ROLE OF THE AGRICULTURAL INITIATIVE AND SUPPORTING AGENCIES IN THE DEVELOPMENT OF PALM GROVES IN DIWANIYA AND MUTHANNA PROVINCES

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ABSTRACT

The aim of this research is to identify the role of the agricultural initiative and the supporting devices in the development of palm orchards in Diwaniyah and Muthanna provinces. The aims of the research a questionnaire was prepared consisting (62) items distributed over (7) roles. The provinces of Diwaniyah and Muthanna were chosen for conducting the research. The owners of palm orchards benefiting from the agricultural initiative in the development of palm orchards in the provinces of Diwaniyah and Muthanna were (623) borrowers: including (294) borrowers for the establishment of modern palm groves and (329) borrowers for the development and service of existing palm orchards. A random sample 20% was selected from the research society, with a sample of (125) namely: (59) for the establishment of a modern palm grove and (66) for the development and servicing of existing palm orchards. The results of the research found that the numbers of palm orchards established through the agricultural initiative reached (294) and the numbers of orchards developed and served were (329). The numbers of palm trees planted through the establishment of modern palm groves on agricultural initiative loans amounted to (113978) palm trees. Also, the results found the extension agencies carried out (288) extension activities related to the development of palm orchards in the research area during the agricultural initiative period. The average percentage of the extension role paragraphs was 73%. But, the average percentage of the prevention role paragraphs was 69% in the field of modern palm groves. However, 70% in the development and service of existing palm orchards and the average percentage of the follow-up role paragraphs reached 75%. The research recommends the continuation of the agricultural initiative through the launch of a new initiative for the development of palm orchards such as the comprehensive agricultural initiative to promote the palm sector.

Keywords: establishing an orchard, developing an orchard, extension activity.
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دور المبادرة الزراعية والاجهزة الساندة في تطوير بساتين النخيل في محافظتي الديوانية والمثنى

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المستخلص

هدف البحث الى التعرف على دور المبادرة الزراعية والاجهزة الساندة في تطوير بساتين النخيل في محافظتي الديوانية والمثنى. وتحقيقاً لهدف البحث تم اعداد استبانة تضمنت اختباراً مكوناً من 62 فقرة موزعة على 7 أدوار، وقد أُختيرت محافظتي الديوانية والمثنى منطقة لإجراء البحث، وقد شمل مجتمع البحث جميع أصحاب بساتين النخيل المستفيدين من المبادرة الزراعية في تطوير بساتين النخيل والبالغة أعدادهم (623) مقترضاً منها (294) مقترضاً لأنشاء بساتين نخيل حديثة و(329) مقترضاً لتطوير وخدمة بساتين النخيل القائمة. وقد أختيرت عينة عشوائية بنسبة (20%) من مجتمع البحث، اذ بلغت عينة البحث (125) مقترضاً منها (59) مقترضاً لأنشاء بستان نخيل حديث و(66) مقترضاً لتطوير وخدمة بساتين النخيل القائمة. وخلصت نتائج البحث الى ان أعداد بساتين النخيل التي تم انشائها من خلال المبادرة الزراعية بلغ (294) بستاناً وأعداد بساتين النخيل التي تم تطويرها وخدمتها بلغ (329) بستاناً. كما ساهمت المبادرة الزراعية في زيادة مساحات بساتين النخيل اذ بلغت مساحة البساتين المنشأة حديثاً (2891) دونماً ، وان أعداد النخيل المزروعة من خلال انشاء بساتين نخيل حديثة على قروض المبادرة الزراعية بلغ (113978) نخلة ، كما خلصت نتائج البحث الى ان الاجهزة الارشادية نفذت (288) نشاطاً ارشادياً يتعلق بتطوير بساتين النخيل في منطقة البحث أثناء مدة المبادرة الزراعية كما بلغ متوسط النسبة المئوية لفقرات دور الارشاد 73%، أما متوسط النسبة المئوية لفقرات دور الوقاية فقد بلغ 69% في مجال انشاء بساتين نخيل حديثة و70% في مجال تطوير وخدمة بساتين النخيل القائمة، ، ومتوسط النسبة المئوية لفقرات دور المتابعة بلغ 75% . ويوصي البحث ضرورة استمرار العمل بالمبادرة الزراعية من خلال اطلاق مبادرة جديدة خاصة بتطوير بساتين النخيل على غرار المبادرة الزراعية الشاملة للنهوض بقطاع النخيل.

