



## THE REALITY OF THE EXTENSION SERVICE PROVIDED IN THE FIELD OF THE PALM TREES IN IRAQ : A REVIEW

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### Abstract

The agricultural sector is responsible for providing food and raw materials for the industries. It is the source of thousands of agricultural producers in general, and palm tree farmers in particular. Palm trees have great economic and food importance in terms of economic benefits in manufacturing and exporting. In addition, dates contain a high content of sugary and protein substances. Palm cultivation helps to create shades for many vegetables and trees, especially citrus fruits that are grown under palm trees. The number of palm trees in Iraq in the eighties and nineties reached 33 million palm trees and regrettably fell to 15 million palm trees in 2017. One of the provinces most covered in palm tree cultivation was Basra governorate, which topped the rest of Iraqi governorate with 10 million palm trees in the 1970s and 1980s. However, the number of palm trees declined to 3 million as well as date declines to 65% of date species in 2018. This is due to a number of reasons, including government negligence, water scarcity, the spread of rodents, and the many diseases and pests of palm trees. According to the above, the extension system and agricultural institutions among them are responsible for developing palm cultivation, introducing new varieties, transferring modern technologies in palm cultivation, and quitting old methods and systems to serve palm trees. Extension system and agricultural institutions takes upon itself to communicate knowledge and skills to palm farmers and work to apply them in their fields and to follow the application process and to control the pests and diseases to which palm trees are affected by and to prepare programs and extension projects for this agricultural pattern. There are several proposals that serve palm farmers, including supporting agricultural producers, launching an instructor awareness campaign, rehabilitation and training of palm farmers to serve palm trees, reducing import, providing irrigation water and undertaking appropriate treatment of price policies.

**Keywords :** Farmer, developing Iraqi palm, production.

### Introduction

Agriculture is one of the most important sectors in many developed and developing countries alike and is responsible for supplying food and industries with raw material needs (Food Organization, 2006), as well as absorbing thousands of agricultural producers including palm trees (Commission, 2000). The palm tree is one of the blessed trees that God Almighty honored by mentioning in his glorious book, Holy Quran, as it was mentioned in (21) verse in which he the Almighty says: (and palm trees with bands that have a standing pollen) and (shook at you with the trunk of the palm falling on you with a fairy wet) (1) (Holy Quran). The palm trees are considered one of the most important national riches, in addition to other natural resources in Iraq. Iraq is one of the oldest habitats in which palm trees were found. However, the palm trees in the Sumerian plates stated that it is a sacred tree and that they used the palm trees as shade to protect the vegetables and other plants from the wind and the cold on which farmers are currently practicing in Iraq (Hussam Saad Al-Deen, 2022008). Due to the great economic and food importance of palm trees and their distinguished place in the Arab world, they can benefit economically in the fields of export, manufacturing and increasing family income (Adnan, 2008). Furthermore, palm dates have become a future necessity for most countries, as they are marketed to non-producing countries (Assem, 2011).

Palm tree production is diverse from fruits and other various products, such as fiber and gravel, molasses, natural vinegar, yeast, and sweets (spider web, 2014). Dates also contain a high percentage of sugar and protein, and palm trees play a major role in adapting the desert dry environment and fighting desertification (Bassam, 2001). Palm tree cultivation is widespread in the central and southern regions.

Statistics indicate that palm tree cultivation is prevalent in three governorates (Food and Agriculture Organization, 2019). The number of palm trees reached more than 16 million, covering an area of half a million acres, or 125,000 hectares (Maha al-Sheikhly, 2008, Rahman, 2). The cultivation of palm trees is considered an agricultural activity for a large number of palm trees in the central and southern regions. In terms of palm trees, Iraq occupies about half of the area cultivated with fruit trees (Wadad, 2011). In addition, Iraq is one of the most famous date-producing countries, and it was the top exporter of dates (Iraqi Trade Journal, 2016).

