identified as the difference between actual implementation degree of the managers of some environment harmful practices to the fields (e.g. soil, water, and air fields) and the maximum ideal degree of their implementation in these fields.

In the soil field: it has been measured by the same five axes mentioned in the previous variable. Each of these axes contains 3 questions. The maximum ideal degree that can be obtained by the interviewee in each axis (6, 4, 3, 3, 3) respectively, while the actual degree is the degree obtained by the interviewee based on the correct answer to the questions. For example, the first axis contains the following questions: what are the numbers of sprinkles which already acting on cotton and sugar beet this season? What is the amount of agro–chemicals which you added to rice and wheat fields? and do you use any methods of integrated management (IPM)? and what are they? Hence the maximum ideal degree to this axis is 6, while the actual degree depends on the correct answers to the interviewee.

In the water field: it has been measured by the same five axes mentioned in the previous knowledge extension needs variable. Each of these axes contains 3 questions. The maximum ideal degree that can be obtained by the interviewee in each axis is (3, 4, 3, 3, 3) respectively.

In the air field: it has been measured by the same five axes mentioned in the previous knowledge extension needs variable. Each of these axes contains 3 questions. The maximum ideal degree that can be obtained by the interviewee in each axis is 3.

Attitude Extension Needs (IEN): can be identified as the difference between actual attitude degree of the managers towards some environment harmful practices to the fields (e.g. soil, water, air fields) and the maximum ideal degree of their attitude in these fields.

In the soil field: it has been measured by 8 questions. For example, what is your opinion about using of drainage–water for irrigation is not harmful to agricultural soil, the establishment of fish farms in the agricultural land reduces its fertility, and the use of manure fertilizers is unhelpful to the soil? The maximum ideal degrees that can be obtained by the interviewee are 16, while the actual degree is the degree obtained by the interviewee based on the correct answer to the questions.

In the water field: it has been measured by 14 questions. For example, what is your opinion about using the canal water in the household purposes, dumping of household waste in the canals, and dumping of dead animals in the canal is polluting water? The maximum ideal degrees that can be obtained by the interviewee are 28, while the actual degree is the degree obtained by the interviewee actually based on the correct answer to the questions.

In the air field: it has been measured by the same five axes mentioned in the previous knowledge extension needs variable. Each of these axes contains 3 questions. The maximum ideal degree that can be obtained by the interviewee in each axis is 3, while the actual degree is obtained by the interviewee actually based on the correct answer to the questions. For example, what is your opinion about burring of agricultural wastes on the farm, burring dead animals and birds is a good way to get rid of them, preference of building factories outside the village?

Needs of Environmental Extension (NEE): can be identified as the difference between the total actual degree of knowledge, implementation and attitude extension needs of the managers and the total of maximum ideal degree for the previous behavioral components.

RESULTS

Knowledge extension needs of some environment harmful practices (KEN):

Knowledge extension needs of some harmful practices in soil field (KENS):

Fig. 1 shows that about only 6% of the graduates had

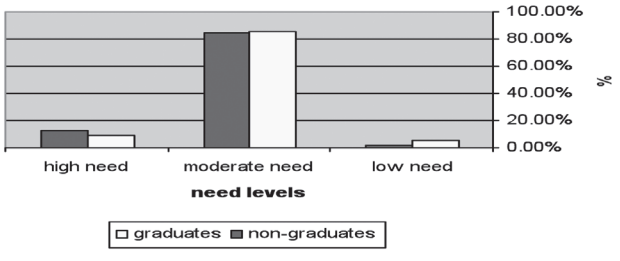

Fig. 1. Knowledge extension needs of harmful practices in soil field (KENS).

