

Some Economic Aspects of Egyptian Foreign Agricultural Trade of Grape Crop

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ABSTRACT

The grape crop is considered one of the main fruit crops in Egypt, which is grown for local production and export. Its fruitful area amounted to about 133.81 thousand feddan (Feddan = 0.42 hectare), representing about 9.28% of the total fruitful area of about 1.44 million feddan, and the production reached about 1.30 million tons, which represents about 11.22% of the total fruit production amounting to about 11.59 million tons, and Egypt produces the equivalent of 6.49% of the total world production of grapes, and the value of Egypt's grape exports amounted to about \$ 131.07 million, which represents about 2.91% of the value of global production of grapes, which is about \$ 10894.6 million in 2020. The research aims to identify the current production situation of the Egyptian grape crop, as ...well as to identify the current situation of exports of the Egyptian grape crop, in addition to measuring the export performance indicators of it, and to identify the importance of this crop as one of the productive and export crops, in addition to the possibility of developing or increasing exports. The research relied on the two methods of descriptive and quantitative analysis, using some indicators (market share, apparent comparative advantage, instability coefficient, market penetration coefficient), we find that the competitive advantage index has exceeded the one during the period (2000-2020), Which indicates the importance of this export crop. It was found from the results: that the annual growth rate in each of the total production and consumption, the quantity and price of export, and the value of exports of the Egyptian grape crop reached about 1.90%, 1.50%, 15.70%, 10.06%,

and 20.30%, respectively during the period (2000-2020), and by studying the export performance indicators of the Egyptian grape crop using the competitive advantage index, we find that it has exceeded the one during the previous period, which indicates the importance of this crop as an important export crop. These countries are (Italy, South Africa, Turkey, Spain, Greece, Syria, Lebanon, Morocco, Israel, Tunisia) with rates of about (36.35%, 21.41%, 20.41%, 9.96%, 5.63%, 2.81%, 1.68%, 0.97%, 0.63% and 0.09%), respectively, during the same previous period. And by studying the most important world markets of the Egyptian grape exports were Netherlands, Germany, Belgium, Saudi Arabia, and other countries which amounting to about 15.02%, 11.77%, 3.64%, 1.90%, 41.16% respectively, during the same previous period. and by studying the market penetration coefficient for Egyptian grape exports during the average period (2000-2020), it was found that the most important of these countries are Netherlands, Belgium, Saudi Arabia, United Kingdom, Germany with rates of about 0.47%, 0.43%, 0.42%, 0.40%, 0.37%, meaning that each country obtains the previous percentage of its needs from the Egyptian grape crop, respectively, during the average of the previous period, and it is clear that the market penetration rate of the Dutch market has increased as an average for the previous period. And by studying the instability coefficient for the quantity of production, the quantity of exports, and the price and value of exports of the Egyptian grape crop, we find that the quantity of production and the quantity of exports were more stable than the price, while the value was the most volatile during the same previous period. By studying the market share of Egyptian grape exports to the most important importing countries (United Kingdom, Germany, Netherlands, Belgium, Saudi Arabia), it is clear that these percentages decreased during the study period between Egypt and those countries, as they reached about (5.94%, 1.69%, 3.23%, 3%, 2.07% and 2.75%, respectively, during the study period. In light of reviewing the various results of the study, a set of recommendations can be put forward that may benefit the makers of agricultural policy and internal or external marketing of Egyptian grapes to increase its production and exports to various global markets.

Keywords: Egyptian grape exports - Price exports - Competitiveness - World markets

INTRODUCTION

The grape crop is one of the important fruit crops that are grown for local production and export to increase the state's foreign currency earnings and to compensate for the deficit in the Egyptian trade balance. Therefore, exports are receiving great and growing attention from the state, so that they have become a priority for decision-makers in recent times. The development of Egyptian agricultural exports is closely linked to global events and changes. Therefore, there is a great and growing interest in creating a better export climate that is appropriate to the current global changes and events, especially after the Russian-Ukrainian war. This contributes to increasing the ability of these exports to access foreign markets, by increasing their competitiveness. In order to reduce the deficit in the overall trade balance, which amounted to about 26.83 billion dollars. The deficit in the agricultural balance amounted to about \$ 6.89 billion in 2020, and the fruitful area of the grape crop amounted to about 133.81 thousand feddan, representing about 9.28% of the total fruitful area of fruit, which is about 1.44 million feddan, and the production reached about 1.30 million tons, representing about 11.22%. of the total fruit production, Egypt produces the equivalent of 6.49% of the total global production of grapes, and the value of Egypt's grape exports amounted to about \$131.07 million, which