كلمات مفتاحية: انشاء بستان، خدمة بستان، نشاط ارشادي

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INTRODUCTION

The palm tree is one of the most important fruit trees in many countries of the world (7). Their fruits are of high nutritional value because they contain the main food compounds. Dates are also used as a special material in many industries, mainly sugar, molasses and vinegar. As well as, they contribute to the improvement of the environment and contribute to combating desertification (4). Palm dates are characterized by their ability to grow and produce in desert, shallow and rich environments (13). The palm trees were planted as windbreaks on the edges of different farms (14). Palm is economically important in the agricultural sector in some forty country (20). In Iraq, palm trees occupy great agricultural and economic importance as well as their historical importance as they are linked to the history of Iraq's civilization and represent one of the important symbols in it (1). However, Iraq took the lead in the number of palm trees reaching 32 million palms in 1952 but the number of palms has declined significantly reaching a total of 9946,308 palms in 2001 (10). The decline in the number of dates in Iraq is due to several reasons including: the war damage, water scarcity, high salinity, smuggling of good species, large numbers of producers leaving the profession, great neglect in agriculture and service (16). Hence, the Iraqi government's desire to improve the reality of the palm sector, which witnessed the decline and deterioration of this vital sector during the last century through the agricultural initiative, which was actually implemented in 2008 (2). The aim of this initiative was to achieve a comprehensive renaissance in the agricultural sector, including the date palm sector (3). The initiative was divided into customized lending funds distributed by the area for which the loan was granted, including the palm development fund, through which loans are granted for the development of palm groves (12). So, for the purpose of implementing the agricultural initiative role effectively in the development of palm orchards, they needed to activate the roles of other supporting agencies such as extension, preventive and follow-up. As the importance of agricultural extension is shown in that it seeks to promote the agricultural sector through the development of knowledge and skills of farmers to increase production and improve the quality (19).

MATERIALS AND METHODS

Research methodology

The descriptive approach is concerned with describing the phenomenon as a precise scientific description and it is suitable for carrying out exploratory scientific and survey studies and research (11). This method has been used by a number of researchers in their studies in the field of recognition of roles, including the study of Barznji, and the study of Khafaji (9.15).

Research area

The provinces of Diwaniyah and Muthanna were selected for research aim because they are among the provinces that are interested in palm growing and occupy a good place in terms of the existence of palm orchards in them. This is due to the availability of suitable conditions of thermal and photovoltaic requirements and available water resources(5.18). Also, these provinces benefit from the palm development fund within the agricultural initiative for the development of palm groves.

Research society

The research society included all the owners of palm orchards benefiting from the agricultural initiative in the development of date orchards in the area study 623: including 294 borrowers for establishing new palm orchards, 329 borrowers for developing and servicing orchards. In Diwaniyah, there are 203 borrowers for establishing new palm orchards and 173 borrowers for the development of orchards. In Muthanna, 91 borrowers for new orchard establishment and 156 borrowers for orchard development.

Research sample

A random sample of (20%) was selected from the research community. The total sample was 125 borrowers, distributed among 58 borrowers for the establishment of a modern palm grove and 66 for the development and servicing of existing palm orchards.

Plan of the roles of agricultural initiative and supporting agencies in the development of palm groves: The process of preparation of the scheme of agricultural initiative roles and

supporting devices in the field of development of palm orchards has gone through four stages as follows:

First stage: Preparing the draft of the roles in its initial form

The outline of the roles was prepared in the light of previous studies in the role of the agricultural initiative, the supporting equipment, the field of palm orchards as well as through magazines and leaflets related to the development and establishment of palm groves and the role of agricultural loans. The role plan in its initial form consists of 62 paragraphs divided into 7 roles.