Table 1. Knowledge extension needs of harmful practices in soil field (KENS)

Variables	Mode	Categories by the actual degree	Graduates		Non–graduates	
			n.	%	n.	%
1–excessive use of agro–chemicals	(1–5) degree	Low < 2	7	3.7	2	2.0
		Moderate 2–4	168	87.9	86	86.0
		High > 4	16	8.4	12	12.0
2–using of drainage water in irrigation process	(2–5) degree	Low<3	5	2.6	3	3.0
		Moderate3–4	128	67.0	68	68.0
		High>4	58	30.4	29	29.0
3–using of manure fertilizers	(2–5) degree	Low<3	5	2.6	2	2.0
		Moderate3–4	124	64.9	51	51.0
		High>4	62	32.5	42	42.0
4–uncultivated or sweeping agricultural land	(1–4) degree	Low<2	4	2.1	3	3.0
		Moderate2–3	153	80.1	80	80.0
		High>3	34	17.8	17	17.0
5–using artificial plant hormones on agricultural crops	(3–6) degree	Low<4	26	13.6	6	6.0
		Moderate4–5	160	83.8	89	89.0
		High>5	5	2.6	5	5.0
Knowledge extension needs of harmful practices in soil field (KENS)	(13–24) degree	Low<16	11	5.8	2	2.0
		Moderate16–21	163	85.3	85	85.0
		High>21	17	8.9	13	13.0
total			191	100.0	100	100.0

Source: field survey

low degree of some harmful practices in soil field (KENS), while only 2% of the non–graduates in the same category. Also 85.3% of the graduates had moderate degree of KENS, while the percentage among the non–gradates was 85%. Finally about 9% of graduates had high degree of KENS, while 13% of non–graduates in the same category.

Table 1 also suggests that 96.3% of graduates had degrees ranged between moderate and high of KENS of excessive use of agro–chemicals, where about 97.4% of them had degrees ranged between moderate and high of KENS of using drainage water in irrigation process, 97.4% of them had degrees ranged between moderate and high of KENS of using manure fertilizers, about 98% of them had degrees ranged between moderate and high of KENS of uncultivated or sweeping agricultural land and 86.4% of them had degrees ranged between medium and high of KENS of using artificial plant hormones on agricultural crops. Also, the percentages were 98%, 97%, 93%, 97% and 94% respectively to non–graduates. The results revealed the increase of KENS of both graduates and non–graduate groups. However, the KENS was higher for non–graduates more than graduates.

Knowledge extension needs of some harmful practices in water field (KENW):

Fig. 2 indicates that only 11% of graduates had low degree of some harmful practices in water field KENW, also, only 7% of non–graduates had low degree of KENW. 79.1% of graduates had moderate degree of KENW, while 61% of non–graduates had moderate degree of KENW.

Finally, about 10% of graduates had high degree of

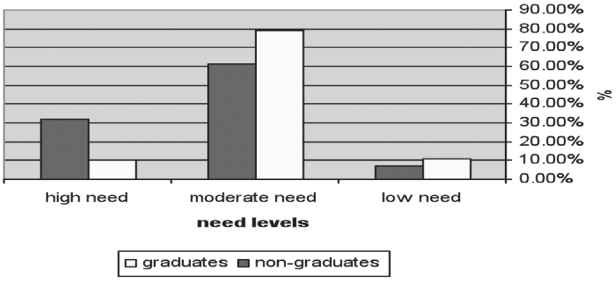

Fig. 2. Knowledge extension needs of some harmful practices in water field (KENW).

KENW, while 32% of non–graduates had high degree of KENW in this field. Results of Table 2 also shows that 91.1% of graduates had degrees ranged between moderate and high of KENW of dumping of farm and human wastes in water canals, about 86% of them had degrees ranged between moderate and high KENW of spraying water weeds by insecticides, about 97% of them had degrees ranged between moderate and high of KENW of using canal water in the household purposes, about 95% of them had degrees ranged between moderate and high of KENW of uncontainable of cleaning drink water reservoirs and 97.4% of them had degrees ranged between moderate and high of KENW of dumping wastes of spraying process in water canals. Also, these percentages were 96%, 93%, 92%, 92%, and 93% respectively for non–graduates. The results showed the increase of KENW of both graduates and non–graduates groups. Moreover, the KENW were higher for non–graduates more than graduates.

Knowledge extension needs of some harmful practices in air field (KENA):

Fig. 3 shows that only 11% of graduates had low degrees of some harmful practices in air field KENA, while only 8% of non–graduates in the same category. About 62% of graduates and the same percentage from non–graduates had moderate degrees of KENA. Also, 27.2% of graduates had high degree of KENA, while 30% of non–graduates in the same category.

