

The Role of Agricultural Extension During Lockdowns Due to any Pandemic in Anbar Governorate, Iraq

Jasim M Saleh*

Environmental Biotechnology Department, Biotechnology and Environmental Center, University of Fallujah, Iraq.
ORCID <https://orcid.org/0000-0002-1683-0821>

*Correspondence:

Jasim M Saleh, Environmental Biotechnology Department, Biotechnology and Environmental Center, University of Fallujah, Iraq.

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ABSTRACT

Purpose: To develop the countryside and enhance the role of youth and rural women, through development extension programs. This experiment was conducted in Anbar Governorate to determine the role of agricultural extension during the pandemic.

Methodology: To achieve the objectives of the study, a questionnaire based schedule was used, data was collected from 72 extension workers, data was analysed using SPSS program to find the relationship between the independent variables and their impact on rural development.

Results: The results showed that most of the employees were young and under less than 45 years old. Most of the employees attended training courses, their percentage was more than 97%. In addition, most of the employees have obtained a diploma as well as a master's degree. In general, the results showed that in the field of job satisfaction, employees had an average tendency toward job satisfaction. As for the scope of the impact of the pandemic, the results showed that the trend of the sample was between weak to moderate. It is necessary to strive to develop a fixed strategy for agricultural extension centers and agricultural directorates, and to benefit from the experiences of food and agricultural organizations, the World Bank, and all international organizations working in the governorate.

Conclusion with Recommendation: The study concludes that extension program management plays a significant role in sustaining rural development in Anbar Governorate. The findings reveal that the majority of extension personnel are young. To strengthen the contribution of extension programs to rural development, it is recommended that management focus on improving job satisfaction through enhanced training opportunities, recognition systems, and clear career advancement pathways.

Keywords

Pandemic, Agricultural crops, Anbar province. Extension programs, Rural development, Sustainable development.

Introduction

There is a close relationship between rural and agricultural development that encompass a common purpose of detecting barriers in the rural, so as to remove these. This is accomplished by the development of appropriate treatments, whether they be new legislation, legislative processes or strategic policies. The long-

term goal is to enable these sectors to be on the path of sustainable rural development. The agriculture industry faces dire challenges in Iraq. Water, land and environment resources are eroding due to both natural processes and human-induced practices [1]. This has resulted in general pollution, soil exhaustion, growing desertification and fresh water shortages which are severely aggravated by climate change. These issues are indicative of a long-term degradation of natural resources as demands have increased from population pressure and non-viable farming methods. Such practices involve the wasteful use of watering, over

fertilization and excessive application of toxic pesticides which not only devastate soil biology...and environmental impact. The consequence is a severe deterioration of Iraq's limited agricultural land.

Agricultural extension plays a major role in the vertical and horizontal agricultural development programs and projects. In the field of vertical agricultural development, agricultural extension works to raise the agricultural productivity of the current agricultural area through the application of research results, agricultural discoveries, ideas, experiences and modern agricultural methods. It is necessary to work to achieve the goals of agricultural development by increasing agricultural production and improving its quality in line with international standards in order to secure the need of local consumption and achieve a surplus for export to markets. By educating farmers on the application of modern technologies we can impart knowledge on how to benefit from loans to develop their production and agricultural expertise. By introducing them to preserving natural resources and ensuring sustainable development of resources [2].

Rural development involves comprehensive measures aimed at improving many aspects of rural life, whether economic, cultural, social, or environmental. Over time, the role of the agricultural extension worker has changed significantly also their role was not limited to providing technical advice or training courses for increasing their production. Their role has become much broader, encompassing important tasks that contribute directly to rural development. In this context, agricultural extension is an essential tool which helps the farmers to increase their efficiency and competitiveness in the marketing, by providing those farmers the data and information with the results of the extensional studies that enables them to adopt best management practices in their farms [3].

