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Date Palm Value Chain Analysis and Marketing Opportunities for the Gulf Cooperation Council (GCC) Countries

Boubaker Dhehibi, Mohamed Ben Salah and Aymen Frija

Abstract

In order to develop a sustainable date palm production system in the Gulf Cooperation Council (GCC) countries of the *Arabian Peninsula*, an analysis of the date value chain in these countries was undertaken. Through the mapping of the chain, the overall objective was to identify the processes where values are created and how they are distributed among stakeholders along the entire date palm value chain. The method used in this analysis was based on an assessment of the data gathered from the multi-stakeholder surveys implemented in the three case studies of the GCC countries: Kingdom of Saudi Arabia (KSA), Oman, and Kuwait. The empirical findings reveal several problems and constraints that might affect the future of the GCC date palm sector. Therefore, development of a competitive supply date palm chain (both market and agribusiness development) could provide a greater contribution to the GCC economy if producers paid more attention to marketing of this very important food commodity. Hence, date palm production is no longer a way of life but nowadays is considered as an investment option and source of revenues for many stakeholders if the GCC region.

Keywords: value chain, date palm, marketing strategy, GCC countries

1. Introduction

Date palm cultivation in the Gulf Cooperation Council (Kingdom of Saudi Arabia, Qatar, Bahrain, Sultanate of Oman, United Arab Emirates, and Kingdom of Bahrain) has a long history, yet the efforts exerted by the individual countries on its research and development, although significant, are still insufficient and fall below expectations. In general, the product quality is still low, the field and post-harvest losses are high, and the date products and by-products utilization needs improvement. Therefore, the status of date palm cultivation in the GCC countries and the enhancement of quality of produce cannot be overemphasized. To address the above mentioned constrains, the GCC countries ranked date palm as one of the high research priority as reflected in priority setting for agricultural research in the Central and West Asia and North Africa (CWANA) region [1].

In this regards, the project “*Development of sustainable date palm production systems in the GCC countries of the Arabian Peninsula*”, funded by the GCC Secretariat, was implemented, in partnership, by various ministries of agriculture, agricultural authorities, and agricultural research institutions and universities in the six GCC countries of the Arabian Peninsula (Kingdom of Bahrain, United Arab Emirates, State of Kuwait, State of Qatar, Sultanate of Oman, and Kingdom of Saudi Arabia - KSA) and the International Center for Agricultural Research in the Dry Areas (ICARDA). The major objectives of the project are to improve date palm productivity per unit of water and rationalize the use of the available resources in order to make production sustainable.

2. Objectives of the study

This chapter provides a description of the actual situation for the date palm value chain in the GCC countries, while providing strategic short term perspectives for a more effective and inclusive date palm market sector, constraints and challenges that have to be taken into account as well as proposed strategies to enhance systemic changes in the sector necessary to progress towards more solid and sustainable date palm value chain in the GCC. A specific attention is given to the challenges and constraints in the date palm sector in the GCC countries.

Through the mapping of the chain, the overall objective of this study is to identify the processes where values are created and how they are distributed among stakeholders along the date palm value chain. A special focus is devoted to policy instruments used by the Government to solve specific problems characterizing the chain and consequently enhance the development of the sector and see in particular to what extent those instruments are value creating.

With this view in mind, the present study has been designed with the following specific objectives:

- To overview the date palm sector in GCC countries.
- To analyze the existing value chain of date palm marketing with special attention to the international date palm markets and opportunities for GCC countries.
- To provide strategies and interventions for the GCC date value chain with potential for significant development of value-added.

3. Overview of the date palm sector in the GCC

3.1 Date palm production

Date palm production is a strategic sector in most of the Arab countries including the GCC ones. The sector is one of the oldest economic activity in the Arabian Peninsula and continue to play a key role in the welfare, culture, history, environment, and nutrition of its population. At present (in 2016), the Arab Region is the world leader of date cultivation with almost 75% of global area under date palm, around 77% of world production and approximately 69% of world total export of dates. In addition to the importance of dates for domestic consumption, this sector is also a source of employment, income generation, and trade in many of

these countries. In some very arid areas, date fruit remains as an important source of subsistence and resilience for local population, given its adaptability to harsh environment and tolerance to high temperature, salinity, drought and other severe arid conditions.

According to the FAO statistical database [2], the GCC countries such as KSA, Oman, and United Arab Emirates (UAE) have the highest harvested areas in 2016 with respectively 145,516 ha; 24,120 ha and 93,561 ha in the three countries. While this area was increased in KSA during the last two decades (from 142,450 ha in 2000 to 145,516 ha in 2016), it has rather been decreasing in both Oman (from 35,508 ha in 2000 to 24,120 ha in 2016) and UAE (from 185,330 ha in 2000 to 93,561 ha in 2016). This decrease was the highest in Oman with around 49.50% between 2000 and 2016. This decline is mainly attributed to a combination of various factors including increased soil salinity in major date palm-growing regions, desertification in areas adjacent to the desert in central Oman, heavy insect pest infestation such as dubas bug and red palm weevil, and urbanization of rural areas.

