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### Challenges facing extension agents in Iraq

Bassim Haleem Kshash<sup>1</sup> and Hayat Kadhum Oda<sup>2</sup>

<sup>1</sup>Al-Qasim Green University, Agriculture College, Babylon, Iraq

<sup>2</sup>Al-Qasim Green University, College of Food Science, Babylon, Iraq

#### Abstract

Determination of the challenges extension agents are facing leads to increased efficiency and effectiveness of extension services. This study assessed the challenges extension agents in Iraq are facing. 100 extension agents were selected, face-to-face an interview with a pre-tested structured questionnaire was used to collect data. The study revealed that fifty-three of respondents faced medium challenges. The most important challenges were; low extension agents to farmer ratio, lack of farmer participation, dispersion among the farmers, weak research-extension- farmer linkage, lack of funding, farmers are mostly small scale producers, extension agents are overloaded, and highly centralized in agricultural extension work. A significant and negative correlation was found between the challenges mentioned and the educational qualification, number of trainings attended by extension agent. Challenges can be addressed through staffing more extension agents, increase farmer participation, strength linkage of research-extension- farmers, and provide adequate fund.

**Keywords:** agriculture officer, competence, constraints, extension services, Iraq, problems

#### 1. Introduction

There is no doubt that all achieved increases in agricultural production and productivity are due to the efforts in agricultural research and extension (Danso *et al.*, 2018; Anang *et al.*, 2020; Fuglie *et al.*, 2020; Sebagala and Matovu, 2020) [16, 8, 27, 56]. Extension is essentially the means by which new knowledge and ideas are introduced into rural areas in order to bring about change and improve the lives of farmers and their families, increase the efficiency of the family farm, increase production and generally increase the standard of living of the farm family. Without agricultural extension, farmers would lack access to the support and services required to improve their agriculture and other productive activities (FAO, 2019) [24]. Agricultural extension has multiple goals, including transferring knowledge from global, national, and local researchers to farmers, helping them clarify their own goals and assessing their opportunities, educating them about decision-making processes, and promoting desirable agricultural development (Msuya *et al.*, 2017). Furthermore, extension services can and should play an important role in increasing access to knowledge, credit, inputs and markets for farmers and entrepreneurs (Mossie and Belete, 2015) [42].

To provide all these services and to solve the problems of rural people in the most consistent way, there is a need for experts who work together with them, provide a two-way connection between research institutions and rural people, and cooperate with rural development organizations. These duties and responsibilities are carried out by extension agents (Kaynakçı and Ismet, 2019) [30].

Despite the high cost of financing research and extension, agricultural production in some countries did not achieve

any increase but tended to decline. Several studies have indicated that the main reason for the decline in agricultural production and productivity can be blamed on ineffective and inefficient agricultural extension services, (Bategeka *et al.*, 2013; Alunas, 2014; Baloch and Gopal, 2014; Muneer, 2014; Mutimba, 2014; Annie *et al.*, 2016; Maoba, 2016; Mesterházy *et al.*, 2020; Sebagala and Matovu, 2020) [11, 7, 10, 43, 45, 9, 37, 56].

The effectiveness and efficiency of agricultural extension services largely depends on the ability of extension agents to successfully perform the duties entrusted to them, this requires to be aware of the challenges they face.

Some recent studies, (Marco and Zhou, 2012; Peter, 2012; Haruna and Abdullahi, 2013; Nxumalo and Oladele, 2013; Obiora, 2013; Muntaka and Latif, 2014; Adisa, 2015; Daniel *et al.*, 2015; Ajadi *et al.*, 2016; Bezu *et al.*, 2016; Davis and Terblanché, 2016; Felistas and Ifeanyieze, 2016; Oruonye and Ahmed, 2016; Aderinto *et al.*, 2017; Akinnagbe *et al.*, 2017 [6]; Belay and Alemu, 2017; Das and Borua, 2017) [36, 53, 28, 47, 49, 44, 3, 15, 5, 13, 18, 25, 52, 1, 12, 17], have been conducted to identify the challenges faced by extension agents in different regions of the world, the challenges extension agents are facing are extensive, such as; insufficient number of extension workers, inadequate funding, dispersion among the farmers, lack of female extension agents, highly centralized in agricultural extension work, weak linkage of research-extension farmer, low motivation of the extension agents, low level of education of the farmers, insufficient knowledge and skills among farmers, poor logistics support, lack of regular promotion of staff and non-payment of allowances to field staff, inadequate market for disposing farm produce, poor coordination of activities of farmers,

inadequate training of extension staff.

