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Agricultural Extension Needs' Assessment of Bedouin farmers for wheat and barley crops under Adverse Environmental Conditions in North Sinai Governorate- Egypt

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Abstract : The project aims to 1 - Identify personal, social and economic characteristics of the Bedouin growers of wheat and barley in North Sinai, 2. Assess their needs of the knowledge and agricultural practices to apply technical recommendations under adverse environmental conditions, 3. Identify the production problems facing the growers and their proposals to solve it,4. Determine the relations between the level of knowledge & Executive practices for the needs of Growers as dependent variables and some independent variables**.** The research depend on a descriptive and exploratory approach, also used the analytical method in the study of relations between the variables , a questionnaire has been prepared, which were collected from farmers by personal interview, a random sample have been selected ,it represents different environmental conditions. Data has been presented by using frequency tables and percentage in order to describe some of the personal, social and economic characteristics of respondents. The percentage of the average degree for maximum Needing Requirement in order to describe the level of cognitive and executive need . Spearman correlation coefficient was used to test the correlation between the studied variables. The results have been clarified that the traits of wheat and barley growers in the sample as follows; the majority of the growers were illiterate, have large families, work in agric., activities only, possess less than 20 acres, few possess of agric-non agric., machinery, live in huts, few possess of farm animals (less than10 heads of sheep and goats), they are low social participation, low opinion leader, low credibility of agric., information sources. Results show that the growers of wheat and barley from the severe need level with respect to cognition& executive cognition of the following technical recommendations (fertilization, disease control, land preparation and cultivation practices), medium need level of the following technical recommendations (sowing date, weed control). Bedouin farmers suggested some solutions to overcome the production problems such as; dig shallow wells and build reservoirs to keep rain water and increase number of water tanks to contribute in solving the problem of rain water shortage or well water shortage, providing agricultural mechanization services in the Agricultural Society To overcome the problem of lack of agricultural machinery for the plowing process, overcome the problem of increasing farmers' debts to the bank, they have demanded to give a grace period for repayment loans in areas with adverse environmental conditions.
Results show that there is a very significant positive relationship, between each of the level of knowledge & executive practices for the needs of growers to apply technical recommendations as dependent variables and between each of the following independent variables; the age, size of family members, a full-time agricultural work, the size of agricultural holding, and there is very significant negative relationship with each of the following variables: Educational status, the degree of social participation, the degree of opinion leadership, and involvement degree of agricultural extension activities.
Key words: Agricultural Extension – Needs' assessment— Adverse Environmental Conditions – knowledge- wheat crop - barley crop.

Introduction:

Agricultural development is one of the main pillars in the community development process in Egypt, where it contributed by approximately 18.5% of the GDP adds about 14.5% to the national income annually, it provides industry sector with raw materials, which are necessary for its progress , in addition to being one of the most Economic sectors accommodating of employment where the number of employees reaches nearly 4.8 million workers, representing 32% of the size of the labor force in Egypt, as well as its key role in the food supply of the population.

So the process of modernization and development of the agricultural sector requires an integrated system for knowledge and innovations flow to the end users (Madkour et al) [1].

The consecutive socio -economic development plans in Egypt were aimed to reach the comprehensive, balanced and sustainable development in order to catch up with international and regional developments, also to face population growth requirements,

so the government direct its efforts to achieve the vertical and horizontal agricultural development, especially horizontal development expansion in the cultivation of desert and new reclaimed areas, the cultivated area in Egypt represents 4% only of the total area which reaches about million square kilometers and the rest is untapped optimum utilized desert lands , despite the presence of a comparative advantage for the production of certain strategic crops in desert land especially in Sinai Peninsula areas, which is divided into North and South Sinai governorates, and that the State strives for Sinai reconstruction where it is considered the strategic depth of Egypt to the east, and a link between Egypt and Asian Arab states (Decision Support and Information Center Arish: January 2015) [2].