Results of Table 3 also shows that 90.1% of graduates had degrees ranged between moderate and high of KENA of breeding birds and animals inside households,

Table 2. Knowledge extension needs of harmful practices in water field (KENW)

Variables	Mode	Categories by the actual degree	Graduates		Non–graduates	
			n.	%	n.	%
1–dumping of farm and human wastes in water canals	(1–4) degree	Low<2	17	8.9	4	4.0
		Moderate 2–3	168	88.0	55	55.0
		High>3	6	3.1	41	41.0
2–spraying water weeds by insecticides	(2–5) degree	Low<3	27	14.1	7	7.0
		Moderate2–4	152	79.6	83	83.0
		High>4	12	6.3	10	10.0
3–using canal water in the household purposes	(1–4) degree	Low<2	6	3.1	8	8.0
		Moderate2–3	163	85.3	64	64.0
		High>3	22	11.5	28	28.0
4–uncontinual of cleaning drink water reservoirs	(1–4) degree	Low<2	10	5.2	8	8.0
		Moderate 2–3	171	89.5	73	73.0
		High>3	10	5.2	19	19.0
5–dumping wastes of spraying process in water canals	(1–4) degree	Low<2	5	2.6	7	7.0
		Moderate 2–3	168	88.0	66	66.0
		High>3	18	9.4	27	27.0
Knowledge extension needs of harmful practices in water field (KENW)	(9–19) degree	Low<12	21	11.0	7	7.0
		Moderate12–16	151	79.1	61	61.0
		High>16	19	9.9	32	32.0
total			191	100.0	100	100.0

Source: field survey

Table 3. Knowledge extension needs of harmful practices in air field (KENA)

Variables	Mode	Categories by the actual degree	Graduates		Non–graduates	
			n.	%	n.	%
1–breeding birds and animals inside households	(1–3) degree	Low<2	19	9.9	8	8.0
		Moderate 2–3	139	72.8	52	52.0
		High>3	33	17.3	40	40.0
2–collecting manure fertilizers in front of the households	(1–3) degree	Low<2	10	5.2	11	11.0
		Moderate 2–3	170	89.0	68	68.0
		High>3	11	5.8	21	21.0
3–using pesticides to control house pests	(1–3) degree	Low<2	13	6.8	12	12.0
		Moderate 2–3	169	88.5	79	79.0
		High>3	9	4.7	9	9.0
4–burning household and farm wastes	(1–3) degree	Low<2	16	8.4	8	8.0
		Moderate 2–3	138	72.3	65	65.0
		High>3	37	19.4	27	27.0
5– cutting of green trees	(1–3) degree	Low<2	13	6.8	7	7.0
		Moderate 2–3	83	43.5	50	50.0
		High>3	95	49.7	43	43.0
Knowledge extension needs of harmful practices in air field (KENA)	(7–19) degree	Low<11	21	11.0	8	8.0
		Moderate11–15	118	61.8	62	62.0
		High>15	52	27.2	30	30.0
total			191	100.0	100	100.0

Source: field survey

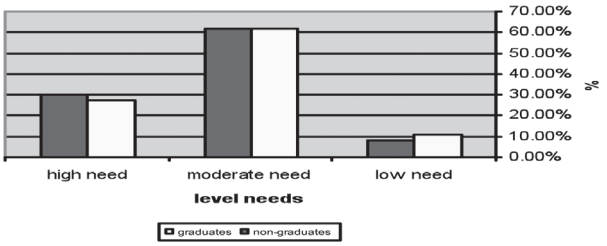

Fig. 3. Knowledge extension needs of some harmful practices in air field (KENA).

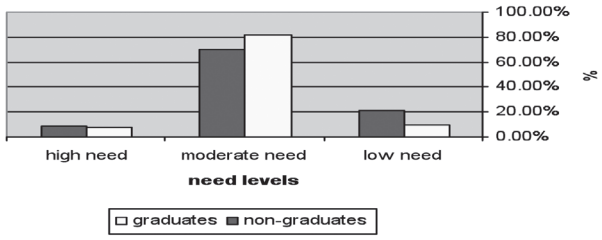

Fig. 4. Implementation extension needs of some harmful practices in soil field (IENS).

about 95% of them had degrees ranged between moderate and high of KENA of collecting manure fertilizers in front of their households, 93.2% of them had degrees ranged between moderate and high of KENA of using pesticides to control house pests, about 92% of them had degrees ranged between moderate and high of KENA of burning household and farm wastes.