Agricultural extension services were established in 1917 in Iraq, today these services cover all Iraqi regions, and they implement many different extension activities supervised and funded by the Ministry of Agriculture in the central government. Despite efforts in agricultural research and extension, some recent studies pointed out that agricultural productivity in Iraq remains low (Reza and Kadhim, 2015; Kashash, 2016; Kshash, 2017; Kshash, 2018) [55, 32, 33], due to the weakness of agricultural extension service. This calls to study the challenges facing agricultural extension services, and especially their extension agents.

Hence, we need to determine challenges facing extension agents in Iraq in order to Increases efficiency and effectiveness of extension services, which leads to enhancing agricultural productivity, especially when we know the lack of such studies in this topic. Therefore, this study aims to answer the following questions: what are the challenges facing extension agents in Iraq. The study was undertaken to determine challenges faced by extension agents and determine the relationship between challenges and some characteristics of extension agents. Findings of this study can be useful for responsible extension organizations in Iraq to adjust suitable policies or solutions for overcoming these challenges, so as, to provide the appropriate conditions for extension agents to perform their work in the pest manner.

**2. Materials and Methods**

The study was carried out in Babylon province, in the center-south of Iraq, between 32° to 33.25° North latitude and 44° to 45° East longitude. The population for this study consisted of 140 extension agents working in this province, 10 were chosen for testing the questionnaire reliability. From the 130 remaining, 100 were selected at random to provide data.

The instrument used in the study was a well-structured questionnaire, consists of two parts.

The first part included some extension agents characteristics: gender, field of study, task assigned, educational qualification, years of experience in extension services, and number of training attended. The second part listed 28 challenges facing agricultural extension services delivery, that have been obtained from discussion with extension agents, scientific books, Previous studies and research have dealt with the challenges facing agricultural extension workers in different regions of the world.

A five point rating scale was used to measure challenges facing extension agents. The scale was coded; very highly challenge (VHC) (4), highly challenge (HC) (3), moderately challenge (MC) (2) slightly challenge (SC) (1) and no effect (NE) (0). After that the questionnaire has been offered to the specialists agriculture extension for authenticity and validity to achieve study objectives, the observations made by has been taken. To ascertain the reliability of the questionnaire, a pilot test was administered to 10 extension agents not targeted in the study. Reliability as a measure of internal consistency was established using Cronbach's alpha. Reliability values were 0.94. The results indicated an instrument with a high degree of internal consistency.

Face to face interview schedule was used and data collected personally by the researchers' visits to extension agents in

their office during 15 -25 September 2020. In relation to their level of vulnerability, in all-over challenges, each respondent was given scores ranging from (0 to112). Based on mean (M) ± standard deviation (SD), respondents were assigned to categories as follows: low effect (below M-SD), medium effect (M±SD), and high effect (above M+SD). Each challenge was given a score ranging from (0 to 4), challenges were categorized regarding on weighted arithmetic mean (WM) of their effect into: low challenge (0-1.3), medium challenge (1.4-2.7), and high challenge (2.8-4).

The data collected for this study was analyzed using percentage, mean (M), standard deviation (SD), weighted arithmetic mean (WM), and person correlation coefficient. Challenges facing extension agents were analyzed separately, weighted mean score calculated, the relative importance ranked in descending order.

**3. Results and Discussion**

**3.1 Characteristics of extension agents**

Table 1 shows that male consist high proportion (84%) of extension agents in Babylon province, which is in line with the findings of Olatunje *et al.*, (2015) [51]. While in traditional societies like Iraqi rural, where women constitute the majority of the agricultural labor force, there is a need to increase female as extension agents. 73% of respondents not specialist in agriculture extension because their study fields was not in agriculture extension.46% of extension agents was part-time work as agricultural extension because the assignment of additional non-extension duties. Educational qualification of (66.7%) of extension agents were Bachelor's degree in agricultural science (BSc). More than half (54%) of extension agents are fully dedicated to the extension activities. The experience of respondents as extension agents ranged from 4 to 31 years with the mean of 14.8 years, 75% had more than 10 years' experience. All extension agents survived in the study have attend between 1 to 20 in service training with the mean of 11.8, majority (65%) of respondents had attend more than 10 in-service trainings.