Due to the attention of the state to develop desert areas in general, and Sinai Peninsula in particular, it has set up the National project for the development of Sinai because of the availability of the elements of sustained development in all sectors, the agricultural sector get a high degree of importance for the purpose of agricultural horizontal expansion of cultivated land, where the current cultivated area is estimated at about 193 000 acres, mostly crops depending on rain, and has established El-Salam Canal for the cultivation and reclamation 420 000 in the east of the Suez Canal in order to establish sustainable development and youth employment in the agricultural sector and to secure Egypt's eastern borders, and an end to the isolation of Sinai. (agricultural magazine: February 2004, p. 41)

So the current planning of agricultural policy aims to expand this type of agriculture in the new land to skip the gap between production and consumption of some important crops, especially wheat and barley production, where the size of the food gap of wheat reached about 6.526 million tons per year and the average per capita wheat about 192.56 km grams per year, and wheat self-sufficiency ratio of about 55.82% (Ministry of Agriculture and land reclamation 2012-2013) [3]

It necessitates a concerted research efforts to develop strains of wheat and barley crops tolerant to drought, salinity ,and given the abundance of production ,work on disseminate its use under difficult environmental conditions in Sinai.

In spite of the intense activities of the researchers and their innovations and new ideas, the traditional pattern of production and poor agricultural extension services played a role in the reduction of agricultural idea developed to become, in many cases only an extension recommendation (Zahran: 1985, p. 463) [4]. Therefore It was necessary to study extension Bedouin farmers ' needs in Sinai , so that agricultural technology transfer to them.

The concept of extension needs express aspects of knowledge, skills, and attitudes deficiencies of farmers concerning agricultural operations and the level of carrying out the technical and extension recommendations, that require a change or modification of the current situation to the desired situation (Ansari: 1999) [5].

As it illustrated the importance of assessing needs in optimizing the use of the capabilities and the resources available in light of the scarcity of resources, and in determining the order of interim targets according to their importance to reach the ultimate goal through the selection and design of projects best suited

for each plan, as is the way of scientific training or citizens development to cope with their problems and solve them through Cooperation between the owner of the problem and experts (Samalouti: 1998) [6].

The importance of assessing the needs of Bedouins growers of wheat and barley in Sinai to help officials in developing specialized extension programs under adverse environmental conditions, also helps to disseminate the newly created breeds that adapt to these environments, and overcome the most important agricultural and environmental problems to success these programs.

Research problem:

The main research problem is clarified in the absence of specialized programs for the development of the important crops of wheat and barley that grow under adverse environmental conditions in the desert which represent 96% of the area of Egypt, 60% of it is located in Peninsula of Sinai, where the land is dry with high salinity, most of its areas are poor soil or from limestone, and is exposed to hurricanes and the winds that represent natural obstacles in agricultural production.

Due to the importance of agricultural development, especially in North Sinai governorate to the availability of the elements of its development and to provide food security for the population who depend on rain-fed agriculture mainly in wheat and barley cultivation, and the importance of the introduction of agricultural innovations of varieties resistant to drought and salinity, and soil conditioners and follow farming practices that help to retain soil moisture and achieve higher productivity rates. ,and given the importance of the role of extension activities in agricultural innovations transfer to the farmers it is important to study the farmers' needs assessment on a scientific basis so that the planning and implementation of outreach programs can make desirable behavioral changes in knowledge, skills and attitudes to improve farmers socio- economic aspects , and their families and communities.

In order to achieve these programs, it is important to identify the needs of farmers' knowledge and practices for wheat and barley in the rain-fed agriculture in North Sinai Governorate under adverse environmental conditions by answering the following questions: 1- What are the traits of personality, social and economic of wheat and barley growers Bedouins in North Sinai?-2 - What is the level of knowledge, and Executive practices for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions?.3-What are the production problems facing the farmers in Sinai? And what are their proposals to solve them?4. What are the relations between the level of knowledge & Executive practices for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent variables?

1- Degree of social participation, 4-2 - Opinion leadership degree, 4-3 - Age, 4-4-Educational status, 4-5- level of economic and social living, 4-6 - The size of agricultural holding, 4-7 – Possession of farm animals, 4-8 The size of the family members, 4-9- The degree of frequency on urban areas visits ., 4-10- involvement degree in agricultural extension activities, 4-11- degree of credibility of the sources of agricultural information, 4-12-The extent of full-time farm work.