Also, 93.2% of the graduates had the same degree of KENA of cutting green trees. While these percentages were 92%, 89%, 88%, 92%, and 93% respectively to non–graduates group. Previous results showed the increase of KENA of both graduates and non–graduates, in addition to the KENA were higher for non–graduates more than graduates.

Implementation extension needs to avoid some environment harmful practices (IEN):

Implementation extension needs of some harmful practices in soil field (IENS):

Fig. 4 reveals that about only 10% of graduates had low degrees of IENS to avoid some harmful practices in soil field, while only 21% of non–graduates had the same degrees, 82.2% of graduates had moderate of IENS, while 70% of non–graduates in the same category. Finally, about 8% of graduates had high degree of INES, but 9% had the same degree from non–graduates.

Table 4 also suggests that about 99% of graduates had degrees ranged between moderate and high of IENS of excessive use of agro–chemicals, about 81% of them had degrees ranged between moderate and high of IENS of use drainage water in irrigation process, 97.4% of them had degrees ranged between moderate and high of IENS using of undeceiving manure fertilizers.

About 57% of them had degree ranged between moderate and high of IENS of uncultivated or sweeping agricultural land, about 32% of them had degrees ranged between moderate and high of IENS of using artificial plant hormones on agricultural crops, while these percentages were 94%, 74%, 94%, 60%, 54%, respectively to non–graduates. The result indicated the increase of

Table 4. Implementation extension needs of harmful practices in soil field (IENS)

Variables	Mode	Categories by the actual degree	Graduates		Non–graduates	
			n.	%	n.	%
1–excessive use of agro–chemicals	(2–5) degree	Low<3	2	1.1	6	6.0
		Moderate 3–4	159	83.2	83	83.0
		High>4	30	15.7	11	11.0
2–using of drainage water in irrigation process	(1–4) degree	Low<2	37	19.4	26	26.0
		Moderate 2–3	151	79.1	71	71.0
		High>3	3	1.5	3	3.0
3–using of manure fertilizers	(0–3) degree	Low<1	5	2.6	6	6.0
		Moderate 1–2	94	49.2	51	51.0
		High>2	92	48.2	43	43.0
4–uncultivated or sweeping agricultural land	(0–3) degree	Low<1	83	43.5	40	40.0
		Moderate 1–2	98	51.3	51	51.0
		High>2	10	5.2	9	9.0
5–using artificial plant hormones on agricultural crops	(0–3) degree	Low<1	130	68.1	46	46.0
		Moderate 1–2	43	22.5	49	49.0
		High>2	18	9.4	5	5.0
Implementation extension needs to avoid some harmful practices in soil field (IENS)	(5–15) degree	Low<8	19	9.9	21	21.0
		Moderate 8–12	157	82.2	70	70.0
		High>12	15	7.9	9	9.0
total			191	total	191	100.0

Source: field survey

Table 5. Implementation extension needs of harmful practices in water field (IENW)

Variables	Mode	Categories by the actual degree	Graduates		Non–graduates	
			n.	%	n.	%
1–dumping of farm and human wastes in water canals	(0–3) degree	Low<1	7	3.7	6	6.0
		Moderate1–2	98	51.3	51	51.0
		High>2	86	45.0	43	43.0
2–spraying water weeds by insecticides	(1–4) degree	Low<2	6	3.1	8	8.0
		Moderate 2–3	106	55.5	47	47.0
		High>3	79	41.4	45	45.0
3–using canal water in the household purposes	(0–3) degree	Low<1	7	3.7	6	6.0
		Moderate 1–2	132	69.1	68	68.0
		High>2	52	27.2	26	26.0
4–uncontinual of cleaning drink water reservoirs	(0–3) degree	Low<1	11	5.8	10	10.0
		Moderate 1–2	135	70.7	76	76.0
		High>2	45	23.5	14	14.0
5–dumping wastes of spraying process in water canals	(0–3) degree	Low<1	6	3.1	10	10.0
		Moderate 1–2	147	77.0	76	76.0
		High>2	38	19.9	14	14.0
Implementation extension needs to avoid some harmful practices in water field (IENW)	(4–15) degree	Low<8	8	4.2	11	11.0
		Moderate 8–11	49	25.7	26	13.6
		High>11	134	70.1	63	63.0
total			191	total	191	100.0