Agricultural extension acts as a bridge between researchers and farmers, transferring knowledge directly to them. Given the significant challenges facing rural areas today, such as scarce resources, weather fluctuations, the spread of pests and diseases, and social and political unrest, the role of agricultural extension workers is more important than ever. These extension workers are constantly working. The study aims to achieve the following main objectives:

1. To explore the key of the personal and professional characteristics of the agricultural extension workers.
2. Identify the main challenges and barriers that hinder the rural development efforts.
3. This study analyzes how age, experience, education, training, position, resources, and program satisfaction influence rural development outcomes.
4. To assess the prevalence and utilization levels of the most critical agricultural resources.
5. Evaluating the degree of stakeholders' satisfaction with the agricultural programs currently implemented in the extension work.

Materials and Methods

Conceptual framework

Within a framework of Iraqi agricultural system, the Ministry of Agriculture supervises the management of agricultural extension and training at the national level. The headquarters in Baghdad manages fifteen extension centers in various governorates, each of which oversees a number of local demonstration farms in its area. These farms and centers are responsible for implementing extension activities such as seminars, training courses, and practical demonstrations in the fields. The work of the central administration is supported by several specialized departments, including the Plant Protection Department, the Rural Women's Department, the Water Conservation Department, and the Livestock Department.

Also the Iraqi Ministry of Agriculture has developed a strategic policy to develop the agricultural sector through the adoption of smart agriculture and modern technologies. This vision aims for increasing the Agricultural production to achieve self-sufficiency from vegetable crops, with a focus on strategic crops e.g. wheat, barley, rice, and corn. To achieve these study [4].

We conducted this study in Anbar Governorate, which is located in the western of Iraq and extends over a large area representing about a third of the country's area. We chose Anbar Governorate because it plays an important role in agriculture production, especially in providing fruits and vegetables to the capital, Baghdad. The land there is spacious, allowing for the cultivation of multiple varieties of crops, and there is also a large number of livestock, with water available. Our study focused on evaluating agricultural extension services, which clearly deteriorated after the events of ISIS. The war destroyed important infrastructure, including the main agricultural extension center in Anbar, which is still operating from an alternative location. Also, extension farms in Anah, Haditha, and Al-Karma suffered major damage, and this negatively affected the provision of services in the governorate. In addition, these farms are unevenly distributed geographically, with five farms located in sparsely populated areas, making it difficult to easily access services.

This leads to a major imbalance in the provision of extension services in the correct distribution of them, in light of the circumstances of the pandemic, which has caused great confusion in the food supply between all cities, and a clear imbalance in the distribution and transportation of agricultural crops to Anbar as well as the capital, Baghdad. Accordingly, this study was conducted identification of the most important obstacles to the supply of crops to Baghdad in Anbar province, as well as the role of agricultural extension in this regard. In addition to identifying the obstacles and agricultural issues that stand in the way of achieving self-sufficiency in the governorate. In addition to the most important obstacles to the objectives of rural development, in order to overcome these obstacles and develop the agricultural sector and rural development. The Department of Agricultural Guidance and Training also disseminates education through seminars that are held in the event of an epidemic or disease in areas of Iraq or the world.

Methodology

In order to meet the objectives of this study, the questionnaire was designed as follows. It was then checked for face and content validity (internal validity). After that, a pre-test was conducted on 20 employees who were not included in the final research, and then data was collected from all agricultural extension departments in Anbar Governorate, for those working only in the field of agricultural extension, which were distributed to (the Directorate of Agriculture, the extension department at the directorate headquarters, the Agricultural Extension Center, and the extension farms affiliated to it). The number of employees from whom data was collected amounted to 72 extension staff. The number of extension employees is 92, and 20 employees who were pre-tested were excluded. Al-Khalidi indicated that the extension program is a set of organized steps, which have been planned in advance, according to scientific foundations with specific objectives to achieve them, and are carried out through organized axes, according to the relationship between the guide and the farmer [5].

The validity of the questionnaire was verified in the content of the questions to achieve the objectives of the study, as well as its external validity, by presenting it to psychologists, then modifying it according to their suggestions, then it was presented to the specialists in the field of agricultural guidance at the College of Agriculture (University of Baghdad). The axes of the study included the axis of personal characteristics of agricultural advisors, the axis of satisfaction with extension programs, the axis of agricultural resources, the axis of agricultural issues and obstacles, and finally the area of the effects of the coronavirus pandemic on agriculture and food security. A t-test was then conducted for 20 employees who were excluded during the final data collection, to modify the questionnaire in the final version that achieves the objectives of the study [1]. Final data collected from July 2025 to September 2025.