Objectives:

Possible formulation of the objectives of the study after a review of submitted research problem as follows: -

1. Identify the traits of personality, social and economic of wheat and barley growers Bedouins in North Sinai
2. Assess the needs of the knowledge to growers of wheat and barley to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions.
3. Assess the needs of agricultural practices with wheat and barley under adverse environmental conditions
4. Identify the production problems facing the growers of wheat and barley in Sinai, and identify their proposals to solve it.
5. Determine the relations between the level of knowledge for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent factors:

1- Degree of social participation, 2 - Opinion leadership degree, 3 - Age, 4-Educational status, 5- level of economic and social living, 6 - The size of agricultural holding: 7 – Possession of farm animals, 8- The size of the family members, 9- The degree of frequency on urban areas visits . -10- Involvement degree in agricultural extension activities, 11- degree of credibility of the sources of agricultural information, 12-The extent of full-time farm work.

6. Identify the relations between the Executive practices for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the previous independent variables.

Theoretical research assumptions:

The first theoretical hypothesis:

1. There is a significant positive relationship between the level of knowledge for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent factors: 1- Degree of social participation, 2 - Opinion leadership degree, 3 - Age, 4-Educational status, 5- level of economic and social living, 6 - The size of agricultural holding:, 7 – Possession of farm animals, 8- The size of the family members, 9- The degree of frequency on urban areas visits . -10- Involvement degree in agricultural extension activities, 11- degree of credibility of the sources of agricultural information, 12-The extent of full-time farm work.
2. There is a significant positive relationship between the level of the Executive practices for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the previous independent factors|.

Research Methodology :

The research depend on a descriptive and exploratory approach to identify the traits of personality, social and economic of wheat and barley growers Bedouins in North Sinai for the purpose of the educational situation analysis when developing the appropriate program for them and to determine the extension needs to growers of wheat and barley, and learn about the production problems in the North Sinai Governorate, also used the analytical method in the study of relations between the variables of the study .

The search area and the sample selection: -

The search area: The study was conducted in El - Hassana center in North Sinai, which covers an area of 10 622 km2, and has 20 villages, and 111 small communities. The average rainfall in this area is about 2.6 mm / year, and rains fall in the months of February, March. (Water Resource development Research Institute - 1999) [8].

The sample selection: A random sample of three villages have been selected in El - Hassana center ,it represents different environmental conditions which were El-Gafgavh, El- kousima, and El-zawaraa villages, interview each of the 45 of wheat and barley farmers totaling 90.

Tools: A questionnaire has been prepared, covering all aspects of research, an initial test for pre -test applied to the five farmers for each crop, it became a valid tool to collect field data in line with achieving the objectives of the study, The data were collected from farmers by personal interview during the month of February, and March, 2015.

Research variables and the method of measurement: -

To achieve the research objectives of the study and some research variables were measured through quantitative treatment of the data obtained as follows:

Independent variables:

The independent variables addressed by the study quantified for the purposes of statistical analysis on the following address: -

1: The size of the family members - measured by asking the respondent about the number of his family the range extent of 2 and 16 individual, the range has been divided according to the size of their families into three categories, given the following weights (1, 2, 3) degrees, respectively

2. Educational Status: - this variable has been addressed by dividing it into four categories (ignorant, reads and writes, technical education, and holds a university degree), where given the following weights (1, 2, 3, 4) degrees, respectively

3. The extent of full-time farm work: - this variable has been addressed through two categories (full-time to work only in agriculture, farming and other work) it has been given the following weights (2.1) degrees, respectively

4-The size of agricultural holding: - this variable has been measuring by estimating three categories by the following weights:

- The size of a few tenure (less than 10 acres) by one degree.
- Size medium tenure (10- less than 20 acres) two degrees.
- The size of large acquisition (20 acres or more) 3 degrees.