Source: field survey

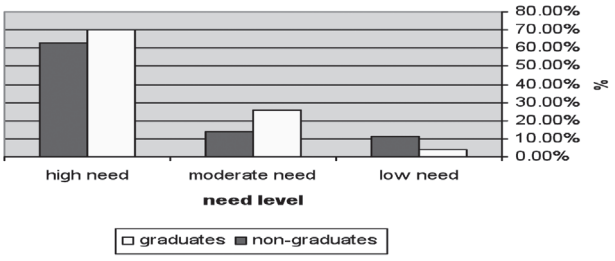

Fig. 5. Implementation extension needs to avoid some harmful practices in water field (IENW).

IENS of both graduates and non–graduates groups. Moreover, the IENS were higher for non–graduates more than graduates in this field.

Implementation extension needs to avoid some harmful practices in water field (IENW):

Fig. 5 shows that only 4.2% of graduates had low degrees to avoid some harmful practices in water field IENS, while only 11% of non–graduates had the same degrees, about 26% of gradates had moderate degree of IENS, while this percentage reached about 26% of non–graduates group. 70.1% of graduates had high degree of IENW, while 63% of non–graduates had high degrees of IENW.

Table 5 also declares that 96.3% of graduates had degrees ranged between moderate and high of IENW of dumping of farm and human wastes in water canals, about 97% of them had degrees ranged between moderate and high of IENW of spraying water weeds by insecticides, 96.3% of them had degrees ranged between moderate and high of IENW of using canal water in the household purposes.

About 94.2% of them had degrees ranged between moderate and high of IENW of uncontainable of cleaning drink water reservoirs, and about 97% of them had degree ranged between moderate and high of IENW of dumping wastes of spraying process in water canals. While these percentages to non–graduates group were 94%, 92%, 94%, 90%, 90% respectively. Previous results showed the increase of IENW for both graduates and non–graduate groups'. Also, the IENW were higher for non–graduates more than graduates.

Implementation extension needs to avoid some harmful practices in air field (IENA):

Fig. 6 indicates that only 3.1% of graduates had low degree to avoid some harmful practices in air field IENA, while only 7% of non– graduates had the same degree, 47.1% of graduates had moderate degree of IENA, while 45% of non–graduates in the same category. Finally, about 50% of graduates had high degree of IENA, while 48% of non–graduates had the same degree.

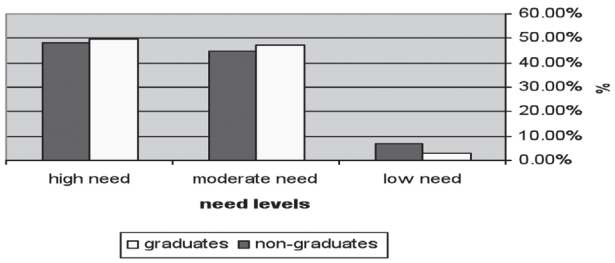

Fig. 6. Implementation extension needs to avoid some harmful practices in air field (IENA).

Table 6. Implementation extension needs of harmful practices in air field (IENA)

Variables	Mode	Categories by the actual degree	Graduates		Non–graduates	
			n.	%	n.	%
1–breeding birds and animals inside households	(0–3) degree	Low<1	13	6.8	10	10.0
		Moderate 1–2	44	23.0	31	31.0
		High>2	134	70.2	59	59.0
2–collecting manure fertilizers in front of the households	(0–3) degree	Low<1	13	6.8	10	10.0
		Moderate 1–2	173	90.6	85	85.0
		High>2	5	2.6	5	5.0
3–using pesticides to control household pests	(0–3) degree	Low<1	12	6.3	8	8.0
		Moderate 1–2	172	90.1	85	85.0
		High>2	7	3.6	7	7.0
4–burning household and farm wastes	(0–3) degree	Low<1	10	5.2	8	8.0
		Moderate 1–2	90	47.1	61	61.0
		High>2	77	40.3	31	31.0
5– cutting of green trees	(0–3) degree	Low<1	6	3.1	4	4.0
		Moderate 1–2	118	61.8	55	55.0
		High>2	67	35.1	41	41.0
Implementation extension needs to avoid some harmful practices in air field (IENA)	(1–14) degree	Low<5	6	3.1	7	7.0
		Moderate 5–10	90	47.1	45	45.0
		High>10	95	49.7	48	48.0
total			191	total	191	100.0