With respect to pace and trends in planted area, production and productivity varied considerably between the GCC countries although perhaps it was a result of the special attention paid and considerable government support during the last few decades. The harvested areas in Bahrain, Kuwait and Qatar are still very limited with respective values of 3986 ha; 3021 ha; and 2407 ha during 2016. In these three countries, the planted area has been quickly progressing during the last two decades with an average annual increase of about 20, 40, and 1.38% in respectively, Bahrain, Kuwait, and Qatar. The highest average yields (calculated over the period 2000–2016) are recorded in Kuwait, Qatar, and Oman with respectively 22.03; 11.13; and 10.34 tons/ha.

The assessment of the date palm yields reveals that the average yield at the global level is around 6 tons/ha. In the GCC countries, the lowest average yields are in UAE, KSA, and Bahrain, with respectively 5.89, 6.38, and 7.56 tons/ha in the three countries. These yield values combined to the statistics on harvested areas makes Saudi Arabia the top producer of dates in the GCC region, with an average annual production¹ of 885,542.8 tons/year, followed by UAE producing and average of 667,569.8 tons/year. It is clear that the productivity of the date palm tree varies within individual countries, and mainly depends on the agro-ecological systems, variety and farming system adopted.

3.2 Marketing systems

3.2.1 Domestic consumption

In terms of consumption, GCC countries vary widely in their per capita date consumption. According to Frija et al. [3], date consumption per capita is highest in Oman with a value of 68 kg/capita/year, followed by Saudi Arabia with a value of 34 kg/capita/year. Sultanate of Oman greatly outpaces all GCC countries in per capita date consumption, which is more than double that of the KSA, the second highest ranking in date consumption among Arab and GCC Countries. The per capita date consumption for the other countries is comparatively low. The trends of date consumption per capita in the study countries reveals, in addition to being low, that it is also decreasing in most of the GCC countries over the period 2000–2013.

¹ Calculated over the period 2000–2016.

3.2.2 Livestock feeding use

In addition to human consumption, date pits and dates falling down from palms before maturity are used as animal feed. There is some use for feed of final product in some countries. This practice is not only observed in GCC countries but is also frequent in other North African countries, such as Tunisia. Some portion of date production is date wasted. Recent statistics from FAO (several years) indicates that up to 38% of the date production was fed to animals in UAE during 2013. For Oman, this figure is around 4%. The volume of wasted dates is also important in the study countries. The lowest wasted percentage (of production) is recorded in KSA (1%), while a highest rate of 13% is recorded in Kuwait.

3.2.3 Domestic market and structure

In the majority of GCC countries, date products' marketing is dominated by local marketing process since export marketing, with the exception of UAE and KSA, is still a small percentage of local production. Domestic marketing of dates is free of direct government involvement and is sole responsibility of the private sector and to a lesser extent of the producers. It takes many forms. At the domestic market, date marketing is passing through two avenues:

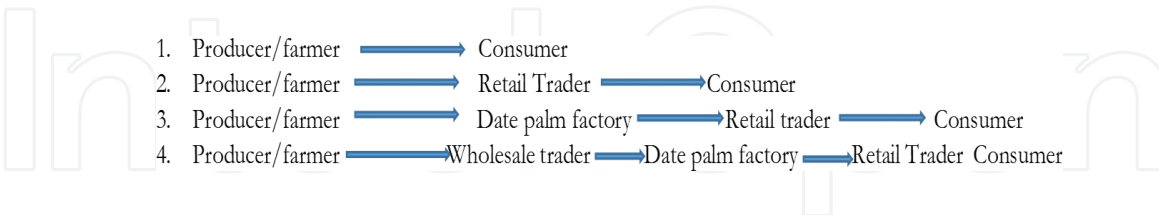
- Direct traditional marketing to consumers: Where the producers sell their dates after harvesting directly to the local markets localized in the production areas and the neighboring markets without any further processing. The dates are commercialized without proceeding to any process, such as sorting, grading, steaming, and washing. The dates are marketed under two stages according to the maturity of the fruit: The stage of secret and wet (fresh) and the final matured fruit.
- Marketing to the date palm factories: In general, the dates delivered to the factories are of the best quality as the date palm producers deliver their products to the local existing factories under pre-fixed norms and standards fixed by the factory. The price is fixed on the basis of quality of the fruits and the supplied quantities.

3.3 Marketing channels of dates

Food marketing, according to Kohls and Uhl [4], is “the performance of all business activities involved in the flow of food products and services from the point of production until they are in the hands of consumers.” For dates, these activities include harvesting, processing, packaging, and transportation/shipment to local or export markets. A marketing channel describes the movement of a product or commodity from the site of production to the place of consumption. It may include transportation, handling and storage, ownership transfers, processing, and distribution. The marketing channel for dates includes initial processing at farm level after harvest, transport to the local market directly (especially for the highly perishable fruits) or to the packing plant, processing and packaging at factory level and transport to the final consumers. There are no universal set of marketing channels because each country is unique, and institutions involved operate differently under different sets of regulations. Therefore, in the GCC countries, the differences in the marketing channels are minima's, and include on-farm selling, retailers, local markets, date factories, and consumers markets.