5. - The level of economic and social living, this variable has been measuring by three dimensions, such as;

5-1- agricultural machinery possession it has been given the following weights (1, 2) degrees respectively.
5-2- possession of non-agricultural machines: - this variable has been treated through divided into three categories, it has been given the following weights (1, 2, 3) degrees respectively.
5-3- housing case: - The treatment of this variable by dividing it into two categories, it has been given the following weights (1,2) degrees respectively.

6- Possession of farm animals: - This variable has been measured through a number of sheep and goats held by the family, with range between less than 10 heads and 20 heads and over, the treatment of this variable by dividing it into three categories, it has been given the following weights (1.2,3) degrees respectively

7- Degree of social participation : This variable has been quantified on the basis of measuring the participation of the respondent in four common social activities in the region through four responses in front of each of them determine the degree of contribution Thus, the total score for the participation of the respondent ranging between 4 degrees at a minimum, a maximum of 16 degrees, Range 12, divided into three categories it has been given the following weights (1,2,3) degrees respectively.

8 -Opinion leadership degree, this variable has been measured by using the method of self-esteem through respondent to 6 questions asked, where the respondent has given (two degrees) if the answer is yes, and (one degree) to answer no, and reached the upper limit of 12, and the minimum 6 degrees , respondent divided into three categories, it has been given the following weights (1,2,3) degrees respectively.

9- degree of credibility of the sources of agricultural information ; respondents were asked about the extent of their exposure to sources of agricultural information, the upper limit was 48, the minimum 12, Range 36 degrees ,respondent divided into four categories reflecting the following weights (4,3,2,1) degrees respectively .

10 - involvement degree in agricultural extension activities

This variable has been quantified on the basis of measuring the participation of the respondent in six of the most important extension activities in the region, scores obtained by the respondent to reflect the total score to participate in extension activities, it has ranged from the total score of the contribution of the respondent between 6 degrees at a minimum, 24 degrees maximum, Range 18, scores were divided into three categories , it has been given the following weights (1,2,3) degrees

The dependent variables:

Identify needs sources in the review:

There are several sources to identify the needs of farmers, ("Sanders", 1966: 57)

1. People themselves: It is the source reflects the needs that they feel it.
2. The change agents: they have information about the existing situation in the region, and therefore they can identify the perceived needs, and the perceived to respondents.
3. Local leaders: they reflect people's needs, because they have a full understanding for their area.
4. Extension specialists: they have information about the situation in the region and they are able to identify the people's needs.
5. Others: such as the Department of Agriculture in the United States of America, also managers of bank and companies who are usually provide agricultural inputs to people.

Identify the dependent variables in the research:

Determine the level of extension needs of the knowledge and implementation of agricultural respondents with respect to the technical recommendations concerning the development of the production of wheat and barley crops in North Sinai.

This variable measure through the various items included in the technical recommendations for the production of wheat and barley, of (13) recommendations or items, and the data were treated quantitatively by giving two degrees to all of the wrong response to reflect the existence of the needs of the items contained in the technical recommendations, and the correct response was given one degree to reflect the lack of need, it has calculated the average degree of need for each item, and the percentage of the maximum degree of need for each item also.

% of the maximum degree of need = average grade of Need / the maximum degree of need Data were classified according to the percentage of the maximum degree of needs of growers ' cognitive also executive as follows;

* Level of severe need (87.5%)
* Level of medium average (75%).
* Level of weak need (62.5%).
* There is no need (50%)

Statistical analysis tools:

After processing quantitative data as mentioned above, it was analyzed statistically to achieve the objectives of the research using the following statistical tools: - (A) Data has been presented by using frequency tables and percentage in order to describe some of the personal, social and economic characteristics of respondents. (B) The arithmetic average was used, and the percentage of the average degree for maximum Needing Requirement in order to describe the level of need for cognitive and executive respondents with respect to the technical practices relating to the production and marketing of wheat and barley. (C) The Spearman correlation coefficient was used to test the correlation between the study variables.