Source: field survey

Table 6 shows that 93.2% of graduates had degrees ranged between moderate and high of IENA of breeding birds and animals inside households, 93.2% of them had degrees ranged between moderate and high of IENA of collecting manure fertilizers in front of their households, about 94% of them had degrees ranged moderate and high of IENA of using pesticides to control household pests. About, 87.4% of them had degrees ranged between moderate and high of IENA of burning household and farm wastes.

Finally about 97% of them had degrees ranged between moderate and high of IENA of cutting green trees, while these percentages were in non–graduates group were 90%, 90%, 92%, 92%, 96% respectively. Previous results showed the increase of IENA to both graduates and non–graduates groups. Indeed the IENA were higher for graduates more than non–graduates.

Attitude extension needs towards some environment harmful practices (AEN):

Attitude extension needs towards some harmful practices in soil field (AENS):

Fig. 7 shows that about only 27% of graduates had low degree of towards some harmful practices in soil field (AENS), while only 25% of non–graduates in the same category. Also, 50% of graduates had moderate degree of AENS, while 59% of non–graduates were in the same category. Finally, 23.5% of graduates were high category of AENS, while this percentage with non–graduates is 16%, and the actual degree range is (1–18) degree.

Previous results revealed the increase of AENS for both graduates and non–graduates. However, the AENS was higher for graduates more than non–graduates.

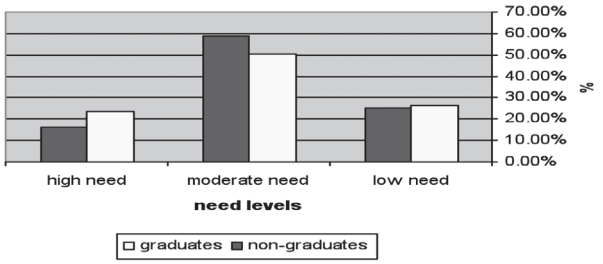

Fig. 7. Attitude extension needs towards some harmful practices in soil field (AENS).

Attitude extension needs towards some harmful practices in water field (AENW):

Fig. 8 reveals that only 6.3% of graduates had low degree of towards some harmful practices in water field (AENW), and only 2% of on–graduates were in the same category. Also, 41.4% of graduates had medium degree of AENW, while this percentage in the non–graduates was

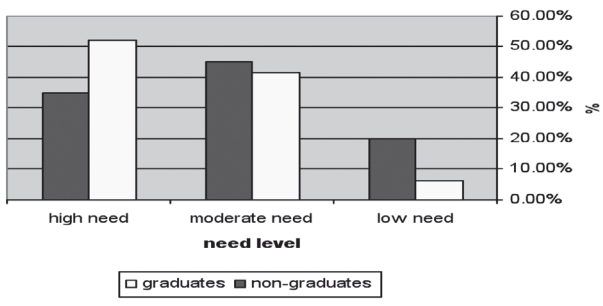

Fig. 8. Attitude extension needs towards some harmful practices in water field (AENW).

39%. Finally, 52.3% of graduates had high degree of AENW, while 59% of non–graduates had in the same category, and the actual degree range is (2–28) degree. The results showed the increase of attitude extension needs in water field for both graduates and non–graduates equally, in addition were higher for non–graduates more than graduates in this field.

Attitude extension needs towards some harmful practices in air field (AENA):

Fig. 9 shows that only about 13% of graduates had low degree of towards some harmful practices in air field (AENA), and only 12% of non–graduates were in the same category.