represents about 2.91% of the value of global exports of grapes, amounting to about \$10894.6 million during 2020. The grape crop is one of the main fruit crops in Egypt, with a high nutritional value because its fruits contain a high percentage of water and easily absorbable glucose sugar, in addition to vitamins, mineral salts and organic acids. Grapes also have an economic importance in exploiting lands that are not suitable for growing other fruit trees, such as sandy lands and lands are of little fertility.

RESEAECH PROBLEM

Due to the increasing interest in exporting because it is one of the most important sources of obtaining foreign currency, and one of the sources of national income, so the agricultural sector is interested in raising the value of its exports of grapes, as one of the most important agricultural exports with the suffering of export in the recent period and with the high growth rate of agricultural imports, by the growth rate of agricultural exports, which led to a deficit in the trade balance amounting to about \$ 26.83 billion in 2020, in addition to the presence of competing countries in the export of grapes, which negatively affects both the Egyptian producer and exporter, thus affecting the quantity and value of Egyptian exports from this crop in the world market.

RESEARCH OBJECTIVES

The research aims to develop Egyptian exports of grapes by increasing their competitiveness in international markets, and assisting export policy makers in the possibility of increasing the number of exports of grapes. To achieve the main objective, the following sub-objectives are required:

1. Studying the current situation of foreign trade for the Egyptian grape crop.
2. Studying the geographical distribution of Egyptian grape exports and identification of the most important importing countries.
3. Standing on the most important indicators of the external marketing efficiency of the Egyptian grape crop during the period (2000-2020) and measuring its competitive position in the world markets, and measuring the competitiveness of Egyptian grape exports in foreign markets, in an attempt to identify the most important obstacles that stand in front of increasing the number of Egyptian exports from the grape crop.
4. Reaching a set of recommendations that could benefit the makers of Egyptian economic policy in general and agricultural policy in particular in order to promote this important export crop.

METHODOLOGY

Some indicators of external marketing efficiency of the Egyptian grape crop were used, represented in the price competitive position index, and the coefficient of instability, with the measurement of fulfillment of export operations. The research relied on secondary data issued by various agencies, including the Central Agency for Public Mobilization and Statistics, Center Information for the Ministry of Commerce and Industry, in addition to the United Nations and the World Bank websites on the Internet.

Revealed Comparative Advantage (R.C.A)

This measure gives an approximate picture of the future exports of the country under study, through the share of Egypt's exports of this commodity from the agricultural exports of that commodity to the share of world exports of this commodity out of the total world agricultural

exports. When its value is greater than one, this indicates that the state enjoys an apparent comparative advantage in exporting the commodity. It is calculated from the following equation:

$$R.C.A_{ji} = \frac{X E_{ji} / X E_{a i}}{X E W_{ji} / X E W_{a i}}$$

RCA_{ji}: the apparent comparative advantage of Egypt's exports of commodity j to the world in year i

XE_{ji}: The value of Egyptian exports of commodity j to the world in year i

XE_{ai}: the total value of Egyptian agricultural exports to the world in year i

XEW_{ji}: the value of world exports of commodity j in year i

XEW_{ai}: total value of world agricultural exports in year i

Market Share Index

It is considered one of the most important indicators of competitiveness, as its rise represents one of the main objectives of the foreign sales volume process for any country and expresses the ratio leading to a country's exports of a particular commodity to a specific market to the quantity of this commodity's imports from various countries of the world. The higher the value of this indicator, the greater the market share of the country exporting the commodity in the foreign market and the increase in its ability to compete compared to competing countries. It is calculated by the following equation:

$$M S_{ji} = \frac{X E_{ai}}{X I C_{ji}}$$

M S_j: the market share of Egypt's exports of commodity j in a given market in year i

X E_{cji}: the quantity of a country's exports of commodity j to a specific market in year i

X I_{eji}: the total amount of imported market imports of commodity j from various countries of the world in year i