Statistical hypotheses:

The first statistical hypothesis:

There is no significant positive relationship between the degree of cognitive content of the technical recommendations for growers of wheat and barley extension needs and between each of the independent variables studied, namely: -1- Degree of social participation, 2 - Opinion leadership degree, 3 - Age, 4- Educational status, 5- level of economic and social living, 6 - The size of agricultural holding:, 7 – Possession of farm animals, 8- The size of the family members, 9- The degree of frequency on urban areas visits . -10- Involvement degree in agricultural extension activities, 11- degree of credibility of the sources of agricultural information, 12-The extent of full-time farm work.

The second statistical hypothesis:

There is no significant positive relationship between the level of the Executive practices for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the previous independent factors.

Research results and discussion

Identify the traits of personality, social and economic of wheat and barley growers Bedouins in North Sinai

Data indicated the results in Table (1),

1. Age: data clarified that the majority of growers of wheat and barley are in the age group (36-55 years), which accounted for 48.3% of the total respondents, that the results showed that the average age of respondents reached (35.5 years).
2. Marital Status: - The results indicate that the majority of growers of wheat and barley married, their percentage were 78 .9% in the sample, also 5.6%were single, and15.5% were widow.
3. Family size: - The majority of growers of wheat and barley are large Families accounted for (75.2%) of the total respondents.
4. Educational Status: - The majority of growers of wheat and barley are illiterate ,accounted for (62.2%) of the total respondents, while 37.8 of them can reads and writes ,while there is no qualified holders of medium or high education.
5. The extent of full-time farm work: - found that two-thirds of wheat and barley growers work in agriculture , they accounted for only (71.1%) of the total respondents, while 28.9 of them have other work beside agricultural work .
6. The size of agricultural holding. (A. Wheat: - The results showed that three-quarters of the farmers surveyed by 75.5% have possession of less than 20 acres, giving an indication of the small size of agricultural holdings.
   (B) Barley: The results showed that about (71.1%) of the total barley growers have 10 acres or less, while 20% own less than 20 acres.
7. The level of economic and social living, this variable has been measuring by three dimensions, such as; 7-1- agricultural machinery possession. - The results showed that only 15.6% of the respondents have agricultural machinery. 7-2. possession of non-agricultural machines: - Data showed that only 13.3% of the respondents have non-farm machine. 7-3. housing case: - data indicate that the majority of growers of wheat and barley respondents living in huts where accounted for (84.4%) of the total respondents, while the 15.6% of those living in houses.
8. Possession of farm animals - Data show that 80% of respondents are few possessions of farm animals (less than 10 heads of sheep and goats) while 11.1% are medium possession (10- less than 20 head) while the 8.9% possessing high (20 heads and higher).
9. Degree of social participation: The results indicate that the majority of growers of wheat and barley respondents low contribution accounted for (76.7%) of the total respondents.
10. Opinion leadership degree: data indicate that the majority of growers of wheat and barley respondents leadership degrees are low opinion which accounted for (71.1%) of the total respondents, while 11.2% degree of opinion leadership are high.
11. Degree of credibility of the sources of agricultural information sources to the Bedouin: Data show that 75.6% of the respondents stated that their sources of information indicative grades were low, while 6.7% of them reported that their sources grades were high.
12. Involvement degree in agricultural extension activities: - data indicate that the majority of growers of wheat and barley respondents are low contribution, reaching their percentage (76.7%) of the total respondents and field visits are considered more of these activities.