Second stage: Developing the draft of the roles

The draft of the roles in its preliminary form was introduced to 8 experts in the fields of agricultural extension and horticulture for the purpose of statement the approval of each paragraph in the outline by using a questionnaire that included all the paragraphs of the draft of the roles in the light of 3 statements are (agree, agree with the adjustment, disagree) and also asked the expert to indicate whether it is proposed to add a paragraph and write it down. The presentation of the draft of the roles is in its preliminary form was for the purpose of examining the truthfulness and authenticity of the content. The complete questionnaire was presented to a group of experts to ascertain the veracity of the paragraphs and the validity of the instrument of measurement (17).The degrees of the terms of the experts' approval for the components of the draft of the roles were determined by the following (0,1,2) respectively for the words (agree, agree with the adjustment, disagree). A threshold of 75% was determined as a criterion for the survival of any of the components in the draft of the roles in its preliminary form to verify the veracity of the content. All stages of the draft of the roles received an approval rate of 88%.

Third stage: Preparing the draft of the roles in its final form

In the light of the results of the previous stage, most of the paragraphs have remained in the final layout after making some changes.

Fourth stage: Stability test

A preliminary test was carried out to investigate the completeness of the data by applying it to a random sample outside the sample. The application included 10 respondents for the establishment of modern palm orchards and 10 respondents for developing and servicing the existing palm orchards. The first test took seven days from 15/8/2018 until 22/8/2018. After a comprehensive review of respondents' answers, minor changes were required in some of the questionnaires and the order of their paragraphs. Using the Pearson equation to obtain the correlation between the two test scores, this method is one of the methods adopted and preferred in the measure of constancy. The measure of the stability coefficient of the test (0.82) for the sample of establishing modern palm groves and (0.85) for the sample of development and service of existing palm orchards. This amount of stability is a good indicator of the consistency of the paragraphs for the test.

Data collection

1- Questionnaire: The questionnaire was used as a means of collecting data from the respondents. The questionnaire is a research tool consisting of a set of questions and paragraphs designed around the phenomenon discussed (6). The questionnaire consisted of two main parts: . The process of collecting data from the respondents was limited to three months from 2/9/2018 to 2/12/2018.

2 - To view the data and records and documents and review statistics from the directorates of agriculture of Diwaniya and Muthanna Governorates and the Agricultural Cooperative Bank and the directorates of statistics in the two governorates, and these data are of great importance in conducting the research..

Data analysis

After data collection and unloading, these data are analyzed using manual analysis and then organized into tables in order to present the results and interpret and then draw conclusions and recommendations.

Statistical means

After the data collection, unloading and tabulation process, these data were analyzed using manual analysis. Statistical methods were used for repetition, percentage, arithmetic mean, Pearson coefficient, standard deviation, and vakronbach coefficient (8).

RESULTS AND DISCUSSION

First: Role of agricultural initiative in development of palm groves

1- Field of establishing of modern palm groves

Numbers of palm groves through the agricultural initiative: The numbers of date palm orchards established on the agricultural initiative loans from 2008-2015 in the governorates of Diwaniyah and Muthanna were 294. This was a result of increasing the numbers of orchards in both governorates benefiting from agricultural initiative loans. The highest percentage of date palm orchards that were established on agricultural initiative loans was in 2013. It accounted for 41.50% of the total date palm orchards established on agricultural initiative loans. This may be attributed to the encouragement of those who wish to establish new palm groves through the achievements of previous years, benefiting from the agricultural initiative. As well as the guiding role in encouraging and benefiting from the agricultural initiative through the activities of the extension agency and Table 1 and Figure 1illustrate this.

