

Challenges for *Citrus* Production in Egypt

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Citrus is considered as the major fruit crops in Egypt, due to cultivated area reached to (204095 Hectare) representing about 29% of the total fruit area (700854 ha), the total fruitful area of *Citrus* reached about (175734 ha) approximately, which produce about 4272886 metric tons, from which around 1.34 million tons are exported according to Ministry of Agriculture (2016), Egypt ranking as the sixth biggest producer of orange throughout the world after Brazil, China, US, EU, and Mexico [1].

There are different challenges of *citrus* production in Egypt as follow:

Internal challenges

- Low productivity average in some areas to minimum quantity especially in old orchards in the delta region, this reduce total production from *citrus* fruit, the mean average of *citrus* production in Egypt about 24.31 t/ha [2].
- Many orchards very old and need replacement (there are different *citrus* orchards in Delta and old valley that trees grown for about 50years, while, productivity starts to decline after about 25 years.
- Malnutrition in some areas like delta and old valley due to increasing fertilizers price.
- Weak processing capacity of *citrus* in Egypt.
- Increase salinity in well water in the newly reclaimed areas.

International challenges

The major challenges for *citrus* production and exporting are:

- Transportation costs: due to the short distance between competitors and the destination markets, is its geographic proximity which means lesser transportation charges and shipping time).
- Seasonality of production: Egyptian Valencia oranges are started to be harvested at the end of January, however

other producers like South Africa's had competitive advantage relies on the different production season (July-September) for its Valencia oranges.

- The increase in the production requirements (equipment, Fertilizers, and other ingredients) costs which will affect the crop prices in the next years.

Major *Citrus* varieties

The major *citrus* varieties in Egypt include oranges like (Washington Navel, Valencia, Baladi, Blood, and Khalily), Tangerines (Satsuma, Mediterranean, Clementine, Ponkan, Kishu, Dancy, Clementine, Nour, Fedela, Fina, and Spinosa), Grapefruit, lemon, and lime.

There is increasing demand for Egyptian *citrus* in the last decade in the local and international markets. Therefore, Egyptian growers are encouraged to cultivate *citrus* varieties, especially oranges instead of other crops, since 2006 (around 50% increases) due to the extension in the newly reclaimed desert areas.

Oranges are the largest species cultivated from *citrus* varieties, the farmers prefer to grow oranges over other fruit due to their high export demand and value. the area cultivated with oranges increased by 41 percent to reach 146,950 ha in 2016/17 season versus 104,383 ha in 2006/07, Oranges are grown in almost all of Egypt's governorates; of all the orange varieties, navel oranges are the predominant variety, representing 60 percent of all orange production, followed by Valencia orange. The delta region considered the main producing areas for W. navel orange [3], however, Valencia orange grow in Nubaria and Salhia regions as a main appropriate variety in this regions. The export season of *citrus* starts from the middle of November and may extends to late August, Washington Navel and Valencia orange are the major varieties which comprise around 94% from the Egyptian citrus exported varieties, however, other varieties like tangerines and grapefruit are also exported.

No.	Season	Quantity (thousand tonnes)
1	2012/2013	1173.633
2	2013/2014	1143.042
3	2014/2015	1243.986
4	2015/2016	1344.486
5	2016/2017	1400.705

Table 1: Egyptian citrus export during last five years.

Modified from (GAPQ) [4].

Implementation citrus productivity in Egypt

Citrus orchard need more attention and understanding physiology of *citrus* tree during different growth stages to implement and increasing productivity, this could be through various ways:

1. Replacement and renovation of old orchards and low productivity one.
2. Change the method of irrigation in Delta and old valley to micro irrigation system like drip or bubbler irrigation systems.
3. Using free virus seedling for establishing new orchards.
4. The proper nutrient management program is essential to enhance productivity.
5. Following integrated management crop system to improve the quality of *citrus* products.
6. Raising the quality of the fruits to be able to export for various markets.
7. Increase in the processing capacity of *citrus* fruits [5].

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