Table (1) the distribution of Bedouin farmers according to their characteristics

%	N	Characteristics	%	N	Characteristics
		8- possession of non-agri. machines			1. Age
80	72	-lack of machines	33.3	30	-Less than 36 years old
13.3	12	-some machines	55.6	50	-From 36- 55 years
6.7	6	-presence of a car	11.1	10	-More than 55 years
		9 - housing case			2 -Marital Status
84.4	76	-Accommodation in nests	5.6	5	-Single
15.6	14	-Accommodation in buildings	78.9	71	-Married
			15.5	14	-Widow
		10- Degree of social participation			3 - family size
76.7	69	-Low contribution	10	9	-Little less than 4 members
16.7	15	-Medium contribution	17.8	16	-Medium of 4-6 members
6.6	6	-High contribution	75.2	65	-large from 7 and more
		11. degree of opinion leadership			4 - Educational Status
71.1	64	-Low	56	62.2	-Illiterate
16.7	15	-Medium	34	37.8	-Reads and writes
11.2	10	-High	-	-	holds a medium qualification
			-	-	holds a university degree
		12 credibility of the sources of			5-Professional Status
75.6	68	agricultural information	71.1	64	-Only cultivation
16.7	15	-Low	28.9	26	-Agriculture and other work
6.7	6	-Medium			
		-High			
		13- involvement in agricultural extension activities;			6 -size of agri. holdings
					<u>Wheat</u>
76.7	69	-Low contribution	22.2	10	-Less than 10 feddans
16.7	15	-medium contribution	75.5	34	-(10-less than 20)feddans
6.6	6	-High contribution	2.3	1	-(20 feddans and more)
					<u>Barley</u>
			71.1	32	-Less than 10 feddans
			20	9	-(10-less than 20 feddans)
			8.9	4	-(20 feddans and more)
					- Possession of agri.machines
			15.6	14	-existence of farm machineries
			84.4	76	-lack of agri. machines

Assess the needs of agricultural knowledge for wheat and barley growers to apply technical recommendations under adverse environmental conditions.

Results shown in Table No. (2) the following:

1. Results show that the growers of wheat and barley from the severe need level with respect to cognition of the following technical recommendations (fertilization, disease control, land preparation and cultivation practices) ,the percentages of the needs 'average degree of those recommendations are respectively (89.5%, 88%, 87.5%)
2. The growers of wheat and barley from the medium need level with respect to cognition of the following technical recommendations (sowing date, weed control), the percentages of those recommendations respectively (81.5%, 67%).
3. It turns out that the growers of wheat and barley in the level of weak need for cognitive of recommendation (the suitable varieties), where the percentage of the average degree of recommendation (52%)

4. There is no need for the technical recommendation (harvest treatments) for the growers of wheat and barley where the percentage of the average degree of cognitive needs of that recommendation was (50%).

Assess the level of needs executive knowledge to growers of wheat and barley of the respondents with respect to the technical recommendations for the development of production under adverse environmental conditions;

Results shown in Table No. (2) The following

1. Growers of wheat and barley from the level of severe need of executive cognition with respect to the following technical recommendations (fertilization, disease control, land preparation and Agricultural practices), percentages of the average degree of the operational needs of those recommendations were respectively (88.5%, 88.5%, 88%).
2. Respondents with the level of medium executive's need with respect to the technical recommendations of (date of sowing, weed control), the percentage of the average need degree of respondents of those recommendations were respectively (82%, 67%).
3. It turns out that the growers of wheat and barley with weak level of executive cognition for recommendation (the suitable varieties), where the percentage is (52%).
4. There is no need to cognitive practices concerned with (the harvest) to improve the production growers of wheat and barley in percentage amounted to (50%).

Table (2) Bedouin respondents' distribution according to the level of need from knowledge and practices with regard to the implementation of the wheat and barley cultivation

level of needs	**Executive need**		**Cognitive needs**		**Technical recommendations on rain-fed agriculture of wheat and barley**	**Farming practices**
severity of need	**% Of average**	**Average degree of need**	**% Of average**	**Average degree of need**		
Medium need	82	1.64	81.5	1.63	(A) November month is the recommended date for sowing, it can delay until Dec. (B) the most appropriate time for barley cultivation is half of November.	1-sowing date
Poor need	53	1.06	52	1.04	(A) cultivation of improved varieties of wheat, which is characterized by drought tolerance, such as GIza 155 and Sakha 8, Sakha 69 (B) Cultivation of improved drought-tolerant of barley varieties.	2-varieties
Great need	87	1.07	83.5	1.67	(A) - divide the area to be planted to the longitudinal slides by width 5 meters. (B) - divide the amount of seeds according to the number of slides to avoid leaving empty spaces. (C) -plowing twice before planting when spreading seeds, the second should be perpendicular to first to keep the rain for a long time.	3-preparation of land and agriculture

