The reality of extension services provided for wheat crop farmers in Zammar region\Nineveh Governorate\Iraq

Talal Saeed Hameed

Agriculture Extension & Technology Transfer Department, College of Agric & Forestry, University of Mosul. Iraq
Email: stallal39@yahoo.com

Abstract. The study aimed to identify the opinion of farmers wheat crop in the reality of extensional service offered by the Agricultural Extension System at the study area, and determine the correlation between some of the independent variables studied and the degree of extensional service offered by the Agricultural Extension System to wheat farmers and to find out farmers' suggestions to improve the reality. The study was conducted in Zammar region\Nineveh Governorate; systematic random sample was selected from farmers (152 respondents). Data were collected by questionnaire through personal interviews, Pearson simple Correlation was used, percentages coefficient to data analysis.

Key words: reality of extension services- wheat crop- Agricultural Extension System

1. Introduction

Cereal crops are of primary importance in human life. It has played vital role in the past. If it is the pillar that the world has established in the past and continues is at present and one of these crops is wheat crop. Wheat has been Iraq’s most important agricultural import in terms of both quantity and value for most of the past two decades. During the 1981-89 period, Iraq imported an average of 2.6 million metric tons of wheat annually. The average annual value of total cereal (principally wheat) imports during this same period averaged over $750 million. Australia was Iraq’s primary wheat supplier with a 38% market share compared with 29% from the United States and 22% from Canada (Schnepf, 2004). Wheat have been Iraq’s most important crops. In 2002, wheat accounted for 73% of all planted area (UNICEF,2000), while wheat crops occupy 95 percent of the area in 2010, and the Annual production is highly variable depending on the moisture availability. In the last decade, total combined wheat production ranged from 1.3 million MT in 2008 to 3.5 million MT in 2014,while total barley production varied from 404 000 MT in 2008 to 1.1 million MT in 2010. (FAO,2014). For this reason it is necessary to give great importance to agricultural extension services that improve the productivity of agricultural crops, including the wheat crop by supplying farmers with scientific recommendations and new technologies. The conventional definition of agricultural research includes both applied research and extension (Anderson 2007). Essentially, extension services act as a bridge between scientists, who strive to resolve problems in the practice of agriculture through research, and the farmers who need the solutions (Annie and Faminow, 2014). Innovative technologies and good practices translate to increased yields and improved food security only when they are
properly shared with farmers (Singh 2002). In Iraq, the Agricultural Extension saw a definite change after the change in Iraq 2003, where it was for Agricultural extension had a crucial role in identifying the problems facing farmers and transferred to scientific research to study, also find appropriate solutions, recommendations, and solutions to the problems. The seeking guidance in a simplified, and extended the role of agricultural extension to extension service includes all aspects of agricultural production, as well as all matters relating to rural life, targeting rural women farmers, and young people (Saleh, 2011).

The success of agricultural extension and its role in agricultural development does not stop its ability to transfer know-how to farmers, but also on its capacity to create active and positive interactions between agriculture and the other officials involved in the process of agricultural development in order to understand and learn from practice and help them identify and clarify where the needs and experience (Saleh, et al. 2015).

**Objectives of study:** Through the previous presentation of the research problem, this research aims to:

1. Identify the personal, social, economic and communicative characteristics of the farmers in Zammar region.
2. Identify the reality of extension services provided for wheat crop farmers in Zammar region by:
   - A- Degree of availability of extension services provided by the agricultural extension system to the respondents in the field of wheat crop cultivation.
   - B- Degree of change in the knowledge of the respondents as a result of the availability of extension services provided by the Agricultural Extension system in the field of Wheat crop farmers.
   - C- Degree of change in the practices of the respondents as a result of the availability of extension services provided by the Agricultural Extension system in the field of Wheat crop farmers.
3. Determine the relationship between independent variables following: (Age, Education level, Marital status, Occupation, Gender, Source of income, Type of tenure) and between the reality of extension services provided for wheat crop farmers.
4. Identify the proposals of wheat farmers to improve the reality of the agriculture extension service provided by the agricultural extension system in the field of wheat crop farmers in the research region.

**Hypothesis**

Ho: wheat crop farmers’ socio-economic characteristics have no significant influence on the reality of the agriculture extension service provided by the agricultural extension system.