**Table 1:** Extension agents' characteristics

Characteristics	Category	%
Gender	Male	84
	Female	16
Field of study	Agricultural Extension	27
	Non Agricultural Extension	73
Task assigned	extension	54
	Extension and administration	21
Educational qualification	Administration	25
	Agriculture Secondary school	8
	BSc in agricultural science	67
	Higher diploma in agricultural extension	20
Years of experience	MSc in agricultural science	5
	4-10	18
	11-17	44
	18-24	25
Number of training attended	25-31	13
	1-5	12
	6-10	24
	11-15	46
	16-20	18

### 3.2. Challenges facing extension agents

Challenges score of extension agents ranged from (0 -112), with a mean of 64.48 and standard deviation of 24.48. Based on mean (M)  $\pm$  standard deviation (SD), agents were classified into three categories, which has been presented in Table 2. From table 2 it is observed that (53%) of the respondents indicated medium level of challenges, while (34%, 13%) had high and low challenges respectively, this indicate that (87%) of the extension agents in the province faced medium to high challenges. The average effect for all respondents were (64.48) which are within medium category.

**Table 2:** Distribution of respondents according to challenge effect (N=100)

Challenge effect category <sup>a</sup>	%	M	SD.
Low (< 40)	13	31	3.74
Medium (40 - 88.9)	53	54.30	11.39
High (> 88.9)	34	93.15	11.61
Total (0 - 112)	100	64.48	24.48

<sup>a</sup> According to total Mean and SD, categories were determined as; low (below M-SD); medium (M $\pm$ SD), and high (above M+SD).

With respect to challenges facing extension agents, the data were presented in Table 3 with their rank order, these challenges divers from their effect levels on respondents, there is 6(21.4%) with low effect, 12 (42.9%) with medium and 10(35.7%) with high effect on extension agents.

The important challenges on which they faced most essentially (high level) were; Low extension agents to farmer ratio, lack of farmer participation, dispersion among the farmers, weak linkage of research-extension farmer, lack of funding, farmers are mostly small scale producers, extension agents are overloaded, highly centralized in agricultural extension work, weak system of agricultural inputs supply and distribution, and limited role and influence of agricultural media.

The whole extension process is dependent upon the extension agent, who is the critical element in all extension activities (Shah *et al.*, 2013) [57]. The availability of sufficient number from extension agents to work with farmers is essential for the success and continuity of the extension organizations in performing their tasks and achieving their goals. The sufficient number differ from area to another, Haruna and Abdullahi, 2013 [28] pointed out that FAO recommends a one extension agent should serve a maximum of one thousand (1000) farm families in developing countries.

A 'good quality' extension service described as one with a high number of extensions agents per farmer or a high number of visits or contacts between farmer and agent (Ragasa *et al.*, 2013) [54]. In Iraq, there is a significant shortfall in extension agents' number. There are 140 extension agents in Babylon province in exchange for above 1150000 people lives in rural areas, which means that extension agent: farmer's ratio is 1:8214. The extension agents in the province considered low extension agents to farmer ratio as the most important challenge and put it in first rank. This is in line with the findings of Peter, 2012 [53]; El Bilali *et al.*, 2013 [21]; Haruna and Abdullahi, 2013 [28]; Obiora, 2013 [49]; Muntaka and Latif, 2014 [44]; Zerihum, 2014 [62]; Adisa, 2015 [3]; Akinnagbe *et al.*, 2017 [6].

Farmer's participation is a very important factor for improvement of efficiency and effectiveness of extension activities at the grassroots level and it can contribute to sustaining the change brought about by extension activities for a long period of time (Wasihun *et al.*, 2014) [60].

Farmers need to participate in the planning, implementation and evaluation process of extension activities. Kofi *et al.* (2015) [34] pointed out that farmer participation enhances efficiency and effectiveness of the planned changes and brings about long lasting and sustainable change both on the farm and in farmers behavior. Owing to this effect, the success of an extension program largely depends on the roles played by farmers in the program. In this context, extension agents see that lack of farmers' participation is a major challenge facing them in their work, which ranked second. Nxumalo and Oladele, 2013 [47]; Emmanuel, 2013 [22]; Daniel *et al.*, 2015 [15]; Ajadi *et al.*, 2016 [5]; Felistas and Ifeanyieze, 2016 [25]; Aderinto *et al.*, 2017 [1]; Akinnagbe *et al.*, 2017 [6], have also referred to lack of farmers' participation.