In order to know the relationship between the study variables to determine whether the relationship is positive or negative, the following research question can be formulated: Is there a relationship between the independent variables in this study (age,

years of work, marital status, educational level, number of training courses, number of training seminars, position, agricultural resources, and satisfaction with the extension program) and the relationship between those independent variables and the dependent variable, the effects of pandemic on rural development. The relationship between the variables in the study can be illustrated in Figure 1. The research hypothesis of this study can be formulated.

H0: There is no relationship between the dependent variables of this study and the independent variables of this study. Represented by the variable of the effects of pandemic on rural development at a significance level of 0.5.

H1: Alternative hypothesis: There is a relationship between this study's independent and dependent variables represented by the effects of pandemic on rural development at a significance level of 0.5. The data were analysed using the statistical programme SPSS, percentages, means and standard deviations, and analysis of variance (ANOVA ONE WAY) was used to examine the relationship between the study's dependent and independent variables.

Results and Discussions

Personal Characteristics of the Extension Staff

The process of transferring and disseminating new agricultural technology through the use of integrated skills with a high level of skill and competence of the staff. Extension staff must have a full understanding of the cultural elements of the local community in which the new agricultural technology will be deployed, and the competence to understand farmers about their personal characteristics, skills and attitudes towards adopting the new technology. As well as their skill level, of knowledge and ability to think. In addition, extension staff needs to have the skill, ability, and accurate knowledge of how to diagnose issues and find solutions to them, and the desire to interact with other organizations and institutions, which have field information and data. In addition, the desire to interact with information delivery systems and competence in understanding, modifying, and applying new agricultural technological information [1].

Independent Variables Dependent Variable

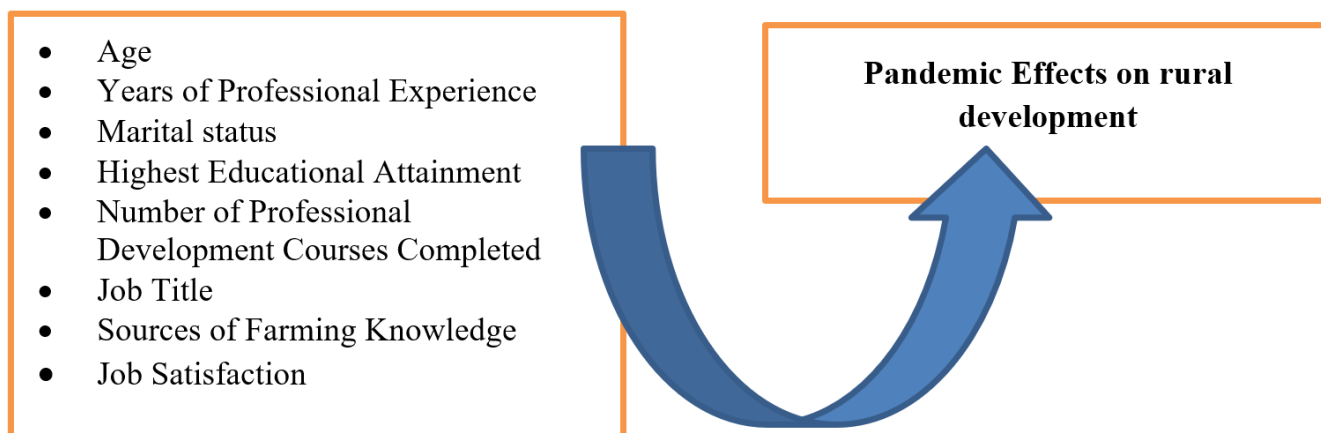


Figure 1: Shows the relationship between the independent and dependent variables.

Table 1: Participant Characteristics.