Table 1. Numbers of new established orchards

Years	Numbers of orchards	%
2008	5	1.7
2009	6	2.0
2010	22	7.5
2011	34	11.6
2012	70	23.8
2013	122	41.5
2014	20	6.8
2015	15	5.1
Total	294	100

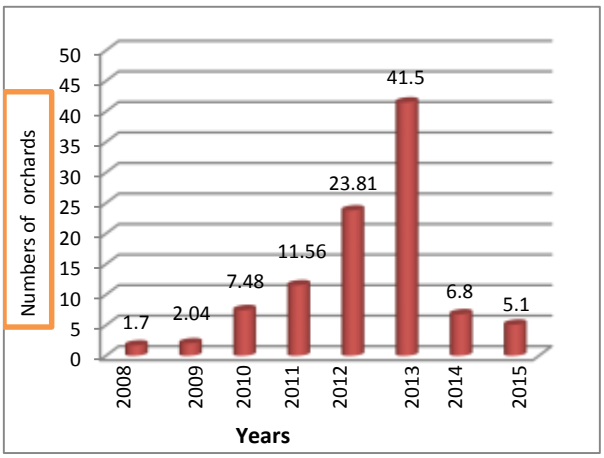

Figure 1. Numbers of new established orchards

Areas of orchards through the agricultural initiative

The areas covered by palm orchards established on agricultural initiative loans in the governorates of Diwaniyah and Muthanna were (2891) dunums. This is a good area added to the areas planted with palm trees in the two governorates during the period of eight years of providing loans for the establishment of new orchards through the agricultural initiative. There is a fluctuation in the percentage of increase in the added area through the establishment of modern palm orchards on agricultural initiative loans from year to year. The highest percentage of the area implemented on agricultural initiative loans was in 2013, which accounted for 42.20% of the total area added. This is caused by the increasing of the number of palm orchards established in that year through agricultural Initiative loans and Table 2 and Figure 2 illustrate this.

Table 2. Areas of new established orchards

Years	Areas	%
2008	35	1.21
2009	50	1.73
2010	215	7.44
2011	277	9.58
2012	755	26.12
2013	1220	42.20
2014	188	6.50
2015	151	5.22
Total	2891	100

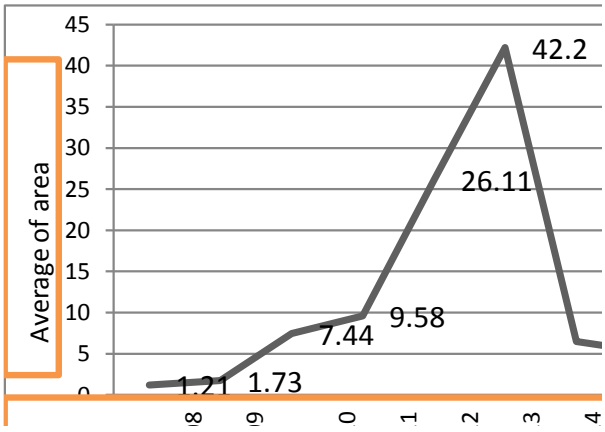

Figure 2. Areas of new established orchards

The areas of orchards that were established on agricultural initiative loans ranged from(5- 40) dunums distributed according to Table 3.

Table 3. Distribution of respondents according to areas of palm orchards

Areas	Numbers	%
5	25	42.37
6	2	3.39
7	1	1.69
10	24	40.68
13	1	1.69
15	1	1.69
20	2	3.39
27	1	1.69
30	1	1.69
40	1	1.69
Total	59	100

We conclude from Table 3 that: 42.37% of the respondents mentioned that the area of the orchard that was established through the agricultural initiative reached 5 dunums, which is the highest percentage of the area mentioned by the respondents. It also represents the least area allowed to be established through the agricultural initiative and may be due to the following:

1. The respondents may not have sufficient agricultural holdings to establish an orchard with an area of more than 5 dunums.
2. Stay away from the risk of large amounts of loans to establish orchards of large area and therefore burdens on the owners of orchards in their
3. The desire of farmers to exploit the rest of their available areas in other agricultural activities.