3.3.1 Example of Kingdom of Saudi Arabia marketing channel for dates

The KSA is an important stage in both the traditional and modern methods of marketing. There is packing for long-distance transportation (local and export) and packing for the final consumers at supermarkets. Dates can be sold at the farm gate and from there dates are marketed either directly to the final consumer at the local market or to the local wholesale market. In practice, four existing/dominant channels for the commercialization of dates are dominant in KSA and are presented as follows:



3.3.2 Example of Oman marketing channel for dates

In Oman, the marketing channels for dates include on-farm selling, retailers, local markets, date factories, and export. There are therefore mainly three channels through which date flow from the farm to local and foreign consumers/export market:

- Dates can be sold at the farm gate and from there dates are marketed either directly to the final consumer at the local market or to the local wholesale market.
- Dates can be marketed directly to wholesalers and from there to retailers either before reaching the local market or directly to the local market.
- Dates can be marketed directly to wholesalers and from there to the processing factories for processing and packaging before being shipped to the retailers' trader and then to the final consumer (local or export).

3.4 Exports market channels

The trade matrix of dates for the GCC countries is represented through a list of exported quantities from each of these countries to different destinations in the world. However, due to the high number of destinations, **Table 1** summarized only

Countries	2012			2016		
	Number of countries	Exported quantities (tons)	Value of export (1000 US\$)	Number of countries	Exported quantities (tons)	Value of export (1000 US\$)
Oman	23	5814.9	7745.6	44	15,699.836	12,650.393
Bahrain	2	43.8	33.1	3	16.716	2868
Kuwait	19	363.9	337.7	14	405.777	542.958
Qatar	na	na	na	na	na	na
KSA	60	64,299.0	74,859.5	64	117,017.911	141,564.174
UAE	98	304,090.5	129,177.2	110	275,862.901	160,215.460

Source: UN COMTRADE data base; (na: not available). Number of countries shows the number of countries to which each of the respective GCC countries is exporting dates; Exported quantities are expressed in tons; value of export is expressed in 1000 US\$.

Table 1.
 Number of dates exporting markets for each of the GCC countries.

the number of countries to which each of the respective GCC countries are exporting to. Results outlined in **Table 1** reveals that KSA and UAE are the most active in terms of market diversification expressed by the number of countries to which they are exporting dates. In 2016, UAE was exporting to 110 countries, while Saudi Arabia was exporting to 64 countries.

The analysis of the intensity of date imports-exports, particularly among the GCC countries (**Figure 1**) based on the availability of recent data, shows again that KSA and UAE are the most active in terms of date exports to the different GCC countries. On the GCC market, UAE is mostly exporting to Oman, followed by KSA and Qatar. KSA is mostly exporting to UAE followed by Kuwait and Qatar. Most of the Omani dates is also exported in the destination of UAE, which is showing that UAE is the biggest exporter and importer partner of Oman.

In the export channel, dates are sold directly to the processing factories for processing and packaging before being shipped to export markets. It is indicated that this channel is taking a considerable share in some countries, such as KSA and UAE, in comparison to the rest of GCC countries. The dates are produced, harvested, sorted, graded, processed, packaged, and transported in an efficient, safe, and with high quality management. This process determines the final market value of the dates, as shown in **Figure 2**.

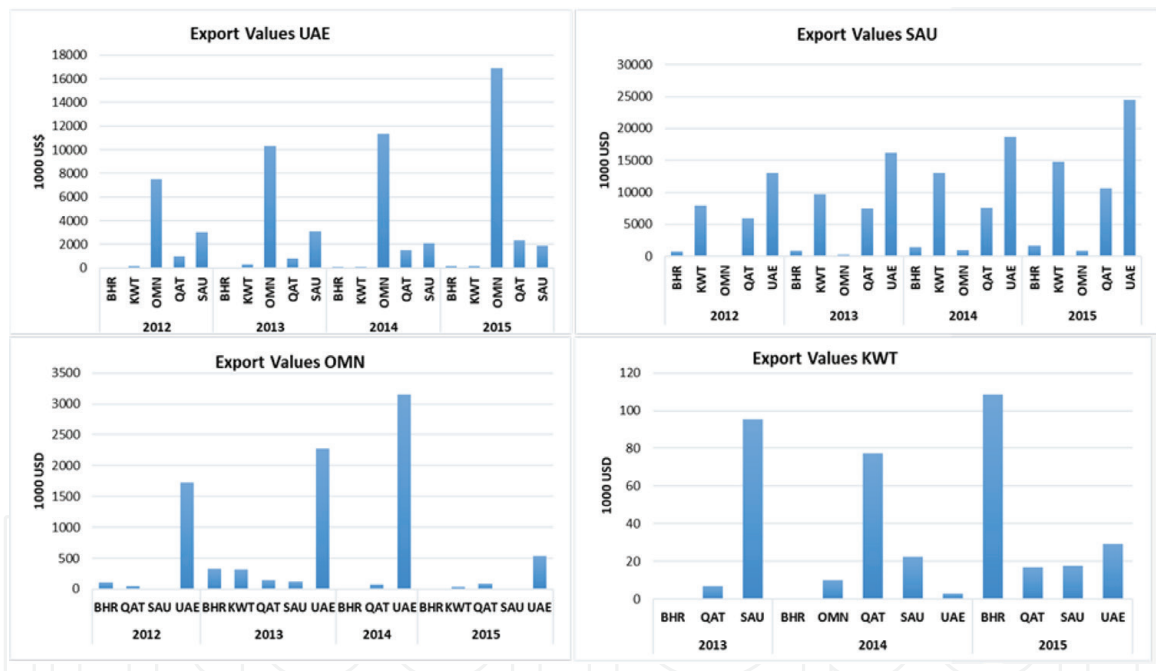


Figure 1. Export trade of dates among the GCC countries (UAE: United Arab Emirates, SAU: Saudi Arabia; OMN: Oman; and KWT: Kuwait). Source: Own elaboration from COMATRADE UN database [5].