2. **Materials and methods**

The study was carried in Zammar region\Nineveh Governorate\Iraq. The population of this study consisted of 50% (152 farmers) of the total farmers (304 farmers). Data were collected through questionnaire, which consisted of three parts. The first part included the independent variables (farm size, farming experience and age) measured by number of years, and Level of education included 7 levels the following: illiterate (1), read and write (2), graduate of an elementary education (3), graduate of a secondary (5), graduate of the Institute (6), graduate of college (7) certificate highest. Marital status had four categories: single, married, divorced and widowed; and family size by number of persons. While the second part consists of With a set of questions that measure reality of the Agricultur extension service provided by the Agricultural Extension system was measured in the field of wheat crop cultivation in the research region, by the degree to which these respondents determine the availability of extension services provided by the agricultural extension system in the field of wheat crop cultivation and the degree of change in their knowledge and practices As a result of the provision of such extension services, through the presentation of their opinion about (18)
items are distributed on five operations related to the cultivation of the wheat crop, these operations are: (the date of planting, the service of the land before planting, quantity of Seed size, fertilization, and harvesting). Respondents' responses were measured on a scale of four responses: high, medium, low and not. it is measured by giving numeric values as follows (4, 3, 2, and 1), respectively, and the scores assigned to each dimension were collected. (The degree of availability of extension services, the degree of change in knowledge, and the degree of change in practices) to obtain the degree of the reality of the extension service Provided by the agricultural extension system from the point of view of the respondents. The third part of the survey questionnaire consiste of the proposals of the respondents to improve the reality of the Agriculture extension service provided by the Agricultural Extension Service in the field of wheat crop cultivation in the research region. Data were collected in the period between Feb to April 2018. The original data set included 21 paragraphs and the data were measured for validity and quality by specialist at the Agricultural Extension Department, Based on the evaluation process, three of the paragraphs were removed. Also, 30 questionnaires were excluded after determining the data consistency (total reliability coefficient was 0.82) (Pallant 2005). In this study, the data was mostly analyzed with a computer program called Statistical Package for the Social Sciences (SPSS). However, a few graphs were made with Microsoft Office Excel. Firstly, all the data were inserted in Microsoft Office Excel program. Then, the answers were coded by using numbers to indicate each different answer. The data were analyzed using different quantitative and qualitative statistical procedures and methods. Descriptive statistical tools were used to analyze the quantitative data. The important statistical measures that were used to summarize and categorize the research data were means, percentages, frequencies, and standard deviations. The qualitative data were partly analyzed on spot during data collection to avoid forgetting and to be able to fill the gaps in the quantitative data. (Kothari, 2003).

3. Results and discussions:

3.1. Identify the personal, social, economic and communicative characteristics of the farmers in Zammar region.

Age. The age of respondents, who participated in the study ranged from 18 to 65 years. The mean age of the respondents was (31.33) years with the standard deviation of (4.90). The respondents were placed under four age categories. The respondents aged 42-53 and 54-65 were in the majority (81.59%), followed by the age group 30-41 (15.13%), next by the age group 18-29 years (3.28%), as shown in the table 1.

| Categories | Frequency | % |
|------------|-----------|---|
| (18-29) year | 5 | 3.28 |
| (30-41) year | 23 | 15.13 |
| (42-53) year | 77 | 50.68 |
| (54-65) year | 47 | 30.91 |
| Total | 152 | 100.00 |

\[ \bar{x} = 31.33 \quad \text{SD} = 4.90 \]

The results indicated that most of young people are not engaged in wheat growing. Due to their migration from the countryside to the city to work, they do not rely on the agriculture for their livelihood. On other hand, findings revealed that a significant proportion of the farmers were between 30 and 50 years indicating that the farmers were mainly middle aged, and being in their economically active stage they can undergo stress; this has implication for productivity of the farmers.

Education level. as evident from table 2, the distribution of respondents into categories is based on their education level. The percentage of the farmers, with illiterate, was 3.28%.
About 15.13%, 11.84% of the respondents had read and write, and graduate of primary school, respectively.

**Table 2.** Distribution of respondents according to education level

| Categories                      | Frequency | %   |
|---------------------------------|-----------|-----|
| illiterate                      | 5         | 3.28|
| read and write                  | 23        | 15.13|
| graduate of primary school      | 18        | 11.84|
| graduate of a secondary school   | 52        | 34.21|
| graduate of the Institute       | 20        | 13.15|
| graduate of college             | 26        | 17.13|
| Higher certificate              | 8         | 5.26 |
| Total                           | 152       | 100.00|

While 34.21% of the farmers attained graduate of a secondary school and 13.15% had graduate of the Institute. 17.13% of the farmers had graduate of college and 5.26% of the farmers had Higher certificate.