Market Penetration Index

This indicator is considered one of the important indicators for measuring the competitiveness of any country because it shows the ability of the specific markets to study to absorb imports from a particular country. It is measured from the following equation:

$$M P R_{E e j i} = \frac{X E_{e j i}}{X P C_{j i} + X I C_{j i} - X E C_{j i}}$$

MPRE_{eji}: the penetration rate of Egypt's exports to the market of a certain country of commodity j in year i

XE_{ji}: The total quantity of Egypt's exports of commodity j to a specific country in year i
 XPC_{ji}: the country's total import quantity of commodity j in year i
 XIC_{ji}: the country's total import quantity of commodity j in year i
 XEC_{ji}: the total amount of a country's exports and imports of commodity j in year i

Price Competitiveness Index

This indicator is used to judge the price competitive position of Egypt compared to competing countries for an export commodity. The lower the export price of a country compared to that of other competing countries, this means that there is a price advantage for the exported commodity and a higher competitive ability, and it can be calculated using the following equation:

$$PA_j = \frac{pc}{pe}$$

PA_j: The ratio of the competitive country's price to Egypt's export price for a commodity.
 pc: the export price of the competing country to Egypt for a commodity.

pe: Egypt's export price for the same commodity.

If the value of this indicator is greater than the correct one, this indicates that the country exporting the commodity has a price advantage in exporting that commodity, and vice versa.

The Ability to Meet Export Requirements

The ability to meet export requirements is an important and necessary matter for building trust between importers and exporters, which helps to maintain foreign markets and enter new markets. This indicator was measured using the following equation:

The relative measure of the instability coefficient of the quantity of exports =

$$\frac{\text{Coefficient of instability of the amount of crop exports by competing countries}}{\text{Coefficient of instability of the amount of Egyptian exports of the crop}}$$

Efficient performance of export operations

The efficiency of export operations affects the competitiveness of Egyptian exports in light of the increasing intensity of global competition. It includes the efficiency of operations performance starting from the process of collection, storage, packaging, packaging and shipping to the final consumer, in addition to the specifications required by different markets and adherence to quality standards. This indicator was measured using the following equation:

The value of total exports of a country

$$= \frac{\text{Efficiency performing of export operations}}{\text{The value of the country's gross domestic product}} \times 100$$

According to this indicator, the higher this percentage, the more this indicates an increase in the efficiency of systems, policies, agencies and institutions within the country.

The Standard Estimate of The Competitiveness of The Egyptian Exports of The Grape Crop, Which Is Represented In

Relative price depends on the sensitivity of demand to changes in prices. Countries can gain new markets by reducing export prices for their products. Countries may acquire new markets through export subsidies or customs exemption.

Relative price coefficient = the competitive country's export price of commodity (n) / Egypt's export price of commodity (n)

The Ability to Meet Export Requirements

The ability to meet export requirements is one of the most important things to build confidence between exporters and importers, maintain foreign markets and open new markets.

The relative measure of the instability coefficient of the quantity of exports =

$$\frac{\text{the instability coefficient of the quantity of the competing country's exports of crop (n)}}{\text{the instability coefficient of the quantity of Egypt's exports of the crop (n)}}$$

Efficient performance of export operations: Efficient performance of export operations is concerned with the quality of collection, assembly, storage and shipping operations to the final consumer, in addition to the specifications in global markets and quality specifications, in light of the current global conglomerates.

Efficiency coefficient of performance of export operations =

$$\frac{\text{the value of the country's total exports}}{\text{the value of the country's GDP}}$$

Ratio of the exported quantity =

$$\frac{\text{the quantity of the crop exported by the competing country}}{\text{the quantity of the crop Egypt exports}}$$

A multiple model can be made using the linear and logarithmic double image in which the dependent factor is (Y) the proportion of the exported quantity, (X₁) the relative price, (X₂) the ability to meet export requirements, (X₃) the efficiency of export operations performance.