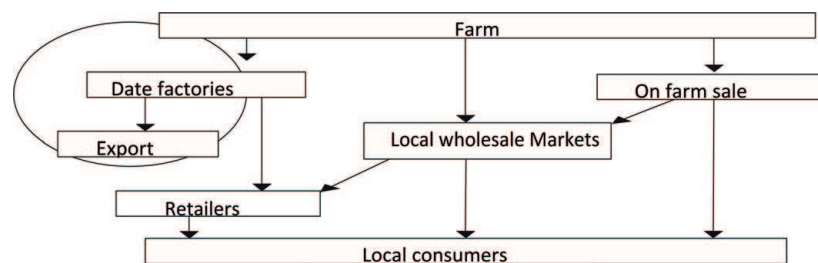


Figure 2. Omani date marketing channels with date export supply chain indicated by circle. Source: Mbaga [6].

4. International date palm markets and opportunities for GCC countries

The GCC is considered as an important component of the regional and international date trading; the trend of the international marketing of dates shows clearly the weight of the quantity of date exported by GCC countries in the international market [3]. The fluctuation of the trend of the dates trading in the GCC countries is mainly due to the instability of volumes exported by the UAE and KSA. The analysis of date trade reveals that in 2016, GCC and North African countries are capturing more than 70% of the international market of dates from the Arab countries.

Figure 3 shows how this market is shared among the GCC countries and their direct competitors from North Africa, such as Tunisia, Algeria, and Egypt. In addition to Israel, who constantly holds more than 10% of the international market of dates, Tunisia is dominating in terms of market share, with an average value of around 20% over the last decade. Algeria and Egypt are simultaneously holding around 3.6 and 3.8% of the market.

As shown in **Figure 4**, the international market share of GCC countries in 2016 was about 28.26%. In terms of growth, it was clear that all GCC countries, including the least present on the international market are progressing quite positively with increasing shares from 1 year to another. Such result confirm that these countries

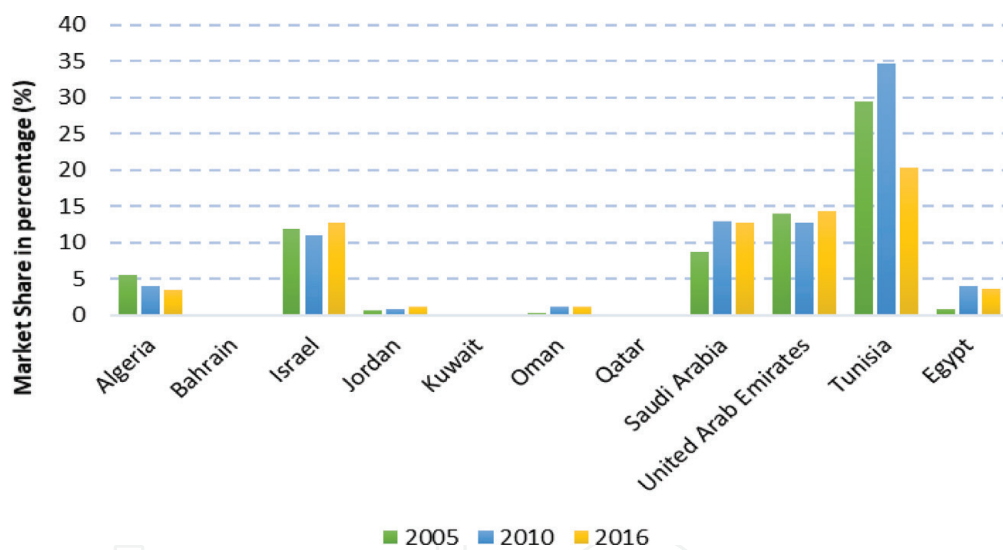


Figure 3. Market share of selected dates exporting countries, including GCC countries and their competitors during the period 2005–2016. Source: Own elaboration from FAOSTAT (2018).