The studies have shown that farmers generally have an average level of education. The higher education the farmer receives, the more likely the adoption of agricultural technologies. This might be due to the fact that educated person has greater chances to access information about the technology and knows where and how he or she can be supported (Deshmukh et al., 2007), especially if those technologies require education to understand and implement.

Marital status. The marital status of respondents in the study was placed under four categories. The results indicate that the percentage of respondents, who were married was 60.52%, followed by 25% of respondents who were single. While, the percentage of respondents, who were widowed was 9.88%. Only 4.60% of respondents were divorced, as shown in the table 3.

**Table 3.** Distribution of respondents according to marital status

| Categories | Frequency | %    |
|------------|-----------|------|
| Married    | 92        | 60.52|
| Single     | 38        | 25.00|
| Widowed    | 15        | 9.88 |
| Divorced   | 7         | 4.60 |
| Total      | 152       | 100.00|

Results show that more than half of respondents are married. The assumption here is that the married respondents are more willing to receive or accept new farming techniques than unmarried respondents because they have a larger family labour force, high capital base and the demand for socio-cultural and economic needs for their families.

**Occupation.** The results show that the majority (96.71%) of the respondents were fully engaged in farming as their primary occupation, while 3.29% of the respondents were working in other occupations (Table 4).
Table 4. Distribution of respondents according to occupation

| Categories | Frequency | %   |
|------------|-----------|-----|
| Farmers    | 147       | 96.71 |
| Other      | 5         | 3.29 |
| Total      | 152       | 100.00 |

This means that farmers, who regard farming as their main occupation are likely to invest more time, energy and money into farming as a key source of livelihood.

**Gender.** The results in Table 5 show that 93.42% of the farmers were male, while 6.58% were female. It is obvious that majority of the respondents are male.

Table 5. Distribution of respondents according to gender

| Categories | Frequency | %   |
|------------|-----------|-----|
| Male       | 142       | 93.42 |
| Female     | 10        | 6.58 |
| Total      | 152       | 100.00 |

As table 5 suggests, most of the farm work is undertaken by men in the study area because the work on the farm is generally perceived to be too physically strenuous, and this is suitable for men more than women because of the man's physical strength.

**Source of income.** Farmers keep on a farm, including both agricultural and non-agricultural resources. Table 6 shows the distribution of the respondents into four categories based on their source of income. Most of the respondents (74.34%) in the study region, work in agriculture and treat farm as a major source of income. 23.04% of respondents work on a farm also have additional source of income besides the farm. While, the proportion of respondents, who depend on their income from farm and disabled pension and farm as well as retired pension was 1.31%.

Table 6. Distribution of respondents according to source of income

| Categories                               | Frequency | %   |
|------------------------------------------|-----------|-----|
| Farm                                     | 113       | 74.34 |
| Farm + employment outside the farm       | 35        | 23.04 |
| Farm + disabled pension                  | 2         | 1.31 |
| Farm + retired pension                   | 2         | 1.31 |
| Total                                    | 152       | 100.00 |

As it can be seen from the above table, almost three-quarters of the respondents depend on agriculture for their income because, in fact, agriculture plays a strategic role in the process of economic development by increasing the income of the farmers and providing more jobs to unemployed people. This shows that farmers would like to improve their standard of living.

**Type of tenure.** The results in table 7 indicate that the percentage of respondents who own land was 50.00% and those, who rent the land reached 16.44%, while the participation was 20.41%. The percentage of respondents with a contract type of possession of the land constituted 13.15% (table 7).
Table 7. Distribution of respondents according to type of tenure

| Categories   | Frequency | %     |
|--------------|-----------|-------|
| Owned        | 76        | 50.00 |
| Rented       | 25        | 16.44 |
| Contract     | 20        | 13.15 |
| Participation| 31        | 20.41 |
| **Total**    | **152**   | **100.00** |

The results show that half of farmers own the land, and owning land has many advantages. It eliminates the uncertainty of losing a lease and the impact that would have on the overall operation. The accumulating of equity in land provides an excellent source of collateral for borrowing money. Decisions about the management of the land including enterprise selection, conservation practices and the use of soil amendments are solely the choice of the owner.

1- Identify The reality of extension services provided for wheat crop farmers in Zammar region by: To identify the reality of the Agriculture extension service provided by the Agricultural Extension Service for the farmers in the field of wheat crop cultivation in Nineveh Governorate, the respondents' responses from the wheat farmers were monitored from their point of view to the extent of their awareness of the availability of extension services provided by the Agricultural Extension Service Change in both their knowledge and practices as a result of providing these agricultural extension services to them, as follows:

A- Degree of availability of extension services provided by the agricultural extension system to the respondents in the field of wheat crop cultivation.