The number of palm trees in the last ten years reached 33 million, which reached Iraq in the eighties and nineties, and dropped to 15 million in 2017 (the Ministry of Agriculture 2017). Date production in Iraq dropped to dangerous levels affected by the Iraqi economy. One of the most important governorates in Iraq that is covered by palm tree cultivation is Basra, where the provinces were topped by more than 10 million palm trees in the seventies and eighties of the last century, but at the present time has witnessed a significant decline where the number of palm trees in Basra is less than 3 million palm trees (Salim, 2015). In addition, the Basra date palm has produced more than 300 types of dates, the most prominent of which are the Barhi, Khastawi, and Al-Zuhri (Pharaoh, 2009). The latest agricultural reports confirmed the extinction and decline of 65% of the rare date species, which was distinguished by it, after it occupied advanced ranks in the country in the production of dates after the extinction of a number of date types (the Agricultural Directorate, 2018). This forced the farmers to resort to planting the crops of wheat and barley.

Iraq used to produce three quarters of the world's total date crop at a rate of 75% (the General Company for Date

Production, 2018). Currently, Iraq comes after Egypt, Iran and Saudi Arabia in the rankings of date producing countries (date production, 2018). This comes from several reasons, the most important of which are government negligence, water scarcity, the spread of rodents and the large number of diseases and pests afflicting palm trees, which caused the death of millions of palm trees, and the transformation of land into un-arable land (Abdul Jabbar, 2013). Many scientific sources confirmed that palm trees are suffering from several losses that damage palm trees, which leads to the weakness of them, lack of production and destruction, in addition to date's poor quality. On the other hand, among the most famous agricultural pests that affect palm trees are date palm spider mite, Dubas Bug, lesser date moth, palm pollen rot disease and palm stem borer. These pests are dangerous that threaten palm trees and cause heavy losses, so they require the preparation of preventive programs to protect palm trees (Muhammad Ali, 2009; Raad, 2003).

#### **Reasons for the deterioration of palm production in Iraq:**

- Labor migration from the countryside to the city in large numbers.
- The decline in the service provided to palm trees, as it depends on primitive service.
- Water scarcity and drought in most land.
- Agriculture dependence of on groundwater for irrigation.
- Price deterioration (Khaled, 2003).

#### **Reasons for the deterioration of palm tree cultivation and date production**

- Urban expansion towards palm groves in the governorates.
- Methods used in planting palm trees are old ones due to the nature of the orchards' organization with the intensity and irregularity of palm trees, which led to decline in production of dates (Abdel Jabbar, 1982).
- The presence of irrigation and drainage networks in areas with abundant palm trees.
- Migration of people from the countryside to the city to work and lack of labor working in of palm trees service.
- Shatt al-Arab's water shortage poses a threat to palm trees and contributes to the decline of palm tree production (Ministry of Agriculture, 2008).
- The weak support of the producers and remaining price policies, which negatively affected the returns from palm trees, which led to their abandonment and neglect of orchards and their transfer to government jobs.
- The salinity of the soil that agricultural lands suffer from.
- The deterioration of palm trees as a result of neglect, lack of care, and lack of agricultural operations, such as fertilization, control of diseases and agricultural pests that afflict palm trees (Abd Al-Rahman, 2000).
- Failure to perform the necessary service operations such as pollination and palm Pruning.
- The poor implementation of modern techniques and extension services to palm tree cultivation and the lack

of information and knowledge about palm trees (the reality of palm cultivation and date production 2015).

#### **Diseases affecting palm trees in Iraq**

Palm trees are exposed to a large number of agricultural pests, which may reach 280, such as fungi, bacteria, viruses, insects, mites, and rodents. In addition to the previously mentioned, several diseases that afflict palm trees such as:-

##### **(1) Terminal bud rot disease:**

This disease affects most palm cultivation areas in the world, including Iraq, and this disease has low importance in the seventies and eighties, as it was limited to neglected orchards. However, this disease has become a major disease and is widespread in most palm orchards. The spread of these diseases is linked to several factors, including soil salinity, high level of ground water, severity of the stem borer and the palm trees neglectation.