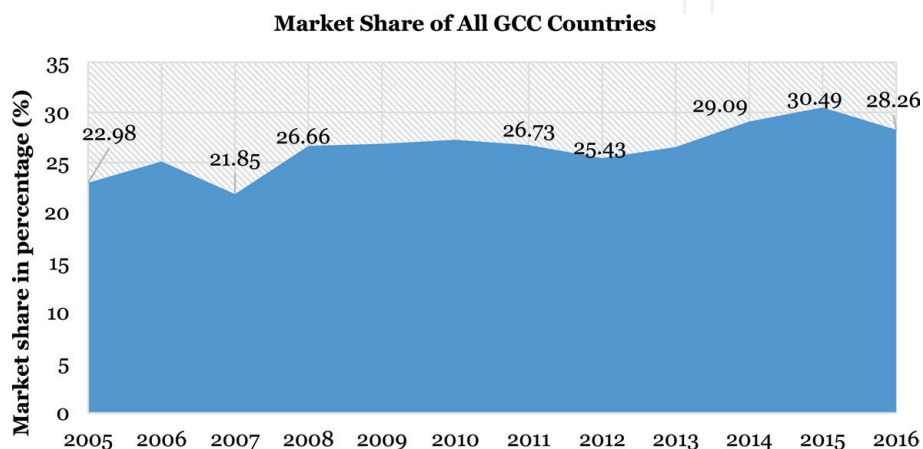


Figure 4. Trend of the aggregated GCC market share (sum of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates) during the period 2005–2016. Source: Own elaboration from FAOSTAT (2018).

together have strong potential for dominating the international dates market if additional efforts (concentrating on their dates international markets) are made mainly in the important as well as growing date importing countries.

In addition to the above, this share of the GCC countries has been increasing over the period from 2005 to 2016, from a value of 22.98% in 2005 to 28.26% in 2016. This change especially refers to the rapid increase of the shares of KSA, UAE, and Oman, as shown in **Figure 5**.

In terms of progress, all GCC countries, including the smallest share countries present on the international market are progressing quite positively with increasing shares over the period 2005–2016. This is especially true for Kuwait and UAE. Oman and KSA, also have the same trend with market shares increasing respectively from 0.34 and 8.64% in 2005 to 1.13 and 12.70% in 2016.

During this period (2005–2016), the gap between GCC and its competitors on the international market is progressively narrowing, mainly with North African countries (Tunisia and Algeria), Iran, Pakistan and Israel. This might be due to the important increase in the demand for dates at the international level through expanding to new markets (Asia and Africa).

Although date trading share of GCC is increasing in the global market, they are still facing an important competition from the countries outlined above (Tunisia, Algeria, Iran, Pakistan, and Israel). To deal with this increasing competition, regional cooperation and partnerships among these countries should be reinforced, given that their challenges, constraints and problems on facing the global date market are similar, and interventions to address and resolve these complex and interrelated

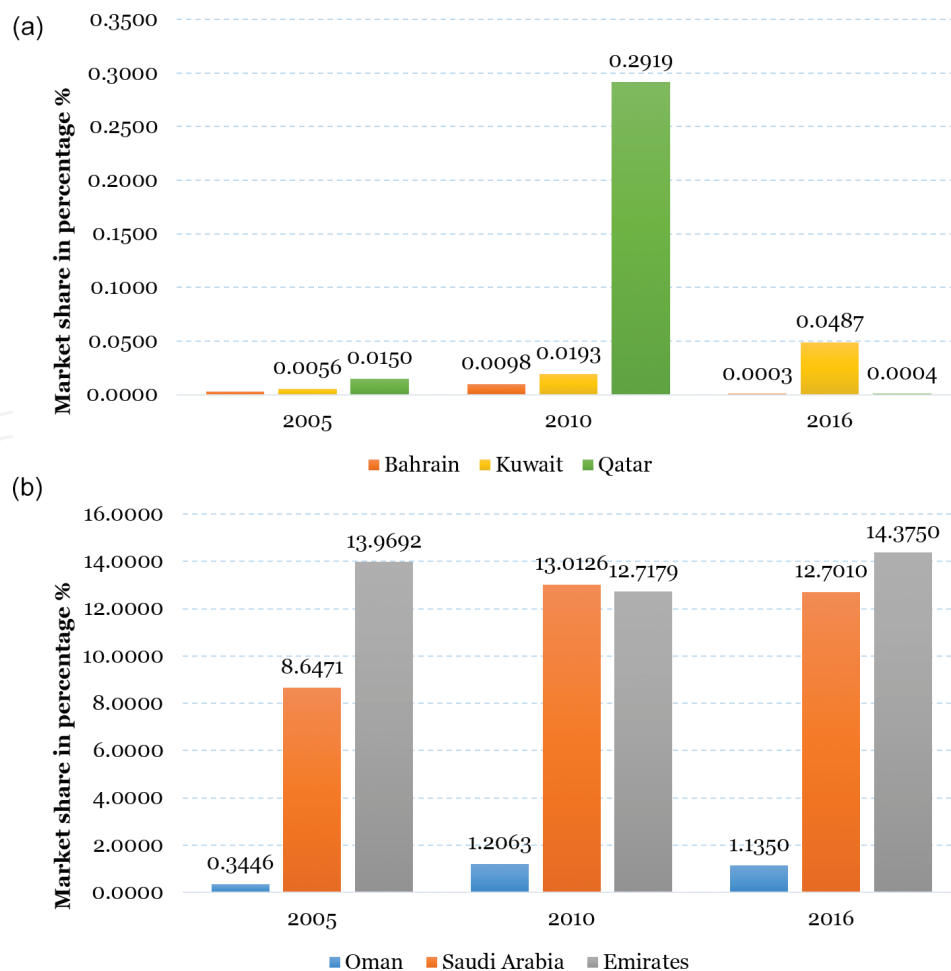


Figure 5. Market share of GCC countries on the international date market: (a) Bahrain, Kuwait and Qatar; (b) Oman, Saudi Arabia, and Emirates. Source: Own elaboration from FAOSTAT (2018).

challenges and problems are difficult for a single country to solve on its own. Thus, coordination between the different trade strategies of the GCC countries, through specialization, division of tasks, and strengthened coordination can generate important opportunities for gaining and sustaining their share on the world market of dates.

