

The relationship between the motivations of female agricultural engineers towards extension work and some independent variables in Saladin Governorate / Iraq

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Abstract :

motivations play a crucial role in improving extension performance and accomplishing agricultural development goals, particularly in the subjects of rural women's development, the study sought to investigate the relationship between the motivations of female agricultural engineers toward extension work and some independent variables in Salah al-Din Governorate, Iraq. The descriptive method was used in the study. Using a questionnaire administered to a sample of 103 female agricultural engineers, and its validity and reliability were confirmed. The study's findings demonstrated that female agricultural engineers' motivation for extension work was mediocre and tended to decline. Administrative, social, psychological, and economic obstacles significantly impact their professional motivation,. Additionally, the data demonstrated that the domains of motivation were arranged in declining order, with social incentives recording the lowest level, followed by economic and cognitive motivations, and administrative and psychological motivations at comparatively higher levels. The findings of the correlation analysis revealed the existence of significant correlations between the level of motivation and social status, academic specialization, professional ambition, family support, and self-confidence. Additionally, training programs should be intensified in a way that would increase the motivation of female agricultural engineers and strengthen their involvement in Salah al-Din Governorate's rural women's development and agricultural extension.

Keywords: *motives, correlation, agricultural extension, independent variables.*

Introduction and research problem:

Because the agricultural sector effectively contributes to food security, income growth, and job possibilities, particularly in rural regions, agricultural development is one of the fundamental foundations for attaining economic and social development in developing nations

[1]. Since people are the primary force behind agricultural change and modernization processes and modern agricultural development is seen as an integrated process that goes beyond simply increasing production, effective agricultural development cannot be accomplished

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without developing the human element working in this sector. Instead, it involves raising the standard of living in rural areas, advancing human potential, and increasing community involvement in decision-making [2] Because it helps transmit knowledge and contemporary technology, build skills, and alter attitudes and behaviors among farmers and rural women alike, agricultural extension is one of the most crucial instruments that nations rely on to attain agricultural development goals [3]. Additionally, agricultural extension helps connect the findings of scientific studies with the demands of rural communities, improving the effective use of agricultural resources and increasing output [4]. Because they actively participate in production processes, manage family resources, and ensure food security, rural women are emphasized as an important component of agricultural growth in this setting. Numerous studies show that equipping rural women with information and skills raises the standard of the rural family overall and improves the sustainability of agricultural growth. Through training and awareness initiatives that include their social and cultural uniqueness, women's agricultural extension serves as a primary means of enhancing rural women's capacities [5] Because they can successfully engage with rural women, comprehend their requirements, and establish mutual trust, female agricultural extension workers—including agricultural engineers and extension workers—play a crucial role in this sector. This helps them reach their growth objectives and increase the degree of

adoption of extension messaging. However, the degree of enthusiasm that drives female agricultural engineers to pursue extension work has a significant impact on this role's efficacy in addition to academic credentials [6]. Motivation is regarded as one of the fundamental ideas in organizational behavior since it reflects the internal and external factors that shape a person's behavior and dictate his degree of effort and consistency at work. According to the research, agricultural extension workers that are highly motivated perform better on the job, are more committed, and are happier [7]. Agricultural extension workers' professional behavior is shaped by a variety of factors, including economic, social, psychological, cognitive, and administrative motivations. Weak motivation, on the other hand, results in low extension efficiency and effectiveness[8] Numerous independent factors, including age, years of service, educational attainment, involvement in training programs and extension activities, organizational environment, and institutional support, influence female agricultural employees' motivations for extension work. Due to their significance in boosting self-confidence and a sense of professional importance, certain studies have shown a substantial association between the degree of motivation and some of these characteristics, particularly training and work experience [9]. By fostering a positive work environment, boosting the perception of professional relevance, and involving employees in the development and execution of extension programs, agricultural extension effectively raises the