**Symptoms:** The infection appears when the fungus hits the growing top of the palm tree with the existence of rot, which ends with the death of the palm tree. This may lead to the bending of the head of the palm to one of the sides, and fronds became rough in the form of burnt black areas and bends to one side, this is called the black scorch blight. Thus, the top third of the trunk gets pale and yellow, and then the yellowing progresses to the heart of the palm tree ending with the death of the palm tree.

- Cutting and removing dead palm trees to get rid of the source of injury.
- Good palm tree service.
- Sifting and removing dry fronds and sterilizing cropping areas.
- Controlling palm stem and bunch borers.
- Use of fungicide.

##### **(2) Palm Leaf Spotting Disease:**

This disease is one of the most common diseases affecting palm trees in most countries in the world, including Iraq. It has been noted in recent years that this disease is spreading in most orchards, especially in neglected orchards, which causes drying of large percentage of palm fronds.

**Disease symptoms:** the infection occurs on the wicker or medial sweat, in the form of brown spots of various shapes. The spots appear on the surface of the leaf, and the infection of this disease decreases when the leaves wax content increases.

**Control:** The control can be achieved by removing and burning old fronds, and spraying palm trees with fungicides.

##### **(3) Internal fronds yellowing disease:**

This diseases caused the death of a million trees, and it has a direct impact on palm fronds.

**Disease symptoms:** The disease appears on one of the fronds in a yellow form, starts at the base of the palm, reaches the top, and then leads to yellowing of both sides of the frond.

**Control:** good irrigation and fertilization operations.

##### **(4) Palm pollen rot disease:**

This disease is considered one of the endemic diseases in Iraq. The rate of this disease reached about 80% in Basra's orchards. The infection of this disease increases in neglected orchards with high salinity.

**Disease symptoms:** Brown or rusty spots appear on the pollen cover. The inside surface of the infected pollen became yellow with black spots on it. The fungus attacks and

the pollen fails to inflate. Rotten areas covered in white powder are observed. The infection of the disease increases on the palm itself year after year.

**Control:** Removing and burning infected pollen and not using them, taking care of palm trees cleanliness and using only effective fungicides.

#### (5) Palm head pending disease:

This disease is considered deadly and leads to the death of palm trees.

**Disease symptoms:** The symptoms of the disease starts with dryness of the fronds in the middle of the palm heart. Then all of the dead fronds falls on the trunk and moves to the developing summit, which soon bow down with the palm tree head, and all of it dies. Eventually, the head splits and separates from the trunk.

**Control:** taking care for orchards service operations, collecting infected parts, and burn them outside the farm (Thuraya, 2011)

#### The problems and challenges facing palm orchards: -

- **Climatic factors:** Palm groves are subject to instable climatic factors such as wind blowing, dust storms, and dry and hot winds in the summer, which lead to significant damage to dates and palm trees.
- **The spread of pests and diseases of palm trees:** Many palm trees are exposed to pests, insects, and diseases, where the rate of loss may reaches 35% of production.
- **Many date palms turned to unfruitful trees:** This is one of the problems Iraqi palm trees are facing, especially in recent years, which has led to the continuous instability in the production of palm trees (Abdul Hussein, 2013).
- **Urban progress and advancement:** Urban sprawl is taking place at the expense of the palm trees cultivated land with the continuous encroachment by its owners by cutting and selling palm trees, which led to the decline of the land where palm tree cultivation is frequent.
- **The agricultural extension system Weakness:** The extension services provided to palm tree cultivation are weak and modern techniques are not being transferred, and old methods of palm tree cultivation are used.
- **Poor coordination between the palm and industrial sectors:** The importance of manufacturing dates is focused on stimulating consumption and managing the produced quantities and achieving an economic value for this agricultural resource, in addition to that expanding the base of agricultural and industrial activity and integration (Ali Jaber, 2008).