5. Date value chain strategy in the GCC countries

5.1 Data sources and data collection

The data for this study have been collected through semi-structured questionnaires targeting the main actors in the date palm sector. Data were gathered for three countries: Saudi Arabia, Oman and Kuwait. **Table 2** illustrate the number of surveys conducted in each country mentioned above.

5.2 Methodological framework

The method used in this analysis is an assessment of the data gathered from two different sources.

First, an exhaustive literature review from various types of documents, both published and unpublished, related to date palm value chain in the GCC countries. Documents includes scientific reports, books, journal articles, working papers, research reports, web-based publications (including national and international databases), workshop proceedings, national policy documents, programme frameworks, etc.

Second, a participatory and consultative approach comprising multi-stakeholder consultations and surveys implemented in three potential GCC countries: Saudi

Nature of the survey	KSA (number of interviewed stakeholders)	Oman (number of interviewed stakeholders)	Kuwait (number of interviewed stakeholders)
Date palm growers	40	38	62
Date palm consumers	09	—	11
Date palm retailers	08	04	10
Date palm wholesale traders	08	—	—
Date palm processors	08	—	—
Date palm transporters	08	14	—
Date palm importers (production inputs)	09	18	—
Decision makers	07	—	—
Researchers and extension staff	10	47	—
Date palm input providers	20	—	—
Total interviewed stakeholders	127	121	83

Source: Own elaboration form surveys implemented in the GCC countries (2017).

Table 2.
Nature and number of surveys conducted in each country.

Items	Assessment indicators
Fresh dates for local consumption	High in all GCC countries
Fresh dates for exports	Almost high in KSA and UAE
Industrial dates for exports	Low in Oman, Kuwait, and Bahrain
Industrial dates for domestic consumption	Low in Oman, Kuwait, and Bahrain
Animal feeding dates	Important in Oman, Kuwait and UAE
Utilization of by-products	Low in all countries
Farm management	Low in all countries

Source: Own evaluation from survey database (2017).

Table 3.
Date palm supply value chain synthesis.

Arabia, Oman, and Kuwait. The surveys targeted the following date palm stakeholders: growers, consumers, retailers, wholesale traders, processors, transporters, importers, decision makers, research and extension staff, and input providers. The method was based on a synthesis summarizing the key messages issuing from each one of the indicated actors. The framework consisted of the following two processes. The first ones focused on data collection from surveys through involving the main value chain stakeholders. The second one focused on the validation of the identified results with special attention to the key development strategies and interventions.

This process, which was developed and implemented by a large number of actors actively involved in the three selected countries date sector (**Table 3**), led to three development strategies: (i) Date palm supply chain development and management; (ii) market and marketing development, and (iii) agribusiness development.

5.3 Challenges and constraints in the date palm value chain in the GCC countries

The analysis of the data collected reveal several problems and constraints that might affect the future of the GCC date palm sector. Such problems include:

- Low quality varieties, low product quality and consequently low returns.
- Poor farm Management (Inefficient use of date products and by-products).
- Pests and diseases and inadequate Integrated Pest Management (IPM) control.
- Harvesting, processing and marketing (high post-harvest losses)
- Lagging processing sector.
- Low quantity of exports.
- Shortage in national qualified and trained staff & labors.
- Insufficient research and development activities.

The assessment of the date palm supply value chain, on the basis of the data collected from the different actors, allowed us to identify the following indicators related to each GCC country (**Table 3**).

According to **Table 3**, the date palm supply value chain assessment indicates a high level in local consumption of fresh dates although per capita consumption is declining in most of the GCC countries because of the new habits dominating the new youth generation. The industrial dates for domestic consumption remain low mainly in Oman, Bahrain and Kuwait given the consumers preferences for the GCC countries in general and these countries in particular is more towards fresh dates. With respect to trade, KAS and UAE are the leading date exporting countries both for industrial and fresh dates. Oman, Kuwait, and Bahrain are the lowest exporting countries compared to their production (i.e., Oman).

Findings reveal also that part of date production is used as feed, mainly in Oman, Kuwait and UAE. Up to 30% of production was served as feed to animals in UAE during 2013 [3]. In addition, most of the date by-products are produced in traditional manner and mainly limited to the production of date paste, Jam, and date syrup. The introduction of new potential uses of dates and date products is modest, and consequently the utilization of by-products is low in all GCC countries.

Finally, the results of date palm supply chain assessment indicate a lack of an improved and advanced management and lack of knowledge of good agricultural practices applied to palm date farming systems in almost all GCC countries.

5.4 Date value chain development strategy in the GCC countries

5.4.1 Farming practices: farmer education and farming management practices

Improved production and the whole production farming system is an essential part of any successful agribusiness program for the date palm sector in the GCC countries. The main challenges facing the production of date palm mainly relate to the weakness of the productive capacity of small farmers due to the lack of good pollen and low productivity of cultivated varieties compared to other varieties.