The availability of extension services provided by the Agricultural Extension Service for the farmers in the field of wheat crop cultivation in relation to the studied items under the wheat cultivation operations between 18 degrees minimum in the absence of these services, 72 degrees maximum if available to a high degree, the availability of extension services provided by the Agricultural Extension Service in the field of wheat crop cultivation in the research region, as follows:

Table 8. Distribution of respondents according to Degree of availability of extension services in the field of wheat crop cultivation

| Degree of services availability                  | Frequency | %     |
|-------------------------------------------------|-----------|-------|
| Low availability (less than 36 degree)           | 50        | 32.89 |
| average availability (37- 54 degree)            | 44        | 28.95 |
| High availability (more than 55 degree)         | 58        | 38.16 |
| **Total**                                       | **152**   | **100.00** |

The data in Table (8) show that 38.16% of the respondents mentioned that the extension services for wheat crop farmers is high, while 32.89% of these services at a low level, as mentioned 28.95% of the respondents said that the extension services is medium. These results indicate that 67.11% of the respondents mentioned that the extension services medium and high is general for wheat crop cultivation in the research region.

B- Degree of change in the knowledge of the respondents as a result of the availability of extension services provided by the Agricultural Extension system in the field of Wheat crop cultivation.
ranged of degrees range the change of knowledge the respondents as a result of the availability of extension services provided by the Agricultural Extension system in the field of Wheat crop farmers in relation to the studied items under the wheat cultivation operations between 18 degrees minimum in case the dont change of knowledge, 72 degrees maximum if change of knowledge to a high degree, which provided by the Agricultural Extension System in the field of wheat crop cultivation in the research region, as follows:

Table 9. Distribution of respondents according to Degree change in their knowledge in the field of Wheat crop cultivation

| Degree of change in the knowledge | Frequency | %    |
|----------------------------------|-----------|------|
| Low (less than 36 degree)        | 53        | 34.87|
| average (37-54 degree)           | 42        | 27.63|
| High (more than 55 degree)       | 57        | 37.50|
| Total                            | 152       | 100.00|

The data in Table (9) show that 37.50% of the respondents was, the change in their knowledge is high, while 27.63% of respondents were change in their knowledge is medium. 34.87% of the respondents were ratio in the change of their knowledge is low. These results indicate that 65.13% of the respondents have improved their knowledge to a medium to high degree as a result of the extension system Extension services in the studied items for wheat cultivation in the research region.

C- Degree of change in the practices of the respondents as a result of the availability of extension services provided by the Agricultural Extension system in the field of Wheat crop farmers.

ranged of degrees range the change of the practices of the respondents as a result of the availability of extension services provided by the Agricultural Extension system in the field of Wheat crop farmers in relation to the studied items under the wheat cultivation operations between 18 degrees minimum in case the dont change of their practices, 72 degrees maximum if change of their practices to a high degree, which provided by the Agricultural Extension System in the field of wheat crop cultivation in the research region, as follows:

Table 10. Distribution of respondents according to Degree change of the practices in the field of Wheat crop cultivation

| Degree of change of the practices | Frequency | %    |
|----------------------------------|-----------|------|
| Low (less than 36 degree)        | 61        | 40.13|
| average (37-54 degree)           | 49        | 32.24|
| High (more than 55 degree)       | 42        | 27.63|
| Total                            | 152       | 100.00|

The data in Table (10) show that 27.63% of the respondents was their practices is high, while 32.24% of respondents were their practices is medium. 40.13% of the respondents were their practices is low. These results indicate that 59.87% of the respondents have improved their practices to a medium to high degree as a result of the extension system Extension services in the studied items for wheat cultivation in the research region.

ranged total degree of The reality of extension services provided for wheat crop farmers in Zammar region in relation to the studied items under the wheat cultivation operations between 54 degrees minimum in case there are not reality of extension services, 162 degrees maximum if The reality of extension services was a high degree.
Table 11. The reality of extension services provided for wheat crop farmers in Zammar region

| Degree of reality of extension services | Frequency | %    |
|----------------------------------------|-----------|------|
| Low (less than 108 degree)             | 54        | 35.53|
| Average (109-162 degree)               | 27        | 17.76|
| High (more than 162 degree)            | 71        | 46.71|
| Total                                  | 152       | 100.00|

The data in Table (11) show that 46.71% of the respondents mentioned that the reality of extension services for wheat cultivation is high, while 17.76% of respondents mentioned that the reality of extension services for wheat cultivation is medium. 35.53% of the respondents mentioned that the reality of extension services for wheat cultivation is low. These results indicate that 64.47% of the respondents believe that the extension service provides them with extension services in the studied items for wheat cultivation in the research region with medium to high.