RESULT AND DISSCUSION

First - Development of Some Economic Indicators of The Egyptian Grape Crop During the Period (2000-2020)

The Total Production of Egyptian Grapes:

It is clear from data of Table No. (1), which deals with the total production of Egyptian grapes, as the average for the period (2000-2020) amounted to about 1414.27 thousand tons, with a minimum of about 1073.82 thousand tons in 2002 and a maximum of about 1734.42 thousand tons. in 2017, with a standard deviation of about 207.09 thousand tons, with a coefficient of variation of about 14.64%, as shown in Figure No. (1), and through the general trend equation of development of the total Egyptian grape production during the same period as in Table No. (2) Equation No. (1) which shows that it took a general upward trend statistically significant at the usual significant levels, with a growth rate annual amounted to about 1.90%, and the value of (F) was about 27.84, which is greater than its tabular counterpart at a significant level of 1%, and the value of the determination coefficient (R^2) was about 0.59, which means that about 59% from changes in the amount of grape production are due to factors its effects reflect the time variable.

Total Consumption of Egyptian Grapes:

It is clear from data of Table No. (1), which deals with the total consumption of Egyptian grapes, as the average for the period (2000-2020) amounted to about 1353.74 thousand tons, with a minimum of about 1067.83 thousand tons in 2002 and a maximum of about 1668.50 thousand tons. in 2017, with a standard deviation of about 182.42 thousand tons, with a coefficient of variation of about 13.47%, as shown in Figure No. (1). Equation No. (2) showed that it took a general upward and statistically significant trend at the usual levels of significance, with an annual growth rate of about 1.50%, and the value of (F) is about 18.14, which is greater than its tabular at a significant level of 1%, and the value of the determination coefficient (R^2) was about 0.49, which means that about 49% of the changes in the total consumption of Egyptian grapes are due to factors whose effects reflect the time variable.

Egyptian Grape Exports:

It is clear from data of Table No. (1) that deals with Egyptian grape exports, as the average for the period (2000-2020) amounted to about 60.53 thousand tons, with a minimum of about 2.87 thousand tons in 2000 and a maximum of about 131.09 thousand tons in 2018, with a standard deviation of about 44.39 thousand tons, with a difference coefficient about 37.79%, as shown in Figure (1). Equation No. (3) shows that it took a general upward and statistically significant trend at the usual levels of significance, with an annual growth rate of about 15.70%, and the value of (F) is about 40.34, which is significant at 1%, and the value of the determination coefficient (R^2) was about 0.68, which means that about 68% of changes in the quantity of grape exports are due to factors whose effects reflect the time variable.

Table (1) – Development of economic indicators for Egyptian grape cropm during the period (2000-2020)

Year	Production (10 ³ ton)	Consumption (10 ³ ton)	Exports (10 ³ ton)	Price exports (\$/ton)	Exports value (\$/10 ⁶)	% from production
2000	1075.10	1072.23	2.87	414.71	1.19	0.27
2001	1078.91	1074.36	4.55	283.03	1.29	0.42
2002	1073.82	1067.83	5.99	317.25	1.90	0.56
2003	1196.85	1189.43	7.42	395.91	2.94	0.62
2004	1275.29	1260.87	14.42	760.31	10.96	1.13
2005	1391.75	1367.15	24.60	685.08	16.85	1.77
2006	1431.97	1404.16	27.81	785.11	21.83	1.94
2007	1485.01	1431.31	53.70	1109.45	59.58	3.62
2008	1531.42	1490.67	40.75	811.03	33.05	2.66
2009	1370.24	1323.02	47.22	1662.34	78.50	3.45
2010	1360.22	1276.35	83.87	2409.00	202.04	6.17
2011	1320.80	1189.71	131.09	2278.31	298.66	9.93
2012	1378.82	1262.77	116.05	1934.18	224.46	8.42
2013	1434.67	1346.53	88.14	2080.61	183.38	6.14
2014	1596.17	1482.69	113.48	2160.29	245.15	7.11
2015	1686.71	1556.61	130.10	2095.74	272.66	7.71
2016	1691.19	1632.99	58.20	1880.90	109.47	3.44
2017	1734.42	1668.50	65.92	2070.08	136.46	3.80
2018	1718.76	1587.67	131.09	2305.49	302.23	7.63
2019	1562.10	1496.44	65.66	2198.55	144.36	4.20
2020	1305.56	1247.36	58.20	2252.02	131.07	4.46
Average ^l	1414.27*	1353.74*	60.53*	1460.51*	118.00*	2.75**
Upper lim.	1734.42	1668.50	131.09	2409.00	302.23	9.93
^l Lower lim.	1073.82	1067.83	2.87	283.03	1.190	0.27
^l Standard Dev.	207.09	182.42	44.39	792.33	106.71	2.92
Variation Coef.	14.64	13.47	37.79	54.25	90.43	106.18