S. D	Mean	Percent	Frequency	Description	No
1.00	2.90	12.3	9	Extension center	Position
		17.8	13	Extension farm	
		35.6	26	Agricultural directorate	
		32.9	24	Agricultural Divisions	
0.89	2.69	8.3	6	Until 25 years	Age
		34.7	25	From 26-35 years	
		36.1	26	From 36-45 years	
		20.8	15	More than 46 years	
0.78	4.80	5.6	4	High school	Education level
		23.6	17	Institute	
		56.9	41	College	
		12.5	9	Master	
		1.4	1	Ph.D.	
0.54	1.23	80.8	59	Married	Marital status
		12.3	9	Single	
		5.5	4	Divorce	
0.89	2.19	23.3	17	Until 5 years	Working Years
		41.1	30	6-10 years	
		26.0	19	11-15 years	
		8.2	6	16-20 years	
1.14	2.01	2.7	2	0 /Not training courses	Training courses
		39.7	29	5 training courses	
		24.7	18	6-10 training courses	
		16.4	12	11-15 training courses	
		15.1	11	16-20 training courses	
0.86	1.63	2.7	2	0	Extension seminars
		52.1	38	Until 5	
		24.7	18	6-10	
		17.8	13	11-15	
		1.4	1	16-20	

The results of table 1 on the personal characteristics of agricultural workers indicated that, with regard to rural development and the role of extension staff, a careful and insightful look at the existing agricultural situation should be taken. Prejudice should be avoided as much as possible. The data in table 1 showed that the highest percentage was 35.6 for employees of the Directorate of Agriculture, with 32.9 to the employees of the Agricultural Division of the Directorate of Agriculture. In third place were the employees of the extension farms spread in some districts of Anbar governorate with 17.8 percent. The ratio of 12.3 came last for the employees of the extension center, due to the presence of the extension center employees in the center of Anbar governorate, due to the lack of recent appointments during the last five years for agricultural extension employees.

The age distribution of agricultural workers showed that the largest category is between 35 and 45 years old (36.1%), followed closely by those aged 26 to 35 (34.7%). While the respondents over 45 years old constitute 20.8% of the workforce, then those under 25 represent the smallest group at 8.3%. This demographic profile is a positive indicator, that's mean the majority of the workforce is within a productive age range, this result suggests the possibility

of contributing on a long-term and large scale, this finding that agreement with the study of [3].

Regarding educational level, over half of the agricultural workers in Anbar Governorate (56.9%) hold a bachelor's degree. The next largest category consists of respondents with a diploma (23.6%), while only (12.5%) of employees possessing a master's degree. The educational background of the respondent was predominantly at the bachelor's degree level or higher, with only 5.6% holding a master's degree and only 1.4% of them had a doctorate. This result indicates that the workforce possesses the requisite qualifications to perform its duties effectively and disseminate appropriate new technology and the agricultural information to the farmers [2]. In terms of social status, the majority (80%) of extension workers were married, while 12% of them were single and only 5% were divorced. This high proportion of married employees may indicate a stable and responsible workforce, a finding supported by study of [6].

An analysis of the study sample within the agricultural sector stated that a diversity range of experience levels among extension workers. The largest group (41%) had worked for 5 to 10 years,

followed by those with 10 to 15 years (26%) while only (23%) of them had less than 5 years. The smallest category was (8%) had 15 to 20 years of service [7]. This distribution indicates that a large portion of the workforce is relatively new and would benefit from training courses to enhance their practical skills and get new information.

Data on professional development confirms this need for training. The majority of respondents (39%) received only five training courses, while 16% of them had taken 10-15 courses, then 15% had undertaken 15-20 courses. A small minority (2%) had received no formal training at all. These findings highlight a critical need for comprehensive and ongoing training programs to improve the workers competencies, this outcome supported by study [1].

The survey results indicate that a clear demand for specialized training among the farmers and the agricultural producers. To enhance their production practices, enhancing crop productivity across different activities, and promoting the sustainability of natural resources, so it is essential to conduct needs-assessment studies to design relevant agricultural extension courses [7]. Respecting of participation in extension workshop, a majority of extension workers (52.1%) had attended 1-5 workshop, also 24.7% who had attended 5-10, while 17.8% of them who had attended 10-15, only 2% of employees had not attended any extension workshop. Also only (1.4%) of study sample reported attending 15-20 workshop. These figures confirm that while most personnel have participated in some training courses, therefore they need for a wider variety of workshops to further develop their professional skills and expertise [8].