One of the most striking features of the Iraqi countryside is the dispersion of villages, their small size and spread of scattered housing pattern. Widely dispersed farmers can negatively affects the possibility of farmers' participation in extension activities and the possibility of agricultural extension in reaching beneficiaries. Extension agents in Babylon province found that dispersion among farmers is the third major challenge facing their job, the same result reached by Ferroni and Zhou, 2012 [26].

Agricultural extension works as a two- way link between agricultural research centers and farmers, the first way represented in the transfer, simplification and application of agricultural scientific recommendations, while the second is providing feedback to researchers about the innovations that been developed, and transfer farmer's problems. In order to find solutionsto. If the linkages among the agricultural knowledge system actors are weak, the flow of information is hampered either from research to extension or from extension to farmers thereby agricultural production and productivity will be adversely affected (Adesoji and Tunde, 2012) [2]. This link in Iraq seems a weak, the Respondents ranked weak linkage of research-extension farmer at fourth. This is in line with the findings of Obiora, 2013 [49]; Teshome *et al.*, 2015; Nyamupangedengu and Terblanché, 2016 [18]; Yenesew *et al.*, 2016 [61]; Belay and Alemu, 2017 [12].

In most developing countries, such as Iraq, agricultural extension depends on governmental fund. However, this funding is often insufficient to implement multiple extension activities. The respondents pointed to lack of funding as the fifth challenge facing them. Emmanuel, 2013 [22]; Haruna and Abdullahi, 2013 [28]; Obiora, 2013 [49]; Edi, 2014 Muntaka and Latif, 2014 [44]; Okwuokenye and Okoedo, 2014 [50]; Zerihum, 2014 [62]; Adisa, 2015 [3]; Izuogu and Chikerenma, 2015 [29]; Oruonye and Ahmed, 2016 [52]; Felistas and Ifeanyieze, 2016 [25]; Akinnagbe *et al.*, 2017 [6]; Das and Borua, 2017 [17], pointed to lack of funding as a challenge facing agricultural extension services.

A high proportion of farmers in developing countries, included Iraq, are small-scale producers (Clara *et al.* 2017) [14]. As a result of some negative traits among small-scale producers, such as lack of access to extension services, low

application of modern technologies, limited market information, and insufficient access to production resources (Afful and Lategan, 2014<sup>[4]</sup>; Annie *et al.*, 2016<sup>[9]</sup>; Ezra *et al.*, 2016<sup>[23]</sup>; Mbuyazwe and Worth, 2016<sup>[38]</sup>; Voraphaan and Savetpanuvong, 2017<sup>[59]</sup>), they representing a problem for agricultural extension. This challenge ranked sixth.

Because of the low number of extension agents in the province and the assignment of additional non-extension duties, they often have overloaded. The heavy burdens and tasks of extension agents pose a challenge that negatively affects the implementation of programs and extension activities, and ranked seventh among the challenges facing extension agents in the province., This is in line with the findings of Felistas and Ifeanyiyeze, 2016<sup>[25]</sup>; Akinagbe *et al.*, 2017<sup>[6]</sup>.

Agricultural extension works with a large group of farmers living in different natural, economic and social environments, they differs in their knowledge, skills, and patterns of agricultural production they follow, therefore, circumstances and characteristics of each region should be considered at planning of programs and extension activities. This means a shift towards decentralization policy that based upon the observed local agro-ecological and socio-economic conditions of specific areas, and seeks to increase farmers' participation in extension programs and make programs more accountable to users.

Undoubtedly, that does not eliminate centralization, field extension advisory services are well suited to decentralized approaches, but a comprehensive extension system requires a range of extension support services and programs, some of which (strategy formulation, training, monitoring and evaluation, specialized technical support) are often best carried out at the central level. (Nazarpoor, 2015)<sup>[46]</sup>. Extension agents in Babylon province put highly centralized in agricultural extension work at eighth rank among

challenges faced them.

Other studies (El Bilali *et al.*, 2013<sup>[21]</sup>; Okwuokenye and Okoedo, 2014<sup>[50]</sup>; Felistas and Ifeanyiyeze, 2016<sup>[25]</sup>; Das and Borua, 2017<sup>[17]</sup>; Komba *et al.*, 2018)<sup>[35]</sup> also pointed to centralization as one of challenges facing agricultural extension.