*: Calculating average **: Geometric average

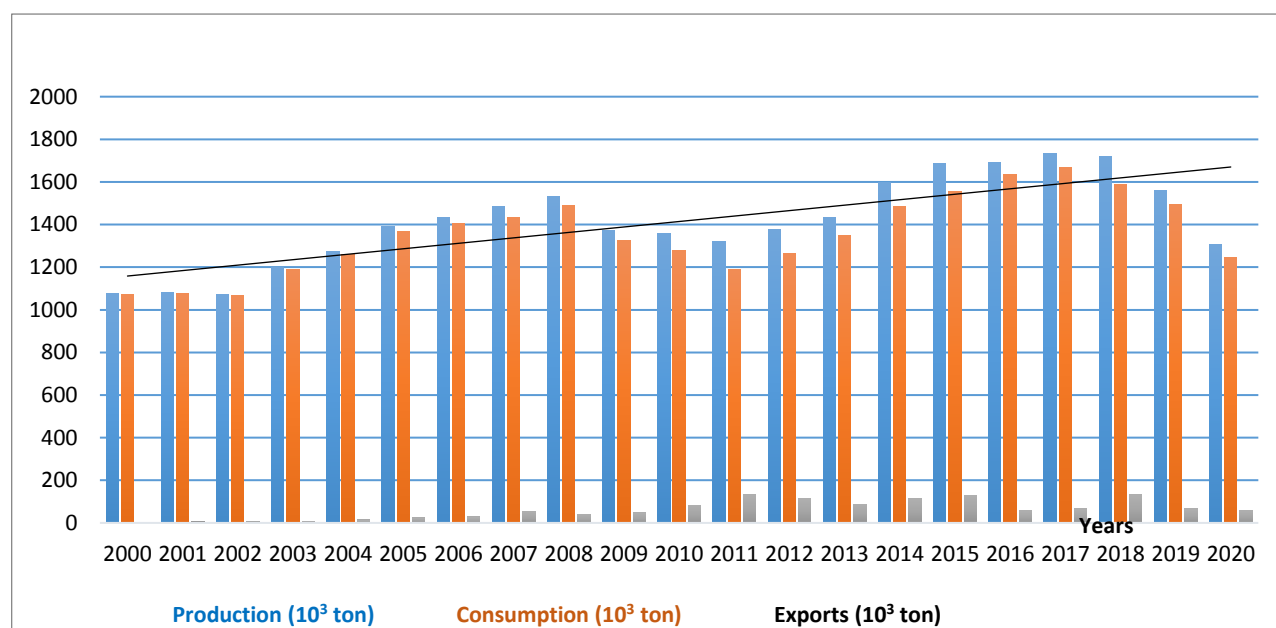
Source: Collected and calculated from data of the Ministry of Agriculture and Land Reclamation - Economic Affairs Sector - Central Administration of Agricultural Economy - Bulletin of Agricultural Crops Statistics - various issues.

Table (2) – Development of production capacity of Egyptian grape crop during the period (2000-2020)