Satisfaction with the Extension Program

The duties of an extension officer extend far beyond a basic understanding of agriculture and local culture. One of the core functions involves building strong, collaborative relationships with the farmers to facilitate the development and change. To this

end, the officer must be a trusted influencer, able to effectively advocate for the use new agricultural technologies and shape farmers' perspectives positively towards adoption new practices.

An effective agricultural extension staff must be knowledgeable, skilled, and proficient in spreading useful information to rural communities. To overcome farmers' reluctance, the extension workers should encourage the farmers to articulate their challenges, and allowing them to understand production constraints from the farmers' own perspective [9].

As Table 2 shown, the highest level of employee job satisfaction was related to "attending training seminars", which had a mean score of 2.28 and a standard deviation of 0.66. This suggests that staff value professional development opportunities. This results viewing that the respondents attend a large number of seminars is a positive sign, reflecting the extension department's commitment to enhancing its staff's capabilities and their knowledge through diverse and frequent training.

Agricultural websites were ranked as the least satisfactory internet-based job resource. This low rating, which had a mean score of 2 degree, is attributed to the overwhelming volume of information, the promotional nature of many sites advertising their own products, and a frequent lack of scientific accuracy in the content, this finding agreement with Santoro et al. [10]. In contrast, social media platforms such as WhatsApp and Facebook were the second most preferred resource, with a higher mean score more than 2 and a standard deviation of 0.77 (see Table 2 for a complete sequence of results).

In addition, the effectiveness of agricultural extension services and the perception they generate among farmers are greatly affected by the efficiency of the extension workers. As reported by [3], this competence depends on continuous training in social and economic fields, practical experience with the farmers, and active

Table 2: Participant Satisfaction with Indicative Programs.

No	Extension program name	Satisfaction Level			Mean	S.D	T –Test	Rank
		Low	Average	High				
1	Programs In Agriculture Colleges	3	31	37	2.47	0.58	6.928	1
2	Working with cooperative societies	9	33	29	2.28	0.66	0.177	2
3	Broadcasting educational programs via T.V and Radio	8	38	25	2.23	0.64	3.130	3
4	Experiential Learning and Collaborative	12	32	27	2.21	0.71	2.483	4
5	Published and distributed	12	33	26	2.19	0.71	2.337	5
6	Brochures and extensional books	16	26	29	2.18	0.78	1.870	6
7	Advanced seminars for professional development	14	31	26	2.16	0.73	1.932	7
8	National and international agricultural conferences	15	29	27	2.16	0.75	1.883	8
9	Organized job training courses and workshops	14	33	24	2.14	0.72	1.642	9
10	Informational Resources & Partnerships:	14	36	21	2.09	0.70	1.190	10
11	Sharing on social media such as WhatsApp, Facebook	19	31	21	2.02	0.77	0.304	11
12	Formal Education & Specialized Training	15	40	16	2.01	0.66	0.177	12
13	Central information via the official website of the Agricultural Extension Department	15	41	15	2	0.58	6.928	13
14	Agricultural websites	22	27	22	2	0.79	0.000	14
15	E-learning platforms and (E-training)	27	23	21	1.91	0.82	0.868	15

collaboration with researchers specialists. These interactions and good relationships are essential for developing and adapting new practical technologies, suited to rural communities, and equipped with the necessary knowledge to promote successful economic development.

Agricultural Information Sources

Rural agricultural extension programs have a clear importance in poverty alleviation, as they have proven to be an engine for enhancing the agricultural productivity of agricultural activities in many countries, including developing countries in particular. This contributes to farmers to keep abreast of modern knowledge, as well as the latest agricultural technologies, to meet the challenges they face as a result of their agricultural activities. At the same time, researchers can design appropriate technologies, which are in line with farmers' requirements. However, the most challenging relevance of agricultural extension programs must remain relevant in a rapidly changing world, which brings constant challenges to farmers. In addition to using different methods to deliver extension services in different situations. Extension programs must be applicable, and sufficiently flexible in their approach to remain relevant and sustainable [11].