level of motivation among its employees. this makes them feel more accountable and like they belong at work.[10] Agricultural extension's ongoing training and capacity building also fosters the growth of cognitive and psychological motivations, boosts professional competence and self-confidence, and improves workers' economic and social motivations through administrative support and the provision of material and moral incentives, [11] it has a favorable impact on their performance level. Therefore, agricultural extension is a crucial organizational structure for attaining agricultural development objectives, increasing the efficacy of extension activities, and inspiring human resources [12]. Studies on the subject are still few at the local level, particularly those that concentrate on female agricultural engineers in Salah al-Din Governorate, despite the significance of motivation and its connection to the traits of female agricultural extension workers. A disparity in the amount of female extension activities

Research objectives:

- 1- Measuring the level of motivation of female agricultural engineers towards extension work in Saladin Governorate / Iraq in general.
- 2- Arranging the fields of study in descending order according to the average motivation for female agricultural engineers.
- 3- Finding a correlation between the level of motivation of female

materials and methods:

is also observed, which begs the issue of what drives female agricultural engineers and what influences them. Therefore, the lack of clarity on the nature of the link between various independent factors in Salah al-Din Governorate, Iraq, and the motivations of female agricultural engineers toward extension work determines the study problem. The resulting difficulty in developing effective training and motivational programs based on accurate scientific foundations. Accordingly, this research came to contribute to filling this knowledge gap, and to provide a database that can be used in developing agricultural extension policies. Enhancing the role of female agricultural engineers in developing rural women and supporting the path of sustainable agricultural development. The research came to answer the following question: - Is there a correlation between the motivations of female agricultural engineers towards extension work and some independent variables in Saladin Governorate / Iraq?

agricultural engineers towards extension work in a governorate Salah al-Din/Iraq and each of the following independent variables (marital status, academic specialization, professional workplace, professional ambition, family support, and self-confidence).

The study population consists of all female agricultural engineers working in agricultural institutions in Salah al-Din Governorate who hold bachelor's, higher diploma, master's, or doctorate degrees in agricultural specializations, including (The Directorate of Agriculture in the governorate and its affiliated agricultural divisions, the Seed Certification Department, the Agricultural Equipment Department, the Agricultural Research Department, and the Agricultural Training Extension Center) bringing Total study population to (141) respondents. A research sample consisting

of (103) was selected. Female employees based on the sample size determination table of Krejcie & Morgan (1970), as the table indicates that communities with approximately 140-150 individuals are suitable for a sample size of 103 individuals (see Appendix 3). After determining Total sample size, it was distributed among the included districts in a random manner, taking into account proportionality in Distribution: This sample represents 73% of Total study population, as shown in Table No. (1):

Table No. (1) Study population and sample

t	Circuit name	number	Exploratory sample	Final sample
1	Salah al-Din Agriculture Directorate and its affiliates	85	14	62
2	Seed Certification Department	10	1	7
3	Department of Agricultural Research	20	2	15
4	Agricultural Equipment Department	9	1	7
5	Agricultural extension center	17	2	12
Total		141	20	103

Reliability and validity examination

A preliminary test of the scale was conducted by applying the questionnaire to an exploratory sample of (20) respondents, with the aim of ensuring the clarity of the paragraphs and their ease of understanding

by the respondents. This test also helped in diagnosing areas of ambiguity or potential difficulty in the questionnaire. And work on addressing them before final application. In addition, the time taken by the respondents to answer the items was measured, and the reliability coefficient was calculated using

the Cronbach's alpha method, and its value reached (0.86). It is a value that is considered good and indicates a high level of internal consistency of the scale's items, as acceptability increases as the reliability value approaches (1). The validity of the scale was also calculated by extracting the

square root of the reliability coefficient value, which reached (0.92), which indicates that the scale has a high degree of validity and stability.