#### The concept of extension service provided in the field of the palm tree agriculture

According to what was mentioned, the agricultural extension service plays a major role in developing agriculture and improving the standard of living for rural people in general and palm tree farming in particular, because the extension service is an educational opportunity for farmers, and it works on managing their agricultural activity, and preserving the programs and pilot projects (Ahmed Fouad, 2003). Moreover, it contributes to increasing production and improving quality by transferring modern technologies and

transferring problems that farmers suffer from to scientific research centers, and helping them to solve them, (Hassan, 2003). The application of modern techniques and scientific recommendations by palm tree growers to the service of palm trees is affected by factors, foremost among which is knowledge of modern techniques and scientific recommendations. This should be an active and continuous guidance activity for the service of palm tree farms (Sakina, 2007; Shadi, 2008). Moreover, the Agricultural Guidance Service is responsible for communicating the knowledge and skills needed to apply them to their fields and for following up on the application process as a body interacting with research institutions and agricultural producers (Ridha, 2017). The extension service provided to date palm farmers is affected by several factors, in the first place is the submission of the extension message, which is the use of it to transfer the extension recommendations related to the agricultural operations of palm trees such as plowing, hoeing, fertilizing and control of diseases and pests that influence palm trees (Hossam El-Din, 2018). In addition, preparing and implementing appropriate extension projects and programs for this agricultural pattern based on the needs and problems that palm growers experience (Abdel Halim, 2012). Many studies mentioned that the need for specialized agricultural guidance work is an effective means and strategy to improve the performance of guiding work, because more than 50% of the world's countries suffer from weak guidance services due to the lack of specialization in performing their tasks (Ahmed Hassan, 2006). Therefore, the responsibility does not rest with the Ministry of Agriculture and agricultural institutions related to the interest in serving palm trees (Rajaa, 2012). This weakness is considered a lack of the level of knowledge of palm plantations. An important factor contributes to the decline in the level of palm tree cultivation and reflects negatively on date production, quality, and rare species (Mohammed Omar, 2001, 2007 Mahdi).

#### Developing Iraqi palm tree cultivation suggestions

- Supporting agricultural producers through the loan system.
- Setting a strategic plan to reclassify and rearrange dates varieties and support items that are economically viable.
- Launch an awareness and extension campaign to plant desirable varieties cultivation in the market, according to the processes of agriculture and service, based on the scientific recommendations of palm trees (Journal of Agriculture, 2000).
- The rehabilitation and training of agricultural producers and palm tree farmers with fertilization, control and pollination programs.
- Encouraging investment in building refrigerated storehouses for storing dates and factories for manufacturing dates.
- Establishment of organizations and associations for dates marketing (Mohamed Abeid, 2015).
- Limiting the import of dates that are competitive with local production.
- Providing irrigation water and adopting modern irrigation methods.
- The proper addressing of the date price policy by supporting final prices (Abdullah, 2000).

### Adopted agricultural policies to promote palm tree and dates sector:

The Ministry of Agriculture, through its formations, is keen to address the sharp decline in the production and numbers of dates and date palm trees beside the decline of Iraq's international status over the past decades. The Ministry of Agriculture has taken a number of measures to bring things back to normal. These measures include:

#### • Establishing the General Authority for Palm Trees:

That took place in the year 2005, and 28 date palm station were linked to it, containing seedlings, nurseries, and orchards of mother trees distributed throughout the governorates where all varieties are collected and cultivated and They shall also act as a genetic bank for the preservation of types. The authority implements 4 projects aiming to qualify the date palm sector which are:

- The project of establishing palm groves and seedlings nurseries.
- The guiding project for dates marketing and manufacturing.
- Project for the production and cultivation of seedlings produced by local and imported tissue culture.
- Rehabilitation of palm orchards project.

### Implementation of the Agricultural Initiative of the Iraqi Government

The agricultural initiative was launched in August 2008 to help in reforming the agriculture state in Iraq. The aim of the initiative is to achieve food integration by means of vertical increases in production in the unit area, horizontal expansion of the agricultural area, rationalization of water consumption using modern irrigation techniques, stopping the deterioration in water quality, reducing pollution, beside other agricultural aspects. The subject of the development of the palm tree and date sector has received serious attention through the government's contribution to the development of a program to support the prices of buying dates from their real producers, outside the ring of intermediaries and traders, in order to help producers to cultivate, produce, and market dates. In addition, the ministry has undertaken a number of complementary measures to develop this sector, including the following:

The increase in the cultivation of palm trees, especially the new types.