40.68% of the respondents mentioned that the area of the orchard that was established through the agricultural initiative reached 10 dunums. This may be attributed to the same reasons mentioned above in points 2 and 3. The remaining areas ranged between 1.69% and 3.39%, which is low, due to the low number of large-scale farmers.

Numbers of palm trees planted through the agricultural initiative

The number of palm trees cultivated through the agricultural initiative was (113978) palm, and this number of palm trees is a good number added to the number of palm trees distributed in the governorates of Diwaniyah and Muthanna and Table 4 shows that.

Table 4. Numbers of cultivated palm trees

Governorate	Number of palms	%
Diwaniya	76223	66.9
Muthanna	37755	33.1
Total	113978	100

There is a fluctuation in the numbers of date palms cultivated by the establishment of modern palm orchards on agricultural initiative loans from year to year. The highest number of palm trees planted on agricultural initiative loans in 2013 was 42.20%. This may be due to the increasing of numbers of palm orchards that were established that year through agricultural initiative loans and Table 5 illustrates this.

Table 5. The numbers of cultivated palm trees

Years	Numbers of palm trees	%
2008	1400	1.21
2009	2000	1.73
2010	8600	7.44
2011	11080	9.58
2012	30200	26.12
2013	48800	42.20
2014	7520	6.50
2015	6040	5.22
Total	115640	100

2- Field of developing and servicing of existing palm orchards

Type of development and service of existing palm orchards through the agricultural initiative

The results of the study showed that the percentage of respondents' responses to (yes) on the types of development and service of palm orchards through the agricultural initiative ranged from 44% to 95%. Table 6 shows this:

Table 6. Distribution of respondents according to type of development and service

Paragraphs	Yes	%	No	%
Organizing the orchard by removing trees that are planted irregularly and dry and dead trees	37	56	29	44
performing orchard operations such as modification, harvesting, cleaning, control and fertilization	63	95	3	5
Adding new palm trees to the orchard	58	88	8	12
Use of modern technologies in the orchard	39	59	27	41
Opening and sustaining canals and rivers that irrigate the orchard	29	44	37	56

Table 6 results in the highest rate of the paragraphs about type of development and service of date palm orchards was 95% for the paragraph (performing orchard operations such

as modification, harvesting, cleaning, control and fertilization). This may be due to the need of existing palm groves for these operations more than other ones due to the neglect and decline experienced by the palm sector in recent decades, and the lowest rate was 44% of the paragraph (Opening and sustaining canals and rivers that irrigate the orchard) . This may be due to the fact that most the palm groves do not need to be filled or sustained by the canals and rivers because they are mainly present and the conservation of the canals and rivers does not always require the material possibilities to sustain them, but can be covered by the potential of the owners of orchards.

The numbers of palm orchards through the development and service of existing palm orchards

The numbers of palm orchards developed and serviced through the agricultural initiative loans from 2008-2015 in Diwaniyah and Muthanna governorates were 329, including 173 in Diwaniyah governorate and 156 in Muthanna governorate. This is a good indicator of inclusion numbers of existing palm groves in development and service. The highest percentage of date palm orchards developed and serviced through the agricultural initiative was in 2013, accounting for 23.71% of the total date palm orchards developed on agricultural initiative loans. This can be attributed to the encouragement of those who wish to develop their orchards through the achievements of previous years, taking advantage of the agricultural initiative in the development and servicing of existing palm orchards, as well as the guiding role in encouraging and benefiting from the agricultural initiative through the activities of the extension agency and Table 7 and Figure 3 show this

Table 7. Numbers of orchards developed and serviced

Years	Numbers of orchards	%
2008	13	3.95
2009	30	9.12
2010	46	13.98
2011	73	22.19
2012	68	20.67
2013	78	23.71
2014	10	3.04
2015	11	3.34
Total	329	100