The lack and the reduction of the skilled labor for date palm practices affect tremendously the production and the quality of the dates. Therefore, a holistic extension system is more than needed, mainly for the non-commercial farms, to provide training, advices, monitoring, and know-how for the date farming system. Staff should be trained in processing techniques to improve efficiency and quality and to produce on a larger scale. In addition, staff needs to be capacitated in post-processing quality assurance and control, better marketing and accessibility to market and improving quality standards and quality extension certification. In addition, capacity building of extension institutions, including the staff of local extension departments is more than needed. Capacities of such staff need to be built to better (more effectively, larger coverage, more permanent support) support producers and promote good agricultural management, pest and disease management using participatory training approaches (learning by doing and action field schools). This program should provide affordable and simple small-scale tools for the key tasks in this farming system (pollination, irrigation, fertilization, harvest, and post-harvest techniques). Such program could start at small scale level and later extended at large scale.

5.4.2 Variety selection

In the GCC countries, farmers grow more than 600 varieties of dates. Some varieties, given their own special set of characteristics, such as size, shape, color, and skin texture, are well appreciated by the consumers (at the national and international markets). Even if it is considered as an advantage for the date palm growers, in general, this variability creates obstacles in the sector, particularly during the harvest and post-harvest activities. This leads to many problems in

processing and marketing (grading, sorting, quality, etc.) given the non-uniformity of such products. GCC producers are mainly recommended to focus on producing the high added values varieties to meet national and international market demands. In addition, date palm producers are advised to improve the date palm productivity through the cultivation of new higher yielding varieties.

GCC countries should produce the most important and commercial varieties. These as an example include: *Mejdoul* in KSA, *Fard* and *Khalas* in Oman, *Barhi*, *Sukkari*, in Kuwait. Nowadays, international markets are very demanding both for the industrial sectors and for the final users (consumers) such standards and norms. *Mejdoul* is at the top of the list, followed by *Khalas*, *Fard*. Since GCC countries have abundant production of these varieties, an effective effort should be made by all the actors to propagate them within the Gulf region. This effort should mainly focus on the producers as they are the ones who influence the future plantation. The decisions makers are also requested to play a major role in this strategy by providing support and enhancing the propagation of plantation of these varieties. Finally, these varieties, and other potential ones, can be also produced to satisfy the local market needs from these products. This could be enhanced through the facilitation of the establishment, in each country and even at the most regional level, of a national palm plant nursery, a pollen collection center, and a tissue culture laboratory in coordination with the Ministry of Agriculture and research institutions to develop better, shorter and productive varieties. In addition, this laboratory can also be building solid relationships with input/service providers to supply red palm weevil detection devices, to introduce automated pollination mechanisms, and industrial maturation equipment.

5.4.3 Post-harvest handling improvements

The biggest challenge for the date palm sector in the GCC countries is the large volume of dates that arrive at the same time on the market (which is around harvest time), resulting in low prices. Indeed, to have a good and decent market price, the date value chain should be strong. This is possible when the post-harvest handling capabilities: post-harvest handling of fruit is efficient. According to the assessment we made, in the majority of the GCC countries, the post-harvest handling is considered as the weakest node of the date palm value chain where greatest loss occurs.

Post-harvest handling of dates currently in some GCC countries (Oman) is generally very poor. The majority of small scale date farmers are absent and foreigner laborers are managing the farming system. These “new managers” are with minimal education, who must be taught proper post-harvest techniques from beginning to the end. Thus, farmer education to these laborers should be a long-term program requiring constant training, oversight, and compliance. Efforts on monitoring control by the owners, and funding for improving farming methods and equipment and building a processing plant to produce product meeting international standards will prove a major disappointment if owner’s farmer’s monitoring, control and investment in best practices is not seriously and continuously addressed.

This will influence, some posteriori, the date industry that will not move up the value chain if the fruit is not properly handled from harvest to final processing, and consequently there is little that can be done in terms of processing if fruit arrives at the processing plant infested with insects and full of dirt and sand. Such fruit cannot be processed into an added value or commercial product to meet the minimum marketing requirements.

5.4.4 Processing and value added for date products

There is no doubt that value added products for date palm sector is the future of this industry in the GCC. Low quality dates are mostly absorbed by the local

market at very low price for the consumers. There is also the use of the very low quality as feed for the livestock sector. The local markets already absorb all of the low-quality dates at a low price. Therefore, for the high date palm quality, a high quantity of waste is generated at various stages of date fruit value—chain/marketing. This date solid waste could be valorized from different perspectives and for several uses (pharmaceutical industries, confectionaries, handicrafts and furniture, etc.).

These suggested value-added products (date palm by-products such as leaves and wood for furniture and handicrafts, sweet sap, date sugar, date palm-based confectionaries products, etc.) should be produced in modern, efficient processing facilities capable of making a wide variety of industrial grade and retail products demanded by the local and the international markets. This is possible if the facilities are installed close to the production areas, regrouping farmers around agricultural cooperatives, which offer opportunities that date palm small holders could not achieve individually, such as providing good quality of (as fruits and, consequently a strong bargaining power and resource share that leads to win-win situation.