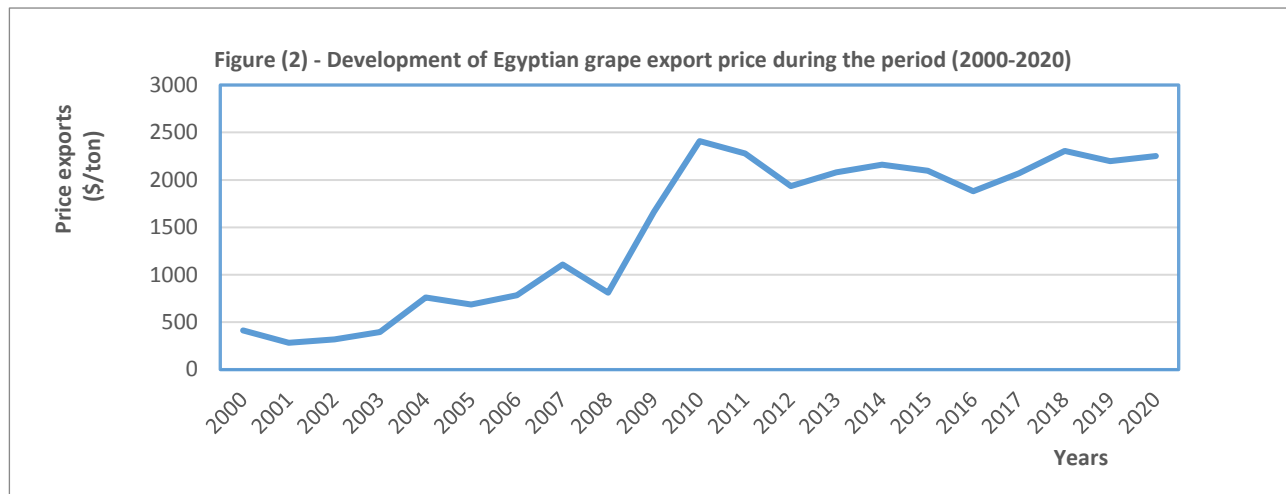
Depend variable	No.	Model	R ²	F	Average	Growth rate %
Production (10 ³ ton)	1	$\hat{y} = e^{-30.27 + 0.019t}$ (-4.26)* (5.77)*	0.59	27.84*	1414.27	1.90
Consumption (10 ³ ton)	2	$\hat{y} = e^{-23.89 + 0.015t}$ (-3.29)* (4.26)*	0.49	18.14*	1353.74	1.50
Exports (10 ³ ton)	3	$\hat{y} = e^{-312.26 + 0.157t}$ (-6.28)* (6.36)*	0.68	40.34*	60.53	15.70
Price exports (\$/ton)	4	$\hat{y} = e^{-206.54 + 0.106t}$ (-8.26)* (8.55)*	0.79	73.15*	1460.51	10.06
Exports value (\$10 ⁶)	5	$\hat{y} = e^{-525.66 + 0.203t}$ (-7.38)* (7.41)*	0.74	54.99*	118.00	20.30

Source: Calculated from table (1).

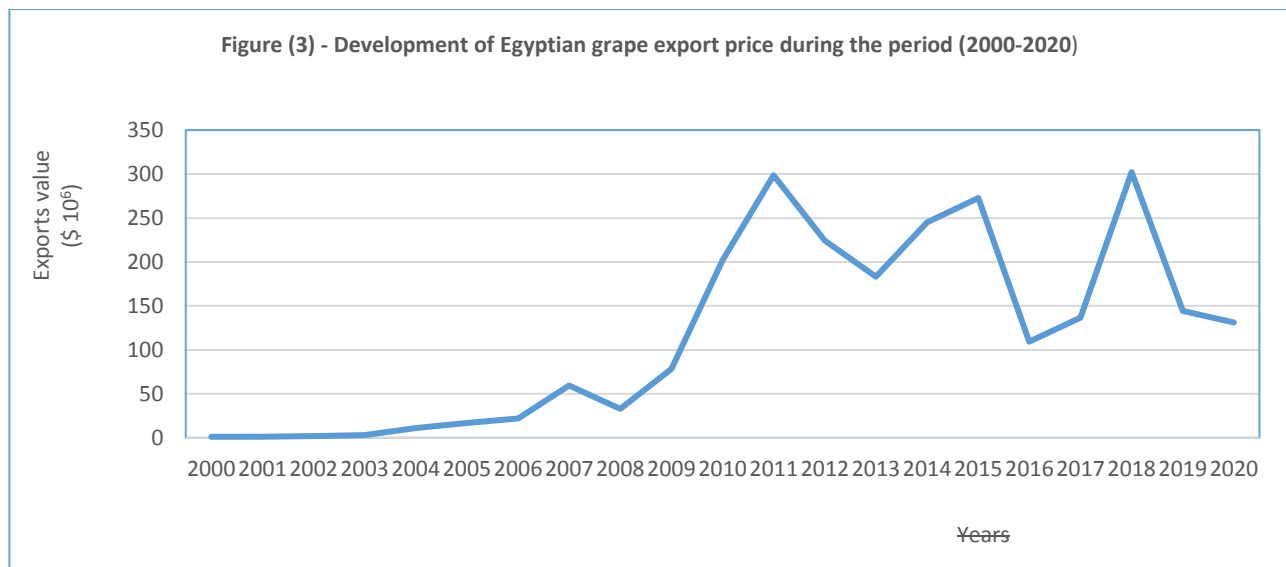
*: Significant at 1% level.