- Adoption of tissue culture techniques to increase palm trees with encouraging investment in tissue culture.
- Development and replacement of old palm orchards.
- Import of palm tree seedlings produced by tissue culture.
- Free ground and air control of red beetle and dubas insects with continuing to look for alternatives to chemical pesticides such as using biological control and plant extracts.
- Developing specialized staff in the field of tissue culture and genetic fingerprint by holding courses inside and outside Iraq.

### Financial and economic facilities to encourage investment in the palm and date sector:

- Encouraging investment in the agricultural sector and establishing food integration projects by benefiting from Investment Law No. 13 of 2006 for the local sector and foreign investor.
- Activating the role of the Agricultural Bank and the Farmer's Loan Fund by increasing investor capital in the agricultural sector and reducing interest on loans.
- Providing Interest-free agricultural loans to farmers, entrepreneurs and agricultural companies for long periods of repayment (Muhammad Aamir, 2018).

### References

- Abd Al-Jabbar and Al-Bakr (2013). What it is and its present in its agriculture and industry, Beirut, 4th floor, 5.
- Abdel Halim, Q.A. (2012). Agricultural Extension, A New Vision, Dar Al-Manar for Printing and Publishing, Cairo, 7.
- Abdel-Jabbar, Al-Bakr (1982). Date Palm, the dual formula, Al-Watan Press, Beirut, 10.
- Abdel-Rahman, B. (2000). Al-Nakhil Techniques and Pests, Arab Center for Studies in Arid Zones and Arid Land (ACSAD), Damascus.
- Abdul-Hussain Nuri Al-Hakim (2008). Studies in Agriculture, Future Agriculture, Part 1, Vol. 1.
- Abdullah, M.Y. *et al.* (2000). Planting and serving palms, Guidance publication, Central Administration for Agricultural Extension, Ministry of Agriculture and Land Reclamation.
- Adnan, Ibrahim Al-Usi, and others (2008). The training needs for owners of palm tree groves in the district of Hit, related to diagnosing and controlling some pests affecting palm trees, Al-Anbar Magazine, Agricultural Sciences, 6(1): 354.
- Agricultural Statistics Directorate, Republic of Iraq (2018). Planning, Central Statistical Agency, Agricultural Statistics Directorate, Date Production Report.
- Ahmed Hassan Al-Mahnawi *et al.* (2006). Knowledge and Implementation of Basic Agricultural Guides and the Use of Some extension Methods for Alsharqia and Al-Fayoum Governorates, Journal of the Scientific Society for Agricultural Guidance, 10: 29.
- Ahmed, F.H.K. and others (2003). The importance of guiding methods as sources of agricultural information for the program to improve the rice crop in some villages in the governorate of Al-Beheira. The Egyptian Journal of Classification Sciences, 18(12): 132.
- Ali Jabir Abd Al-Hussein (2008). Some of the challenges of guiding work in Iraq, Iraqi agriculture, The Extension Agriculture Magazine, Issue 4.
- Assem, I.N. (2011). The style of agricultural systems research in the dissemination of agricultural techniques, Iraqi Agriculture, extension magazine, No. 2.
- Bassam, T.Y. (2001). Basic Plant Physiology, University of Qatar, Dar Al-Sharq Printing Center, 634.
- Date production in Iraq (2018). Dropped to dangerous levels, Yaqeen news agency, Iraqi economy.
- Food and Agriculture Organization, United Nations, 2019.
- General company for the manufacture and marketing of dates mixed Joint-stock company, 2018, Iraqi Network for Date Palm.
- Hassan, A.H. *et al.* (2003). Studied the level of farmers' behavior towards farming techniques and the methods