A systemic change that encompass the independence of external inputs, that promote better palm tree management and harvesting, improve storage, processing and packaging and work on creating higher value products for the local and international markets, is encouraged. This systemic change should be started by facilitating the linkages between decision makers (ministries) and research institutions, with producers and other key date palm chain actors, through promoting the use of applied scientific research methods to improve processing quality and develop new processing and storage techniques. There is also a need to build a trustable relationship with input/service providers to introduce new processing and packaging technologies and techniques.

5.4.5 Markets and marketing improvement

5.4.5.1 National markets

Several constraints and challenges are facing the local marketing channels of the date palm fruits. Such challenges are decreasing demand for date fruits, weak post-harvesting transactions, lack of appropriate and attracting boxes, no appropriate existing storage system till the marketing of fruits, lack of by-products markets, use of unimproved technologies for fruit packaging, no linkage between all key processing date palm actors, lack of expertise and technical staff for date palm manufacturing industries, rural-urban migration, urbanization, no feasibility studies regarding the profitability of the manufacturing industries of date palm products, and reluctance of investors to invest in the date palm sector. To overcome these constraints and to improve the marketing at the local level, it is crucial to provide the pertinent, complete and in time marketing information to date palm producers; activate the role of the marketing cooperatives; and development of coordination committees, associations, cooperatives, public and private companies for producers, manufacturers, and exporters of dates to prevent duplication and waste resources. Another strategy could be by including date fruits by the Ministry of Health, Education in the hospital, schools, etc. Furthermore, initiating local consumer's campaign, which will be set up to promote a "buy-local" products, would enhance consumer trust and pertinence in/to local produce. Government institutions, private sector organizations, and the Chamber of Commerce and other stakeholders might be encouraged to launch targeted marketing campaigns linked to new potential consumers/customers [3].

5.4.5.2 International markets

As it was stated above, the international markets are becoming very demanding in terms of standards and norms, mainly for the perishable products such as dates (as fruits) This will be a challenge for local producers to be competitive in the international markets. In 2015, since about 30% was the share of the GCC countries in the international date market, there is a strong potential for dominating the international date market. This is feasible if there is a strong coordination on trade strategies between the GCC countries in terms of providing safe and secure products; adopting standard specifications and norms in the producing countries to reach the world market with distinct varieties reflecting the position of these countries in the production of date fruits; conducting studies to understand the international markets (volume, size, main competitors, marketing strategies, etc.), their needs, laws, regulations, and providing the information on the national key actors (producers, manufacturers, exporters, etc.), supporting and encouraging the participation of producing companies in the international trade fairs and with supporting exports policies, and finally conducting campaign on advertising and promotion of dates and its nutritional and healthy benefits through international meetings, conferences, festivals, and Attaché offices.

6. Concluding remarks, policy implications, and recommendations

This study analyzed the value chain of date palm fruit in the GCC Countries. The value chain development, sustainability and competitiveness are very crucial issues facing the agribusiness sector of the GCC economy, particularly for the small holder's growers. The GCC agribusiness is been noted for the sale of raw agricultural products palm fruits is one of the major cash crops in the majority of these countries. Dates could provide a greater contribution to the GCC economy if producers paid more attention to its production and marketing. Date palm production is no longer a way of life but nowadays is considered as an investment option and source of revenues for many stakeholders.

The assessment of the supply date palm value chain in the GCC countries suggests the following:

- Reduction in the consumption of dates.
- Decreasing trends on the exports of fresh dates.
- A low consumption level for the industrial dates.
- An important level on dates used for animal feeding.
- A low level of utilization of date by-products.

Moreover, several constraints and challenges affecting the date palm value chain in the GCC including are revealed and are summarized as follows:

- Low quality varieties, low product quality, low exported quantity, and consequently low returns.
- Poor farming management (Inefficient use of date products and by-products).

- Pests and diseases and inadequate integrated pest management (IPM) control.
- Harvesting, processing and marketing.
- High post-harvest losses.
- Lack of efficient processing system (storage, transportation, etc.).
- Inefficient use of dates products and by-products.
- Low exported quantity and low competitiveness of processed date palm products on the international markets.
- Shortage in national qualified and trained staff & labors.
- Insufficient research and development activities in the date palm sector.

Therefore, to enhance the growth of the date palm value chain in the GCC countries, three development strategies are to be considered towards a dynamic and systemic change:

- Supply chain development and management
 - Improving date palm farming practices and initiation of better post-harvest handling procedures;
 - Processing and production of value-added products by focusing on added value varieties;
 - Export premium date products with consistency in supply of high-quality varieties.
- Market and marketing development
 - Establishing a basic data on the local and export date marketing sector;
 - Improve the efficiency of the marketing process to guarantee good prices to the farmers and to decrease the final market prices by limiting the number of intermediate operators;
 - Producing in-demand products at competitive prices;
 - A Pre-harvest Best Management Practices (BMPs) will certainly ensure that the quality standards for export are met.
- Agri-business development
 - Introducing of new potential uses of dates and date products in the pharmaceutical industries, confectionaries, agro-food industries, handcrafts and furniture,
 - Support the investment for the Small Business Enterprises (SBE's);

- Promoting the use of applied scientific research methods to improve processing quality and develop new processing and storage techniques.

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