Results from that study in Table 3 show that ranking of agricultural resources was through seminars and training courses, with a mean of 2.3 and a standard deviation of 0.81. This shows that seminars and training courses have an effective impact in developing the skills and knowledge of employees to provide them with the required expertise in their work, as indicated by the mechanism of the study and it was ranked second in terms of utilization of agricultural resources by the directorates of agriculture and its departments with a mean of 2.25 and a standard deviation of 0.69, which indicates the high information and knowledge provided by agriculture directorates.

The results of Table 3 showed that the results of research and studies ranked third in terms of utilization with an arithmetic mean of 2.07 and a standard deviation of 0.78. This indicates an interest in disseminating the results of recent research among farmers, to develop their knowledge and modern skills, as indicated by the

study [9]. Finally, the use of education through the use of CDs came with a mean value of 1.76 and a standard deviation of 0.74. This indicates the low use of educational CDs, due to the spread of the Internet and the abundance of agricultural information in all communication networks [12]. The most important results of the study for the rest of the sources mentioned in the study can be seen in Table 3.

Extension staff is an important link between farmers and research institutions, and this role is often carried out by extension staff. This role depends on the knowledge and information to be delivered and transferred. The process of transferring agricultural technology and making it suitable for field conditions requires extension staff to establish close relationships with different sources of knowledge and information on the one hand, and the other hand the issue of not having something that can be transferred to farmers is related to the isolation of extension workers from sources of technical information and practical research results [8].

Problems of Agricultural and Limitations

Extension staff needs to be aware of this type of communication between them and farmers, which is part of their role. In addition to the importance of the officials overseeing the extension organization, they must realize the importance of this relationship and the need for field extension staff to be continuously trained to use scientific information accurately and correctly. In this context, one of the activities practiced by extension staff includes consolidating change by providing and delivering promotional messages (extension messages) to farmers, including new information and instructions on how to use new agricultural technology, and identifying the most important issues and solutions that may result from the use of this technology. In general, extension workers have a distinct role in technological change and the process of transferring and disseminating new agricultural technology by employing integrated skills at a high level.

Multiple linear regressions

The results of the study in Table 6 show that there is a positive relationship between the independent variables in this study (position, educational level, extension seminars, satisfaction with

Table 3: Agricultural Extension Agents' Perspectives on Resource Utilization.

No	Agricultural Information's	Benefit of Degree			Mean	St.D	T-test	Rank
		Low	Middle	High				
1	Consultation with Seasoned Agricultural Experts	16	18	37	2.3	0.81	3.08	1
2	The agricultural departments themselves	10	33	28	2.25	0.69	3.04	2
3	Peer-Reviewed Scientific Journals and Research	19	28	24	2.07	0.78	0.75	3
4	Poor quality seeds are common, with no support for fertilizers or pesticides.	17	35	19	2.03	0.70	0.35	4
5	Practical workshops and training sessions	17	35	19	2.03	0.71	0.35	5
6	Machinery is scarce, expensive, and allocated through favoritism.	23	26	22	1.99	0.80	-0.10	6
7	Knowledge Exchange and Training:	26	26	19	1.9	0.79	-1.05	7
8	Crops are difficult to sell due to delays, nepotism in silo access, and exploitative fees that shrink farmer profits.	28	22	21	1.9	0.83	-1.01	8
9	Transporting goods is hindered by excessive security checkpoints, leading to product loss.	25	33	13	1.83	0.71	-1.99	9
10	Educational videos and computer programs	30	28	13	1.76	0.74	-2.70	10

extension programs, agricultural resources) and the dependent variable of this study, the impact of pandemic on rural development, so the research hypothesis should be rejected. So the alternative hypothesis that there are effects of pandemic on rural development should be accepted at a significant level of 0.5 as well as 0.1 as shown in Table 6.