- of guiding communication suitable for them in the centers of Al-Barlos and Mutops in the governorate of Kafr Al-Sheik, Alexandria Journal of Scientific Exchange, 24(1): 35.
- Hossam Al-Din, I.A. (2018). The knowledge gap between those who perform guiding work in the field of reducing losses in the crop of dates in Siwa Oasis, Economic and Social Sciences Magazine, Al-Mansoura University, 9(5): 445.
- Hussam Saad Al-Din Khairallah (2018). Iraqi Palm Dates Network, Iraqi and Arab Palm Trees Archive, p.1.
- Iraqi Electronic Commerce Journal (2016). Ministry of Commerce, Private Sector Development, Studies and Publishing Department, Issue 7.
- Journal of Agriculture and Development in the Arab World, 2000. The third issue.
- Khaled Mohammed al-Qaisi, (2003). Marketing the fruits of date palm in Iraq. An economic analysis study, a doctoral thesis in agricultural economics, Baghdad University.
- Maha, S. (2008). A study of the reality of date palm cultivation, date production and the prospects for its development in Iraq, Al-Mada newspaper.
- Mahdi, S.G. (2007). The Role of the Agricultural Sector in Economic Product Policies in Iraq. The Scientific Journal of Karbala, Vol. 5, Issue 2.
- Ministry of Agriculture and Land Reclamation (2008). Palm Dates, Agriculture and Service of the General Administration of Agricultural Culture, Art Bulletin, No. 2.
- Ministry of Agriculture (2017). Published article, date production.
- Mohammed, O.T. (2001). Adapting modern agricultural technology to the demands of development in developing countries, Al-eshaa printing press, Alexandria, p8.
- Muhammad, A.F. (2018). Plant Pathology, Advanced Basics, Shahryar Printing and Publishing, p. 434.
- Muhammad, A.Z. (2009). Economics in the Present Past and Options for the Future, Dar Al-Malak for Arts, Literature and Publishing.
- Muhammad, O.H. (2015). The reality of date palm cultivation and date production in Basra Governorate, College of Education for Humanities, Basra University, Orol for Humanities, Volume 8, No. 1, Part One.
- Pharaoh, A.H. (2009). Described some species of Iraqi date palm, the Iraqi date palm, p. 1.
- Public Authority for Agricultural Extension and Cooperation, 2000, Palm Service, Guidance Bulletin.
- Raad, Muslim Ismail Al-Khazraji (2003). The reality of date palm cultivation and date production in Iraq and means of development, Journal of Agriculture, p. 7.
- Rahman, Hasan Ali Al-Maksousi (2003). Water Resources Economics, House of Administrative and Economic Sciences, Baghdad, 2041.
- Rajaa, Hamid and others (2012). the performance of agricultural extension workers in Kafr El-Sheikh Governorate, 39(16): 13.
- Reda, Hassan Abdel Ghaffar AbuZayd (2017). The preferred extension methods for farmers to control red palm weevil in Al-Debs Center and Mutawab in Kafr El-Sheikh Governorate, Journal of Sustainable Agricultural Sciences, 43(1): 1.
- Sakina Mohammed and others, (2007). The extension methods that farmers were exposed to through the national campaign for wheat crop in Sharkia Governorate, Mansoura University Journal for Agricultural Sciences, 32(1): 222.
- Salim, M. (2015). Environment Encyclopedia, Iraq.
- Shadi, Abdel-Salam (2008). Knowledge and implementation of farmers to control palm weevil in the Irrigation Center in Kafr El-Sheikh Governorate, Arab Journal of Agricultural Research, 86(2): 111.
- The holy Qur'an, Surah Q, Verse (10), Surah Maryam, Verse (25).
- The Reality of Palm Cultivation and Date Production in Iraq (2015). Challenges and Prospects for Development, Al-Kut Magazine for Economic and Administrative Sciences, p3.
- The World Wide Web for the Manufacturing of Lost Agricultural Production, 2014.
- Thuraya, S.J. (2011). Promoting the marketing and manufacture of dates is the best way to support the national agricultural economy. The general structure of agricultural guidance and cooperation is 38-39.
- United Nations Food and Agriculture Organization (2006), Regional Office for the Near East, Date Palm Production and Agriculture Technology, p. 78.
- Wedad Ali Zughair Al-Minshadawi (2011), The Status and Prospects of Dates Production in Iraq, Master Thesis, in Economic Sciences, College of Administration and Economics, University of Baghdad, p. 43.