					(D plowing in the form of closed circles to keep the rain for a longer period (E) Concern about soil leveling.	
Great need	88.5	1.77	84.5	1.69	Add compost to improve soil properties and retain quantities of rain	4-fertilization
Medium need	67	1.34	67	1.34	Manually weeding because it is the host of insects such as aphids.	5-weed control
Great need	67	1.74	84	1.68	Resist Fungus that grows in dry conditions and in alkaline soil with few fertility by doing good service, planting and use diseases resistant varieties.	6-disease resistance
Does not need	50	1	50	1	need to reduce wastage when harvest the crop , it can be done before sunset or early in the morning	7-harvest

Identify the production problems facing the growers of wheat and barley in Sinai and Proposals for solutions from the perspective of farmers

Results shown in Table No. (3) The following;

The production problems facing farmers of wheat and barley crop arranged in descending order of the average degree the existence of the problem as follows;

High irrigation cost of well ,sand salinity, non-availability of organic fertilizer , and its high prices, the low level of extension services, the ineffectiveness of pesticides in diseases control, lack of Spare parts of irrigation and agricultural mechanization, the lack of varieties and good seedlings, the spread of weeds, increase diseases and soil fungi, Lack of access to services of appropriate scientific expertise to increase productivity, shortage of extension services, lack of soil leveling and high soil salinity, its presence as follows (48.4%, 48.1%, 48.0%, 46.2%, 43.3%, 43.2%, 37.1%, 26.7%, 25.2%, 24.5%), respectively

Results show that the most important problems facing farmers during the production process were (wells problems, increasing irrigation cost and high salinity) - (fertilization problems, the lack of organic and bio fertilizers, increase prices) - (shortage of extension services) with an average degree of presence (48.4%, 48.1%, 48.0%) respectively which makes it imperative to do more agricultural extension services in the search for practical solutions to these problems, also the provision of production inputs.

The following solutions to the problems of productivity from the viewpoint of the farmers have been proposed as follows:

1. To overcome the problem of rain water shortage or well water shortage, repeat the 77% of the farmers to dig shallow wells to contribute in solving the problem, said 17% of them the importance of laying the water line for agricultural areas, providing deep wells by 15%, build reservoirs to keep rain water and to increase number of water tanks for irrigation supplementary 15%.
2. To overcome the problem of lack of agricultural machinery for the plowing process, farmers have suggested the importance of providing such equipment in the Agricultural Society and to improve agricultural mechanization services.

3. For the problem of the lack of manpower repeat about 9% of the farmers, it could be solved by improving the mechanization services in the agricultural Society.
4. For the problem of the small number of extension agents and lack of access to modern information repeat about 40% of the farmers that the establishments of agricultural associations contribute in solving this problem.
5. To overcome the problem of increasing the losses of grain because of the birds, the farmer have proposed delay at the sowing date from October to solve the problem
6. To overcome the problem of increasing farmers' debts to the bank, they have demanded to give a grace period for repayment loans in areas with adverse environmental conditions .

Table (3) the distribution of the respondents according to the degree the existence of problems that hinder the wheat and barley production in Sinai

Ranking	The weight of average degree of the existence of the problem	Problems
First	48.4	Rising cost of irrigation wells and salinity
Second	48.1	Non-availability of bio &organic fertilizers and rising prices
Third	48	The low level of extension services
Fourth	46.2	Ineffectiveness of pesticides in Pest Control
Fifth	43.3	Non-availability of irrigation networks and agricultural mechanization supplies with suitable prices
Sixth	43.2	Lack of good appropriate varieties of seeds and seedlings
Seventh	37.1	spread of weeds, diseases and soil fungi
Eighth	26.7	Lack of appropriate scientific expertise
ninth	25.2	Non-availability of trained agricultural employment and rising wages
Tenth	24.5	Miss soil leveling and high salinity

Determine the relations between the level of knowledge for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent variables:

1- Degree of social participation, 2 - Opinion leadership degree, 3 - Age, 4-Educational status, 5- level of economic and social living, 6 - The size of agricultural holding:, 7 – Possession of farm animals, 8- The size of the family members, 9- The degree of frequency on urban areas visits . -10- Involvement degree in agricultural extension activities, 11- degree of credibility of the sources of agricultural information, 12-The extent of full-time farm work.