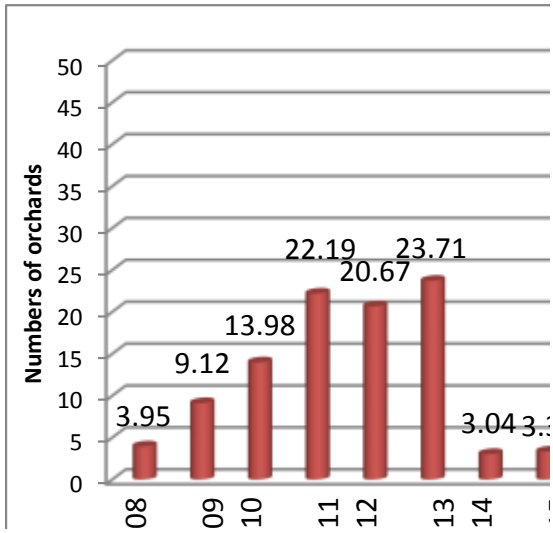

Figure 3. Numbers of orchards developed and serviced

Second: Role of the supporting agencies for the agricultural initiative

1. Extension role

The results of the study showed that the percentage of respondents' responses to (yes) on the paragraphs of the extension role carried out by the extension agencies in the governorates of Diwaniyah and Muthanna ranged from 61% to 91%. Table 8 shows this.

Table 8. Distribution of respondents according to their exposure to extension activities for the establishment and development of palm orchards

Extension role paragraphs	Yes	%	No	%
Have you participated in training courses for the development of palm groves?	76	61	49	39
Have you participated in seminars on the development of palm groves?	114	91	11	9
Have the guides made field observations and visits to your orchard?	85	68	40	32
Have you been provided with guidance leaflets and publications of palm orchards and agricultural initiative?	103	82	22	18
Have the activities and guidance programs helped in developing your knowledge of the management and service orchards?	86	69	39	31
Have guidance agencies encouraged you to contact other owners of orchards to benefit from their experiences?	83	66	42	34
Percentage of respondents answered yes	73%			

Table 8 indicates that the highest percentage of extension role paragraphs amounted to 91% for the participation in seminars on the development of palm groves. This may be due to the concentration of extension agencies on the intensification of extension seminars

related to the development of palm groves as they are based on collective extension activities serving the largest number of owners of palm orchards and develop their expertise on the one hand, and the exploitation of limited resources to include the activities of the majority of owners of palm groves. The lowest proportion of the role of the extension role amounted to 61% of the paragraph (participation in training courses), this may be due to the training programs need to financial potential to cover them compared to the seminars and need specialized staff to manage them, and they need to be centrally located, which hinders the arrival of owners of orchards. It is clear from Table 8 that the average percentage of respondents' answers to (73%) is good. It shows that extension agencies provide good extension services to palm tree owners, which reflects the role of extension in supporting the agricultural initiative for the development of palm groves in Diwaniyah and Muthanna governorates.

2. Role of prevention

Role of prevention in the establishment of modern palm groves

The results of the study showed that the percentages of respondents' responses to (yes) on the prevention role of preventive agencies in Diwaniyah and Muthanna governorates in the field of modern palm orchards ranged from 41% to 88%. Table 9 shows this.

Table 9. Distribution of respondents according to the role of prevention in the establishment of palm groves.

Prevention role paragraghs	Yes	%	No	%
Did the preventive services control the pests that affect palm trees in your orchard?	24	41	35	59
Have you been trained by preventive services for prevention and control of palm pests?	39	66	20	34
Have preventive measures been taken to ensure the integrity of new date palm?	52	88	7	12
Do preventive services conduct ongoing surveys of your orchard to limit and control pests?	47	80	12	20
Percentage of respondents answered yes	69%			

The above table indicates that the highest percentage of prevention role paragraphs reached 88% for the paragraph (Have preventive measures been taken to ensure the integrity of new date palm). This may be due to the concentration of preventive devices to prevent the transmission of palm pests to the newly established orchards. The lowest percentage of the prevention role was 41% for (Did the preventive services control the pests that affect palm trees in your orchard).This may be due to the newly established palm trees which have not reached the age limits that make them vulnerable to palm pests, as well as that the parasites are observed by the prevention specialists to ensure their safety before the process of planting. The above table shows that the average percentage of respondents' responses was yes(69%) is a good percentage showing the preventive services to provide good services to owners of palm orchards, which reflects the role of prevention in supporting the agricultural initiative to develop palm groves in the governorates of Diwaniyah and Muthanna.