The Department of Agricultural Extension and Training must create the appropriate environment to connect farmers to modern information technology in remote villages to communicate information and modern programs. In order to minimize the impact of the pandemic on rural development. In addition, it is necessary to strive to overcome all obstacles to rural development and help improve extension services in the field of modern information and communication technology to increase the ability of farmers to avoid obstacles that prevent the achievement of socio-economic development [15].

In addition, the results of Table 6 showed that it is necessary to focus on the educational level and raise the level of rural people in those remote villages, because the knowledge of the youth and rural residents will clearly contribute to the development of solutions to overcome all obstacles in an acceptable and scientific manner, and their acceptance and adoption of the results of modern agricultural research, which helps in the development of their social and economic level [4]. In addition to providing good training on modern technologies, information, practices and skills, as indicated by the results of Table 6 [16]. The results of the study also showed the impact of satisfaction with rural extension programs on rural development. This calls for the implementation of development programs for the countryside, and in cooperation with rural leaders to select programs that contribute to the development of the countryside and the agricultural reality [17].

In addition, the results in this study showed the vital impact of information sources on rural development, and this is consistent with what the study indicated its impact through educational level and occupation, indicating its effects on the countryside through remote villages at the governorate level. Where the services available in city centers are much better than in the countryside, where the availability of internet and advanced education, and this is reliable with the consequences of the study of both researchers [18]. There should be a proper distribution of extension farms among the sprawling villages to help provide equitable extension services among the villages.

Conclusions and Recommendations

The results showed that some agricultural specialities needed training, including, and the need to strive for capacity building in all agricultural departments, by holding specialized workshops to keep abreast of modern developments in the field of agriculture, with the aim of developing information, knowledge, skills, and increasing the acquired expertise, to benefit from the training organized by international organizations operating in Anbar province. The training should be according to the functional needs that agricultural departments assess for their employees.

Future studies must be conducted to focus more on the latest demand-driven methods that allow farmers to participate in identifying their issues and obstacles to develop appropriate solutions in the future. Planning to develop the work of agricultural extension centers in districts and sub-districts to provide the best services to solve the technical issues facing farmers and agricultural producers. In addition, it is necessary to appoint competent, qualified and specialized employees in agricultural extension with material and moral support in order to fully advance the agricultural reality in the countryside. The need to change the curricula of agricultural extension in colleges of agriculture and other scientific institutions

Table 4: Identified Obstacles and Difficulties amid the Coronavirus Crisis.

No	Problems and Limitations	Degree of Impact			Mean	S.D	T-test
		Low	Average	High			
1	Farmers struggle with scarce	34	25	12	1.69	0.74	-3.48
2	Expensive	26	30	15	1.84	0.74	-1.74
3	Scientific farming methods.	36	27	8	1.60	0.68	-4.83
4	These challenges are underpinned by an unclear and ineffective national agricultural policy	39	20	12	1.62	0.76	-4.19
5	Creating an environment where sustainable growth is nearly impossible.	22	31	18	1.94	0.75	-0.62
6	Agricultural equipment is not available at an affordable price and is expensive.	30	14	27	1.77	0.76	-2.49
7	Often substandard inputs like seeds and fertilizers	21	30	20	1.98	0.76	-0.15
8	Producers encounter a broken marketing system characterized by bureaucratic delays,	31	30	10	1.70	0.70	-3.53
9	The agricultural sector faces a multifaceted crisis	43	16	12	1.56	0.77	-4.77
10	Spanning from production to market.	27	30	14	1.81	0.74	-2.07
11	Often substandard inputs like seeds and fertilizers	25	30	16	1.87	0.75	-1.41
12	Agricultural equipment is given to those who do not deserve it, and favoritism is practiced.	10	19	32	1.69	0.70	-3.68
13	Access to modern machinery is limited and marred by favoritism	21	35	15	1.91	0.71	-0.99
14	Once crops are harvested	20	31	20	2.02	0.74	0.00
15	Administrative corruption	31	29	11	1.71	0.72	-3.29
16	Exploitative practices that severely diminish their profits	35	22	14	1.70	0.78	-3.18
17	Compounding these issues is a severe information gap; poor rural internet connectivity	35	26	13	1.64	0.71	-4.12
18	Lack of digital literacy prevent farmers from accessing knowledge	32	26	13	1.73	0.75	-2.98

Table 5: Consequences of the Pandemic for the Agri-Food Sector and Rural Communities.