The dissemination of agricultural technologies consists of three integrated components: research, extension and supply- distribution. The input supply and distribution system is responsible for providing and improving modern technologies to farmers. The provision, supply and distribution of modern agricultural technologies in the appropriately quantity, quality, timing, and supply sustainability, are one of the most important characteristics of successful extension activity. Extension agents in the province fell there is a weakness in agricultural inputs supply and distribution system, and ranked ninth among the challenges. This is in line with the findings of Okwuokenye and Okoedo, 2014<sup>[50]</sup>; Zerihum, 2014<sup>[62]</sup>; Devkota *et al.*, 2016; Felistas and Ifeanyiyeze, 2016<sup>[25]</sup>; Das P. and Borua S., 2017<sup>[17]</sup>.

One of the main tasks of agricultural extension is to dissemination of modern agricultural technologies and relevant information among farmers, therefor, effective communication is the prime requirement in extension work. Mass media constitute the main responsible and efficient vehicle for wide and rapid disseminating information required for mobilizing farmers to participate actively in agricultural extension services (Miriam *et al.*, 2013)<sup>[40]</sup>. The success of agricultural extension programs could be hastened with the effective use of mass media. Study results (Table 3) showed that respondents believe that one constraints of agricultural extension in the province is limited role and influence of agricultural media, and put it at tenth rank.

**Table 3:** Weighted mean of challenges faced extension agents

Challenges	WM
Low extension agents to farmer ratio	3.9***
Lack of farmer participation	3.8***
Dispersion among the farmers	3.7***
weak linkage of research-extension- farmer	3.6***
Lack of funding	3.5***
Farmers are mostly small scale producers	3.4***
Extension agents are overloaded	3.3***
highly centralized in agricultural extension work	3.2***
weak system of agricultural inputs supply and distribution	3.1***
limited role and influence of agricultural media	3.0***
Frequent changes in extension strategy at a national level	2.7**
Limited availability of logistics and other supports for extension agents	2.6**
involvement of extension agents in non-extension activities	2.5**
Unfavorable attitude of the farmers towards the extension agents	2.4**
Extension programs are not built on the basis of the actual needs of farmers	2.3**
lack of female extension agents	2.2**
absence of public private partnership in extension service delivery	2.0**
Irregular evaluation of extension programs.	1.8**
inadequate in-service staff training	1.7**
Lack of knowledge on efficient and appropriate methodologies in extension activities	1.6**
absence of the national framework of agricultural extension policy	1.5**
lack of feedback from farmers to ensure relevance of the research results presented	1.4**
farmers have limited accessibility to production factors	1.3*
Lack of cooperation from some senior colleague	1.1*
inadequate or lack of infrastructure in the rural areas	1.0*

Low technical competency of extension agents	0.8*
Unfavorable attitude of the extension agents towards the farmers	0.7*
Low motivation of the extension agents	0.4*

\*\*\*= high; \*\*=medium; \*=low

### 3.3 Relationship of extension agents characteristics and challenges

Coefficient of correlation computed in order to explore the relationships between overall challenges score of each of the respondents and selected characteristics of extension agents (Table 4). It observed that gender, field of study and years of experience not significantly related to challenges facing extension agents. While a significant and negative correlation between challenges and educational qualification, number of training attended. Task assigned have significant and positive correlation with challenges. Results indicates that with increase in education qualification, and number of training attended, the challenges facing extension agents will decrease and vice-versa. It is thus clear those extension agents who have more education qualification, and number of training attended, faced few and low challenges.

**Table 4:** Correlation between the socio-economic characteristics and challenges

socio-economic characteristics	Correlation Coefficient (r)
Gender	0.118
Field of study	0.151
Task assigned	0.545*
Educational qualification	-0.466*
Years of experience	0.173
Number of training attended	-0.617*

\* significant at 0.05 level, correlation

### 4. Conclusion and Recommendation

High percentage (84%) of extension agents were male, 73% was non-agriculture extension regard field of study. The important challenges faced by extension agents were; Low extension agents to farmer ratio, lack of farmer participation, dispersion among the farmers. The variables educational qualification, number of training attended showed significant and negative correlation with challenges. Challenges can be addressed through staffing more extension agents, increase farmer participation, strength linkage of research-extension- farmers, and provide adequate fund.

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