Role of prevention in the development and service of palm groves: The results of the study showed that the percentage of respondents' responses to (yes) on the prevention role of preventive agencies in Diwaniyah and Muthanna governorates in the field of developing and servicing existing palm orchards ranged from 33% to 90%. Table 10 illustrates this.

Table 10. Distribution of respondents according to the role of prevention in the development and service of existing palm groves

Prevention role paragraghs	Yes	%	No	%
Did the preventive services control the pests affecting palm trees in your orchard?	60	91	6	9
Have you been trained by preventive services for prevention and control of palm pests?	49	74	17	26
Have preventive measures been taken to ensure the integrity of new date palm?	22	33	44	67
Do preventive services conduct ongoing surveys of your orchard to limit and control pests?	55	83	11	17
Percentage of respondents answered yes	71%			

The above table indicates that the highest percentage of protective role paragraphs reached 91% for the paragraph (Did the preventive services control the pests affecting palm trees in your orchard). This may be due to the importance of the control of palm pests

and the reduction of palm tree injuries in recent decades which led to the decrease in the number of palm trees. The lowest percentage of the prevention role was 33% (Have preventive measures been taken to ensure the integrity of new date palm). This may be due to the fact that the palm groves developed and serviced by the agricultural initiative have not been planted in all new palm trees. It is clear from the above table that the average percentage of respondents' answer to yes (70%) is a good percentage, which shows that preventive services provide good services to palm tree owners, supporting the agricultural initiative for the development of palm groves in Diwaniyah and Muthanna governorates.

3. Follow-up role

The results of the study showed that the percentages of respondents' responses to the follow-up paragraphs in the field of modern palm groves and the development and servicing of existing palm orchards through the agricultural initiative in Diwaniyah and Muthanna governorates ranged from 54% to 92% Table 11 illustrates this.

Table 11. Distribution of respondents according to follow-up role in the development of palm groves

Follow-up paragraphs	Yes	%	No	%
Is there continuous follow-up to your orchard by the follow-up staff?	95	76	30	24
Have you been following the delay and solve the problems encountered during the establishment or development and service orchard ?	99	79	26	21
Has your application for the scientific recommendations of orchard management been followed?	100	80	25	20
Has your use of technologies been processed?	89	71	36	29
Have the results achieved from your orchard been followed?	99	79	26	21
Have your loan granting procedures been followed?	115	92	10	8
Has your behavioral changes been monitored resulting from the extension activities that you have benefited from by the guidance staff?	69	55	56	45
Have your processing with pesticides and chemical fertilizers for palm orchards been followed?	94	75	31	25
Have you been alerted regarding the negligence in the establishment or development of the orchard by the follow-up committees of the initiative loans?	67	54	58	46
Have control and prevention of pests and diseases in your orchard been followed?	104	83	21	17
Percentage of respondents answered yes	75%			

Table 11 indicates that the highest percentage of the follow-up role was 92% (Have your loan granting procedures been followed). This may be attributed to the fact that the loan granting procedures are the basis for obtaining the loan for the development of palm groves. Therefore, the focus was on following up these procedures to facilitate the process of obtaining the loan and to identify the obstacles and problems that may hinder the granting of the loan. As well as follow-up the granting of the loan in installments according to the stages of completion. While the lowest proportion of the follow-up paragraphs amounted to 54% of the paragraph (Have you been alerted regarding the negligence in the establishment or development of the orchard by the follow-up committees of the initiative loans). This may be due to the commitment of most owners of palm orchards to special instructions with agricultural initiative loans for the development of palm groves. Table 11 shows that the average percentage of respondents' responses to yes was 75% which is good. This indicates the importance of the follow-up role in supporting the agricultural initiative for the development of palm orchards.

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