No	Impact according to the opinion of the agricultural advisor (I)	Score					Mean	S.D	T-test
		1	2	3	4	5			
1	The development of rural areas was hindered during the pandemic due to government employees' inability to access these regions.	27	22	15	4	3	2.08	1.07	-7.11
2	During the pandemic, farmers feared planting certain vegetables because they were too far from markets to sell them.	12	23	17	16	3	2.64	1.13	-2.61
3	Fluctuations in the local market significantly impacted our products, with prices rising in some premium or wholesale segments while falling in others due to shifting supply and demand.	13	27	14	11	6	2.59	1.22	-2.95
4	Difficulty accessing distant health centers complicated the process of diagnosing and treating pandemic patients in rural communities	11	33	17	6	4	2.42	1.03	-4.68
5	One lasting impact of the coronavirus crisis may be a renewed appreciation for locally sourced goods	21	24	15	9	2	2.25	1.10	-5.68
6	The pandemic severely disrupted traditional supply chains, as rising transport costs and road closures prevented farmers from marketing their harvests	11	22	19	16	3	2.69	1.11	-2.33
7	Leading to spoilage and waste. On the supply side, critical items like seeds	24	15	15	12	5	2.42	1.30	-3.72
8	pesticides, and fodder became difficult to obtain	18	30	10	10	3	2.29	1.12	-5.26
9	This perfect storm of logistical failure and interrupted supply led to empty shelves and soaring prices in the local market	15	27	17	6	6	2.45	1.16	-3.95
10	A situation exacerbated by trader greed. Many in the agricultural community	17	25	20	7	2	2.32	1.03	-5.47
11	Believe that relentless media coverage intensified public fear	18	24	17	9	3	2.36	1.12	-4.74
12	Making an already difficult situation even more challenging to navigate.	13	31	21	6	0	2.28	0.86	-6.99
13	I had planned to grow my business by selling in neighboring governorates, but frequent road closures and city protests often left my produce stranded, causing it to spoil. This was a major setback.	12	25	20	10	4	2.56	1.10	-3.32
14	Ironically, the pandemic, for me, had an upside. With market shortages and high demand,	24	15	15	12	5	2.42	1.30	-3.72
15	Looking beyond my own farm, it was clear that the pandemic created a serious food security crisis for many	17	21	19	9	5	2.49	1.19	-3.57

1=Very Agree, 2=Agree, 3= Neutral, 4=Disagree, 5=Strongly Disagree.

Table 6: Factors Associated with the Pandemic's Impact on Agriculture, Food Security, and Rural Development.

No	Independent Variables	ANOVA ONE WAY			
		Regression Coefficient	Mean	F	Significant
1	Age	.386	0.88	1.19	.294
2	Marital status	.019	0.26	0.85	.672
3	Training attended	.706	1.61	1.50	-.068
4	Agricultural Information's	-.069	1.35	1.79	.365*
5	Working Years	.408	0.80	0.99	.505
6	Seminars of Extension	-.33	1.04	2.04	.015*
7	Location	-.291	1.35	1.79	.042*
8	level of Education	-.204	0.95	2.79	.001**
9	Satisfaction with the Job	.014	0.34	0.96	.474*

Statistical Significance is indicated as follows: *p < .05; **p < .01 (Two-Tailed).

in accordance with international standards. It is necessary to pay attention to specialized extension and animal extension, and it is necessary to deal with extension according to agricultural crises, for all extension sites and agricultural departments because of its necessity and importance to farmers.

Value

Paying attention to the role of agricultural extension by transferring modern technologies, seeking to disseminate the results of modern research in the field of agriculture, and the educational program supporting the development of wheat cultivation and reaching the highest productivity and the lowest economic cost, to increase

farm income is suggested.

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