Stages of the questionnaire preparation process

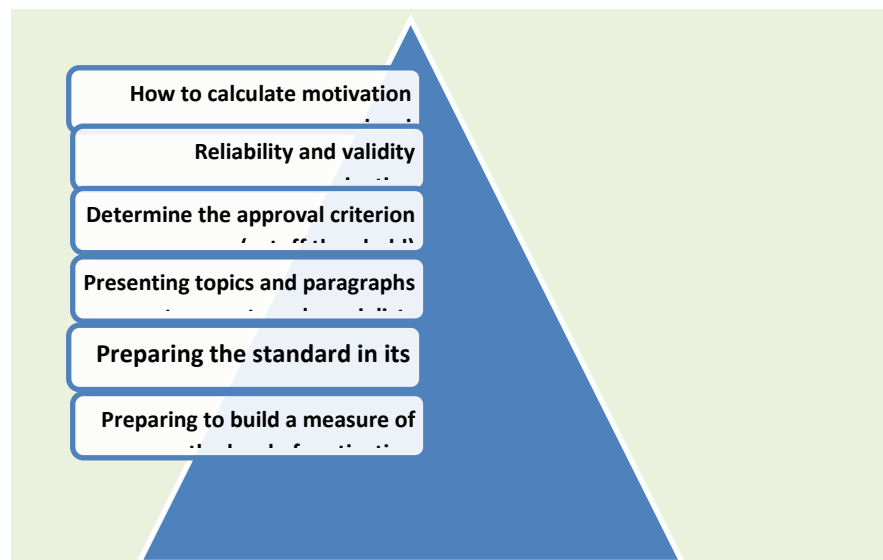


Figure (1): Stages of the process of constructing a measure of the level of motivation of female agricultural engineers

Measuring study variables:

First: Measuring the independent variables:

- 1- Professional ambition: This variable was measured by specifying (8) items in front of which the following alternatives were placed: (I agree, I agree to some extent, I disagree). The following weights were given: (1, 2, 3) respectively, so the level of ambition ranges between (8 - 24) degrees.
- 2- Self-confidence: This variable was measured by selecting (6) items in

front of which the following alternatives were placed: (high, medium, weak). The following weights were given: (1, 2, 3) respectively, so the level of ambition ranged between (6 - 18) degrees.

measuring the level of motivation of female agricultural engineers:

The level of motivation among female agricultural engineers was measured through (50) items, each of which was designed to reflect a specific aspect of the areas of motivation studied. The items were distributed among the five areas. The scale

was adopted with three answer options: “I agree,” “I agree to some extent,” and “I disagree,” and weights were given to them (3, 2, 1) respectively. Accordingly, Total score of the scale ranged between (50-150) degrees.

Statistical methods:

For the purpose of achieving the objectives of the current research, the data was tabulated and statistically analyzed using statistical analysis programs Excel and SPSS, and to arrive at the results, the following statistical methods were used: (percentage, frequency, standard deviation, range, Pearson and Spearman correlation coefficient, t-test).

Table No. (2): shows the distribution of female respondents into three categories according to the motivations of female agricultural engineers towards extension work

S.d	\bar{x}	Average motivation	Percentage	number	Categories of motivation
12.98	112.82	78.93	28.16	29	Low (50-83)
		113.82	49.51	51	medium (84 -117)
		145.73	22.33	23	High (118 – 150)
			% 100	103	Total

It is evident from Table (2) that the moderate category recorded the highest proportion of motivation levels among female agricultural engineers toward extension work in Salah al-Din Governorate, reaching 49.51% with a mean motivation score of 113.12. The low category ranked

Results and discussion:

level of motivation of female agricultural engineers towards extension work in Saladin Governorate / Iraq in general.