Also 48.2% of graduates had moderate degree of AENA, while 46% of non–graduates in the same category. Finally, 39.3% of graduates had high degree of AENA, while this percentage in the non–graduates was 46%, and the actual degree range is (2–20) degree. Previous results revealed the increase of attitude extension needs in air field AENA of both graduates and non–graduates groups. Moreover, the AENA was higher for non–graduates more than graduates in this field.

Needs of environmental extension (NEE) for interviewees (graduates, non–graduates):

Fig. 10 indicates that only 16% of the graduates compared with only 9% of the non–graduates had low degree of knowledge extension needs (KEN). 72.3% of the graduates compared with 47% of the non–graduates were in the medium category of KEN. Moreover, about 12% of graduates were in the high category of EEN, while 44% of the non–graduates were the same category. For this reason Table 7 shows that there are significant differences between means for graduates and non–graduates with respect to their knowledge extension needs of some harmful practices to the environment (KEN), whereas the calculated t–value was (–5.284), was significant at the level of 0.01. According to this result we can accept the first research hypothesis

Also, we can observe that only about 12% of the graduates and only 20% of the non–graduates were in the low category of implementation extension needs (IEN). About 58% of the graduates compared with 45% of non–graduates were in the medium category of IEN. About 32% of the graduates were in the high category of IEN, while this percentage was 35% in non–graduates group. So, Table 7 shows that there is no significant differences

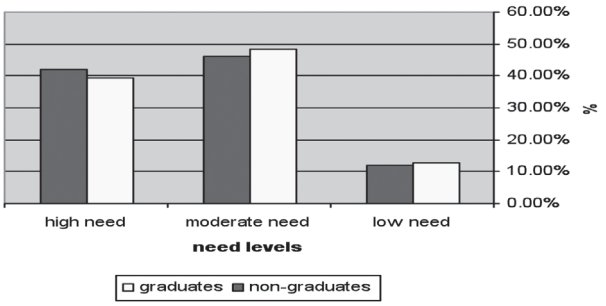

Fig. 9. Attitude extension needs towards some harmful practices in air field (AENA).

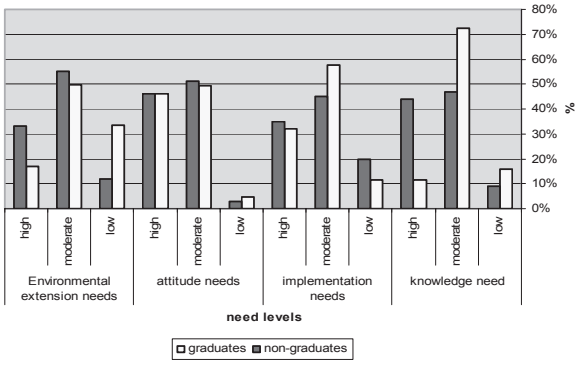

Fig. 10. Needs of environmental extension for the interviewees (graduates and non–graduates).

Table 7. T–test results of the differences between the tow groups of graduates and non–graduates for their environmental needs

Variables	graduates				Non–graduates				t–value
	mean	St.D.	min	max	mean	St.D.	min	max	
Knowledge extension needs of harmful practices of the environment (KEN)	46.61	3.98	37	56	49.40	4.79	32	59	–5.284*
Implementation extension needs to avoid some harmful practices to the environment (IEN)	31.57	3.69	21	39	30.73	4.84	18	40	1.653
Attitude extension needs towards harmful practices to the environment (AEN)	42.20	9.55	7	64	43.53	9.46	19	63	–1.133
Needs of Environmental Extension (NEE)	84.13	16.51	12.7	92.8	53.58	20.44	0.02	93.32	–2.458*

* at the significance level of 0.01

between means for the graduates and non–graduates with respect to their implementation extension needs, thus we can reject the second research hypothesis.

Finally, the previous figure shows that only about 5% of graduates, only 3% of non–graduates were in the low category of attitude extension needs (AEN). 49.2% of graduates compared with 51% of non–graduates were in the medium category of AEN. Also, 46.1% of graduates and 46% of non–graduates were in the high category. So, there is no significant differences between means for the graduates and the non–graduates at the 0.05 level of significance with respect to their attitude extension needs, thus we can reject the third research hypothesis. What are the implications of this result?