The results in the table no. (4) clarified that;

1. There is a positive relationship, very significant at the level of0.01between the level of knowledge for the needs of growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent variables, and between each of the age, size of family members, a full-time agricultural work, the size of agricultural holding. Based on this result can reject the statistical hypothesis and accept the alternative theoretical hypothesis on the examination of the above-mentioned factors, this means that the greater the age of the farmers and increase the number of children, and part-time work in agriculture, and increase the size of agricultural holdings has increased the need for knowledge.
2. The results showed the existence of very significant negative relationship at .01 levels with each of the following variables: Educational status, the degree of social participation, the degree of opinion leadership, and involvement degree of agricultural extension activities**.**

3. Based on this result can reject the statistical hypothesis and accept the alternative theoretical hypothesis on the examination of the above-mentioned variables, this means that the greater the level of education, the degree of social participation, the degree of opinion leadership, the degree of agricultural extension activities**.**, has led to a lack of needed knowledge to farmers Bedouin.While there were no significant correlation between the level of knowledge for the needs of growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent variables: the level of economic and social living, degree possession of farm animals, degree of credibility of the sources of agricultural information, and The degree of frequency on urban areas visits .
4. Based on this result can be accepted statistical hypothesis with respect to the above-mentioned variables.

Identify the relations between the Executive practices for the needs of Growers to apply technical recommendations for the cultivation of wheat and barley under adverse environmental conditions and between each of the following independent variables:

1- Degree of social participation, 2 - Opinion leadership degree, 3 - Age, 4-Educational status, 5- level of economic and social living, 6 - The size of agricultural holding:, 7 – Possession of farm animals, 8- The size of the family members, 9- The degree of frequency

On urban areas visits. -10- Involvement degree in agricultural extension activities, 11- Degree of credibility of the sources of agricultural information, 12-The extent of full-time farm work. The results in the table no.(4) clarified that; The results showed the presence of similarity in the correlations between the needs of executive practices for the wheat and barley Growers in the relation with the independent variables and their needs of knowledge as a dependent variable in the relation with the same independent variables.

Table (4) correlation coefficients between the level of knowledge and executive needs, and between each of the studied independent variables

Spearman correlation coefficients for values		**Independent variables**	**Series**
Executive needs	**Knowledge needs**		
0.768**	0.768**	Age	**1-**
0.405	0.405	The degree of frequency on urban areas visits	**2-**
0.872**	0.872**	The size of the family members	***3-***
- 0.702**	- 0.702**	Educational status	**4-**
0.711**	0.711**	The extent of full-time farm work.	**5-**
0.901**	0.901**	The size of agricultural holding	**6-**
0.021	0.021	level of economic and social living	**7-**
0.407	0.407	Possession of farm animals	**8-**
- 0.848**	- 0.848**	Degree of social participation	**9-**
- 0.874**	- 0.874**	Opinion leadership degree	**10-**
0.093	0.093	degree of credibility of the sources of agricultural information	**11-**
- 0.917**	- 0.917**	involvement degree in agricultural extension activities	**12-**

Conclusion:

This study have been done to elaborate a specialized program for the development of the important crops of wheat and barley that grow under adverse environmental conditions in the desert of Sinai , direct to Bedouin growers whom are Characterized as very poor and illiterate, specify the educational objectives of the program to gain farmers information and practices concerning fertilization, disease control, land preparation and cultivation practices, sowing date, weed control recommendations as educational messages, also support farmers to overcome production problems such as; dig shallow wells and build reservoirs to keep rain water and increase number of water tanks, providing agricultural mechanization services in the Agricultural Society, and give a grace period for repayment loans in areas with adverse environmental conditions .

The target trainees will be from old age, have big family size, have full-time agricultural work, have large size of agricultural holding, less educational status, less social participation, less opinion leaders, less involvement of agricultural extension activities**.**

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