The results showed that the level of motivation of female agricultural engineers towards extension work in Saladin Governorate in general ranged between (50-150) degrees, with an overall average of (112.82), and a standard deviation of (12.98). The subjects were divided according to the range law into three categories, as shown in Table No. (2).

second, accounting for 28.15% with an average motivation score of 78.93, whereas the high category represented the lowest proportion at 22.34%, with a mean motivation score of 145.73, as illustrated in Figure (1):

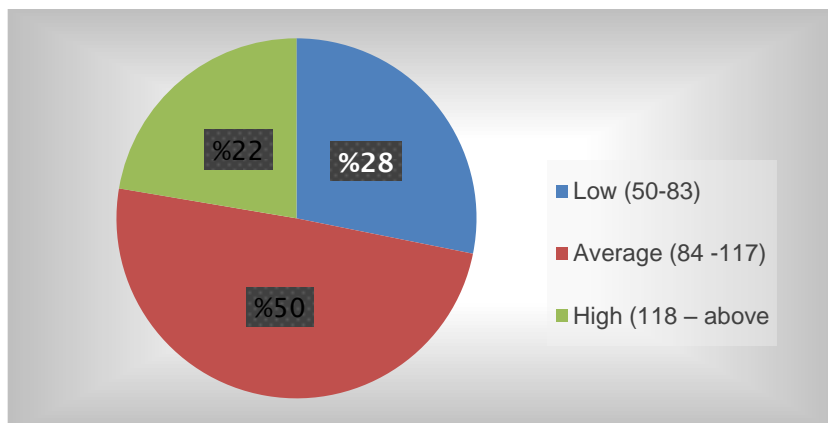


Figure No. (1) Categories of the level of motivation of female agricultural engineers towards extension work

Figure No. (1) shows that the largest percentage of female agricultural engineers fell into the category of medium level of motivation towards extension work at (48.55%), followed by the low category at (32.04%), while the percentage of high motivation reached (19.41%). Therefore, the level of motivation among female agricultural engineers in general can be described as average, tending to decline. This may be attributed to a group of overlapping factors, most notably weak economic incentives and lack of financial allocations related to extension work. Administrative obstacles also contribute. And organizational efforts to reduce the level of motivation among female agricultural engineers, in addition to the influence of some social and psychological factors related to the nature and conditions of field work and customs and traditions, especially in rural areas, which was reflected in a decrease in the level of general motivation among female agricultural engineers towards extension work.

The second goal: Arranging the fields of study in descending order according to the average motivation for female agricultural engineers.

The field of study was arranged in descending order according to the average motivation for each field, as the number of items in all fields is equal, which is (10) items for each field, and the maximum score for all fields also ranges between (10-50) Therefore, the fields were arranged as shown in Table No. (3)

Table No. (3): Shows the order of fields of study in descending order

Field arrangement	Average motivation For every field	Maximum degree	Number of field paragraphs	Domain name
1	19.24	30	10	Social motives
2	21.20	30	10	Cognitive motivations
3	22.46	30	10	Economic motives
4	23.69	30	10	Administrative motives
5	24.42	30	10	Psychological motives

It is clear from Table No. (3) that the ranking of the areas of motivation among female agricultural engineers towards extension work was descending according to the average motivation in each area, with the first rank indicating the lowest area, which is social motivation. This is due to the impact of social restrictions and lack of community support for some female engineers, despite the presence of some support from family and female colleagues, followed by the cognitive field, as its paragraphs showed the difficulty of applying and transferring information to rural women and the lack of practical experience, which limited the increase in motivation. Economic motives came in third place as a result of limited

salaries, rewards and financial incentives, while administrative and psychological motives came in third place. The two lowest ranks, as the paragraphs showed the complexity of some administrative procedures and routines, in addition to the feeling of psychological pressure and fatigue resulting from the nature of extension work. These results indicate that all areas need to be strengthened, with a focus on addressing the social, administrative, and psychological aspects to raise the level of The general motivations of female engineers towards extension work in Salah al-Din Governorate. Figure No. (3) shows the arrangement of the fields of study:

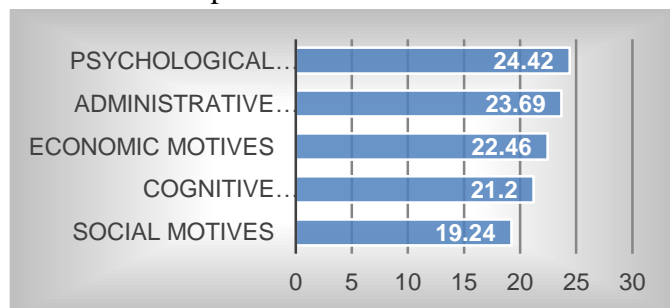


Figure No. (3) Ranking of fields of study according to the average of each field

The third goal: to find a correlation between the level of motivation of female agricultural engineers towards extension work in Salah al-Din Governorate / Iraq and each of the following independent variables:

1- Marital status: The respondents were divided into four categories: (married, widowed, divorced, single), as shown in Table No. (4):

Table No. (4): Distribution of female respondents according to social status categories

t value	r value	average motives	percentage	number	Categories
**3.63	0.34	96.9	49.51	51	married
		104.8	17.47	18	widow
		123.9	8.73	9	divorced
		135.92	24.27	25	Single
moral0.01			%100	103	Total

**** Indicates that the relationship is significant at the probability level of 0.01**

It is clear from Table No. (4) that (49.51%) of the respondents were from the category of married women, which is the highest percentage, followed by the category of single women with a percentage of (24.27%), then the category of widows with a percentage of (17.47%), while the category of divorced women had the lowest percentage, amounting to (8.73%). For the purpose of determining the correlation between the level of female agricultural engineers' motivations towards work For guidance and the marital status variable, the Spearman correlation coefficient was used, with a value of (0.34), and to verify the significance of the relationship, the (t) test was used, as its calculated value reached (3.63**), which is greater than the tabular (t)

value, which indicates the existence of a direct, significant correlation at the probability level (0.01), and based on that, the hypothesis is rejected. The null statement states (there is no correlation between the level of motivation of female agricultural engineers towards extension work in Saladin Governorate / Iraq and the marital status), and the alternative hypothesis is accepted. This may be attributed to the fact that single female agricultural engineers have a higher level of motivation towards extension work compared to married women. Because they enjoy greater time flexibility and fewer family obligations, which allows them to devote themselves full-time and actively participate in extension activities and field

travel, they are followed by divorced women and then widows, while married female engineers may face family and social responsibilities that reduce their level of motivation towards engaging in extension work.

2- Academic specialization: The respondents were divided according to the academic specialization they obtained into two categories, as shown in Table No. (5).

Table No. (5): Distribution of female respondents according to categories of academic specialization

t value	r value	average motives	percentage	number	Categories
*2.18	0.212	101.40	77.66	80	Non-indicative
		144.94	22.33	23	Agricultural extension
moral0.05			%100	103	Total

***Indicates that the relationship is significant at the probability level of 0.05**

It is clear from Table No. (5) that (77.66%) of the female respondents had a non-extension academic specialization, while the percentage of women who had an agricultural extension specialization was (22.33%). For the purpose of determining the correlation between the level of motivation of female agricultural engineers towards extension work and the variable of academic specialization, The Spearman correlation coefficient was used, and its value was (0.212), and to verify the significance of the relationship, the (t) test was used, as its calculated value was (2.18*), which is greater than the tabular (t) value at the level of 0.05, which indicates the presence of a direct significant correlation at the probability level (0.05). Accordingly, the null hypothesis that It states (there is no correlation between the level of motivation of female agricultural

engineers toward extension work in Saladin Governorate/Iraq and their academic specialization), and the alternative hypothesis is accepted. This may be attributed to the fact that female agricultural engineers who hold an agricultural extension specialty have a higher level of motivation toward work. extension training compared to those with non-extension majors, and this is due to their possession of specialized extension knowledge and skills that enhance their sense of competence, confidence, and ability to provide agricultural extension services effectively.