On the other hand, standardization process of the three study axes for obtaining the needs of environmental extension (NEE) for interviewees indicates that only about 34% of graduates and only 12% of the non–graduates were in the low category of NEE. Also, about 50% of the graduates were in the medium category of NEE, while this percentage in the non–graduates were 55%, about 17% of the graduates compared with 33% the non–graduates were in the high category of NEE.

For this reason, Table 7 shows that there is a significant difference at the 0.01 level between them in the needs of environmental extension (NEE), where the calculated t–value was –2.458, is higher than the tabled t–value, and thus, we can accept the fourth research hypothesis. Hence, there are general needs of environmental extensions for the graduates and the non–graduates. Also, the non–graduates have higher degree of the needs of environmental extension compared with graduates group.

Its better to explain the reasons why there is no significant differences among graduates and non–graduates farm management regarding implementation extension needs (IEN) and attitude extension needs (AEN). There might be interesting reasons behind these results.

DISSCUSION

The results of interview survey of farm managers imply that the educational background of farm managers is one of the key factors that determine the degree of the need of environmental extension. The reasons for the facts are discussed in this section. Further research topics and recommendations are also given.

Reasons for effects of the educational background

The increase of the knowledge extension needs in the environment field for non–graduates perhaps is due to: that they didn't join any educational programs that offer to them the environmental knowledge, focusing on doubling of agricultural production regardless of their harmful side effects on the environmental components, and the weak role of media in the environmental awareness field. As for the graduates the increase might be as a result of the lack of the attention to environment issues through the various education phases for a long time, in addition to low public awareness of environmental pollution issue and its impact on human being.

The increase of the implementation extension needs for non–graduates may be due to the lack of knowledge and their movement from the old communities with their inheritance of bad environmental practices for those communities. In addition, they are not environmentally rehabilitated for adapting and dealing with these new circumstances. But for the graduates the increase may be due to the lack of their knowledge too, large percentage of graduates is not agronomists so they have many difficulties of adapting with the new situation, and the lack of their attention of the risks of environmental pollution on their lives.

Also, the increase in the attitudes extension needs for graduates and non–graduates due to lack of their knowledge and information in the environment field, the lack of awareness to the importance of preserving and protecting their environment from any pollutions and the lake of environmental awareness campaigns to them.

In addition to the previous reasons, interviewees from graduates and non–graduates suffer from some common problems in this region, such as: severe shortage of irrigation water, lack of paved roads, high salinity of the soil and irrigation water, absence of an agricultural extension work and agricultural extension programs. Moreover, they also suffer from the lack of many social services (e.g. communication means, drinking water, health unites, etc.), weak of available physical facilities, absence of an effective drainage system, and low of soil fertility.

This study have presented interesting results regarding the needs of environmental extension and the educational background of farm managers in Egypt from the view points of knowledge, implementation and attitude. However, further explanations on the presented results are required, especially with regard to the results presented in figure 10. For example, it would be interesting to kwon some of the reasons that may explain why graduates farm managers seem to have greater needs of knowledge and implementation needs than non–graduates farm managers. In addition, the conclusions that the presented results yield are also required.

Recommendations from the results

1) Activating agric. extension roles to preserve the environment in these societies during:
   (1) Planning of periodic extension campaigns for managers and their families about the importance of environment.
   (2) Organizing house visits to the women's for increasing their awareness about the importance of the environment.
   (3) Distribution of agric. extension documents and posters about the importance of environment in these societies.
   (4) Planning and implementing of some farmer's participating in extension programs in the environmental field to improve environmental conditions of these villages.
2) Reserving a day of each month for school students in the region to present the environment preservation

methods, in addition to the implementation of some activities of the environmental preservation.

3) Providing the physical facilities in this societies (e.g. agric. mechanization, health units, suitable agric. Chemicals, roads, communication services, transportation services….etc) to encourage the youth to adapt in this region.

Despite the fact that such research is applicable in the study area, further researches are also required to adopt the study results in other areas. Also, the study recommends interviewing other household members such as the housewives and children, because they can play a significant role in protecting the environment, in addition to the studying of the adoption degree of utilizing the organic agriculture techniques in various crops.

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