2- Determine the relationship between independent variables and between reality of extension services provided for wheat crop farmers.

Coefficient of correlation was computed in order to explore the relationships between the selected characteristics of the farmers and the reality of extension services provided for wheat crop farmers. The null hypothesis was there was no statistically significant relationship exists between the selected characteristics of the farmers and the reality of extension services provided for wheat crop farmers the result show in Table 12. The age had significant relationship with the reality of extension services when (r) value was (0.420**) at 1% level of significance. The education level had significant relationship with the reality of extension services when (r) value was (0.217*) at 5% level of significance. This might be due the fact that educated person has greater chances to access information about the technology and where and how he or she can be supported (Junge et al., 2009). Marital status had significant positive relationship with the reality of extension services when (r) value was (0.189*) at 5% level of significance. So The assumption here is that the married respondents they more willing to receive or accept new farming techniques than unmarried respondents because, they have a larger family labour force, high capital base and their demand for sociocultural and economic needs for their families. Occupation had no significant relationship with the reality of extension services when (r) value was (0.20). Gender had no significant relationship with the reality of extension services when (r) value was (0.29). Source of income had significant relationship with the reality of extension services when (r) value was (0.420** at 1% level of significance. Type of tenure income had significant relationship with the reality of extension services when (r) value was (0.220*) at 5% level of significance.

Table (12) the relationships between the selected characteristics of the farmers and the reality of extension services

| Variables       | Coefficient of correlation (r) |
|-----------------|-------------------------------|
| Age             | 0.420**                       |
| Education level | 0.217*                        |
| Marital status  | 0.189*                        |
| Occupation      | 0.20                          |
| Gender          | 0.29                          |
| Source of income| 0.380**                       |
| Type of tenure  | 0.220*                        |

8
3. Identify the proposals of wheat farmers to improve the reality of the agriculture extension service provided by the agricultural extension system in the field of wheat crop farmers in the research region.

The results show in Table (13) that respondents’ proposals can be arranged from their point of view to improve the reality of the extension service they provide. The agricultural extension system in the field of wheat crop cultivation in the research region in descending order according to the percentage of their responses to each proposed by itself, as follows:

- Intensifying the extension efforts for wheat farmers in Nineveh governorate 85.52%.
- Strengthening the farmers to ensure stability in the cultivation of wheat crop to ensure the highest return to him 85.52%.
- Encourage farmers to use high-quality seed and other production inputs to ensure productivity and crop yields are increased while providing government support for these inputs 65.78%.
- Increase carry out of agricultural extension of number of training courses in field cultivation of wheat crop 54.60%.
- The interest of agricultural extension workers in Nineveh Governorate by developing the means used to preserve the crop 49.34%.
- Carry out agricultural extension by establishing a rainy forecast mechanism to determine wheat planting time 46.05%.
- Working to increase the efficiency of water harvesting methods from rainwater and floods in the study area to benefit from wheat cultivation 39.47%.
- Expanding the implementation of the extension fields for the application of agricultural techniques in the wheat cultivation 38.18%.

Table (13) proposals of respondents to improve the reality of the agriculture extension service

| Proposals to improve the reality of the extension service | Frequency | % |
|----------------------------------------------------------|-----------|---|
| Intensifying the extension efforts for wheat farmers in Nineveh governorate | 130       | 85.52 |
| Strengthening the farmers to ensure stability in the cultivation of wheat crop to ensure the highest return to him | 110       | 85.52 |
| Encourage farmers to use high-quality seed and other production inputs to ensure productivity and crop yields are increased while providing government support for these inputs | 100       | 65.78 |
| Increase carry out of agricultural extension of number of training courses in field cultivation of wheat crop | 83        | 54.60 |
| The interest of agricultural extension workers in Nineveh Governorate by developing the means used to preserve the crop | 75        | 49.34 |
| Carry out agricultural extension by establishing a rainy forecast mechanism to determine wheat planting time | 70        | 46.05 |
| Working to increase the efficiency of water harvesting methods from rainwater and floods in the study area to benefit from wheat cultivation | 60        | 39.47 |
| Expanding the implementation of the extension fields for the application of agricultural techniques in the wheat cultivation | 50        | 38.18 |

4. The Recommendation:
   1. Activation of the extension service currently provided for wheat crop farmers.
   2. Develop mentoring programs that fit the nature of the inputs available to them.
   3. Take into account the recommendations reached in addressing prevailing vulnerabilities in extension services
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