2- Job location: The respondents were divided into three categories according to this variable, which are (a governorate center, a district center, a district center), as shown in Table No. (6):

Table No. (6): Distribution of female respondents according to occupational workplace categories

t value	r value	average motives	percentage	number	Categories
Apparent relationship	0.081	108.104	24.28	25	Sub-district Center
		94.45	27.18	28	Center of the District
		123.21	48.54	50	Governorate center
N.S			%100	103	Total

***The relationship is not significant**

It is clear from Table No. (6) that a percentage of (48.54%) of the female respondents worked in the governorate center, followed by the category of female workers in the Center of the District with a percentage of (27.18%), then female workers in the district center with a percentage of (24.28%). For the purpose of determining the correlation between the level of motivation of female agricultural engineers towards extension work and the location variable Occupational work: Spearman’s correlation coefficient was used, with a value of (0.081). To verify the significance of the relationship, a t-test was used. The results showed that the relationship is not significant, which indicates that there is no relationship between the professional workplace and the level of motivation of female agricultural

engineers towards engaging in extension work. Accordingly, it is accepted. The null hypothesis which states (there is no correlation between the level of motivation of female agricultural engineers towards extension work in Salah al-Din Governorate/Iraq and their job location), is due to the change in the level of motivation among the female respondents being regardless of the work center, which reflects that the factors motivating extension work It does not vary depending on the location of the job.

4- Professional ambition: The results showed that the lowest level of professional ambition was (8) and the highest was (24). The respondents were divided according to this variable into three categories, as shown in Table No. (7).

Table No. (7): Distribution of female respondents according to categories of professional ambition

t value	r value	average motives	percentage	number	Categories
*2.06	0.201	98.5	33.99	35	Low (8 – 13)
		107.92	42.71	44	Intermediate (14 – 19)
		134.21	23.30	24	High (20 – above)
normal0.05			%100	103	Total

***Indicates that the relationship is significant at the probability level of 0.05**

It is clear from Table No. (7) that the percentage of (42.71%) of the female respondents was in the medium professional ambition category, followed by the low ambition category with (33.99%), while the percentage of the high ambition category was (23.30%). For the purpose of determining the correlation between the level of motivation of female agricultural engineers towards extension work As for the professional ambition variable, the Pearson correlation coefficient was used, and its value reached (0.201). To verify the significance of the relationship, the (t) test was used, as its calculated value reached (2.06*), which is greater than the tabular (t) value at the level of 0.05, which indicates the presence of a direct, significant correlation at the probability level (0.05), and accordingly it is rejected. The null hypothesis which states (there is no correlation between the level of motivation of female agricultural engineers towards extension work in Saladin Governorate / Iraq and professional ambition), and the alternative hypothesis is accepted, and this may be attributed to the fact that female agricultural engineers with high professional ambition have a higher level of motivation

towards extension work They seek to achieve their professional goals and develop their expertise, while those with medium and low ambition have relatively less motivation, which reflects the direct relationship between the level of professional ambition and the level of motivation towards engaging in agricultural extension work.

5- Family support: The results showed that the lowest score for the family support variable was (6) and the highest score was (18). The respondents were divided according to this variable into three categories, as shown in Table No. (8).

Table No. (8): Distribution of female respondents according to the family support variable

t value	r value	average motives	percentage	number	Categories
3.83**	0.356	99.15	33.99	35	Low (6 – 10)
		108.99	53.39	55	Intermediate (11 – 15)
		145.54	12.62	13	High (16 – above)
0.01			%100	103	Total

**** Indicates that the relationship is significant at the probability level of 0.01**

It is clear from Table No. (8) that the percentage of (53.39%) of the female respondents was in the medium family support category, followed by the low support category with (33.99%), while the percentage of the high support category was (12.62%). For the purpose of determining the correlation between the level of motivation of female agricultural engineers towards extension work and the family support variable, The Pearson correlation coefficient was used, and its value was (0.356), and to verify the significance of the relationship, the (t) test was used, as its calculated value was (3.83**), which is greater than the tabular (t) value at the level of 0.01, which indicates the presence of a direct significant correlation at the probability level (0.01). Accordingly, the null hypothesis that It states (there is no correlation between the level of motivation of female agricultural engineers towards extension work in Saladin Governorate / Iraq and the level of family support), and the alternative hypothesis is accepted, and this may be attributed to the fact that female agricultural engineers who enjoy greater family support have a higher level of motivation towards extension work Family encouragement and interest in appreciating

their professional desires are reflected in their enthusiasm and commitment to extension work, which enhances the ability of the female respondents to face field challenges and develop their professional skills in agricultural extension.

6- Self-confidence: The results showed that the lowest score for the self-confidence variable was (6) and the highest score was (18). The respondents were divided according to this variable into three categories, as shown in Table No. (9)

Table No. (9): Distribution of female respondents according to the self-confidence variable

t value	r value	average motives	percentage	number	Categories
2.60 *	0.250	98.89	19.42	20	Low (6 – 10)
		107.21	61.16	63	Medium (11 – 15)
		135.51	19.42	20	High (16 – above)
moral0.05			%100	103	Total

***Indicates that the relationship is significant at the probability level of 0.05**

It is clear from Table No. (9) that the largest percentage of female respondents (61.16%) were in the medium self-confidence category, followed by the low and high confidence categories in equal proportions (19.42% for each). For the purpose of determining the correlation between the level of motivation of female agricultural engineers towards extension work and the self-confidence variable, the self-confidence variable was used. The Pearson correlation coefficient, whose value reached (0.250), and to verify the significance of the relationship, the (t) test was used, as its calculated value reached (2.60*), which is greater than the tabulated (t) value at the level of 0.05, which indicates the presence of a direct significant correlation at the probability level (0.05). Accordingly, the null hypothesis which states (no There is a correlation between the level of motivation of female agricultural engineers towards extension work in Saladin Governorate / Iraq and the level of self-confidence), and the alternative hypothesis is accepted. This may be attributed to the fact that female agricultural engineers with high self-confidence have a greater level of motivation towards extension work, as self-confidence helps in facing Field challenges,

taking initiatives, and achieving professional effectiveness, while those with medium and low confidence tend to have a relatively lower level of motivation.

Conclusions:

- 1- The results of the study showed that the level of motivation of female agricultural engineers towards extension work was average and tended to decline. We conclude from this that weak economic incentives and administrative and social obstacles contributed to reducing the level of motivation.
- 3- The results showed that the level of economic motivation was low for most female engineers. We conclude from This is because weak salaries and lack of financial incentives reduce enthusiasm for engaging in extension work, and highlight the need to improve financial compensation to enhance motivation.
- 4- The results showed that the order of the areas of motivation among female agricultural engineers was descending, as social motivations were recorded the lowest, followed by cognitive and economic

motivations, while administrative and psychological motivations were relatively higher. From this we conclude that the social, cognitive and economic aspects need to be strengthened to support General motivation, with a focus on addressing social constraints and administrative procedures.

- 5- The results showed that the following variables were significantly associated with the level of motivation of female agricultural engineers towards extension work, which are: (marital status, academic specialization, professional ambition, family support, and self-confidence). From this, we conclude that increasing family support, professional ambition, and specialization Heuristic increases the level of motivation while motivation decreases with the constraints of social status.
- 6- The results showed that the following variables were not significantly related to the level of motivation, namely: (job place). From this, we conclude that this variable does not affect the level of motivation.

Recommendations: In light of the study results and conclusions, the researcher recommends the following:

- 1- The need for the Ministry of Agriculture and the General Authority for Agricultural Extension to provide reliable sources of information, such as guidebooks or electronic applications that provide accurate information about

extension methods and modern techniques in agriculture.

- 2- The need to strengthen the role of the family, the local community, and the local government in supporting female engineers and encouraging their participation in extension activities, in a way that increases their professional motivation and social motivations.
- 3- It is necessary to conduct similar research in other governorates or at the level of Iraq that includes new variables that were not addressed in this study, to expand the knowledge base about professional motivations.
- 4- The need to review the salaries and incentives allocated to female agricultural engineers by the Ministry of Finance

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