Source: table (1).



Source: table (1).



Source: table (1).

Figure (1) - Development of production and consumption capacity and exports from Egyptian grape crop (10³ ton) during the period (2000-2020)

Egyptian Grape Exports:

It is clear from data of Table No. (1) that deals with the price of Egyptian grape exports, as the average for the period (2000-2020) amounted to about 1460.51 dollars / ton, with a minimum of about 283.03 dollars / ton in 2001 and a maximum of about \$2409/ton in 2010, with a standard deviation of about \$ 792.33/ton, with a difference coefficient of about 54.25%, as shown in Figure No. (2), and through the equation of the general time trend of development of the price of grape exports during the same period as in Table No. (2), Equation No. (3). It was found that it took a general upward trend, with an annual growth rate of about 10.10%, and the value of (F) reached about 73.15, which is significant at the level of 1%, and the value of determination coefficient (R^2) reached about 0.79, which means that about 79% of changes in the price of grape exports are due to factors whose effects reflect time variable.

The Value Of Egyptian Grape Exports:

It is clear from data of Table No. (1), which deals with the value of Egyptian grape exports, as the average for the period (2000-2020) amounted to about \$118 million, with a minimum of about \$1.19 million in 2000 and a maximum of about 302.23 million dollars. in 2018, with a standard deviation of about \$106.71 million, with difference coefficient of about 90.43%, as shown in Figure No. (3), and through the equation of the general time trend of development of the value of grape exports during the same period as in Table No. (2) Equation No. (5). It was found that it took a general upward and statistically significant trend at the usual levels of significance, with an annual growth rate of about 20.30%, and the value of (F) was about 54.99, which is significant at the level of 1%, and the value of determination coefficient (R^2) was about 0.74, which means that about 74% of the changes in the value of grape exports are due to factors whose effects reflect the time variable.

Second - Indicators of agricultural foreign trade of the Egyptian grape crop during the period (2000-2020)

Relative Importance of Egyptian Grape Exports from The Total Domestic Production:

It is clear from data of Table No. (1) that deals with the percentage of grape exports from the total production, as the average for the period (2000-2020) amounted to about 2.75% of grape production, with a minimum of about 0.27% in 2000 and a maximum It reached about 9.93% in 2011, with a standard deviation of about 2.92%, with variation coefficient of about 106.18%.

The Most Important Countries Exporting Grapes at The World Level:

Data of Table No. (3) indicates that the most important countries exporting grapes at the world level during the average period (2000-2020), as the total amount of world exports of grapes reached about 1227.35 thousand tons, with a total value of \$1735.72 million, at an average price of \$1414/ton. Italy acquired the largest share in the world at about 446.17 thousand tons, representing about 36.35% of the total amount of world exports of grapes, with a value of about \$ 675.45 million, and a relative importance of about 39.91% of the total value of world exports of grapes, at an average price of \$ 1514/ton during the average of the previous period, while South Africa ranked second in the world with about 262.94 thousand tons, representing about 21.41% of the total amount of world exports of grapes, with a value representing about \$ 417.43 million, and with relative importance representing about 24.05% of the total value of world exports of grapes, with an average price and \$ 1588 / ton during the average of the previous period. While Turkey ranked third in the world with about 250.46 thousand tons, representing about 20.41% of the total amount of global exports of grapes, with a value representing about \$ 216.35 million, and a relative importance representing about 12.45% of the total value of global exports of grapes, with an average price of \$ 864 /ton during the previous period average. Spain ranked fourth in the world with about 122.26 thousand tons, representing about 9.96% of the total amount of world exports of grapes, with a value representing about \$ 246.35 million, and with relative importance representing about 14.19% of the total value of world exports of grapes, with an average price of \$ 2015 / ton during the average of the previous period, while Greece ranked fifth in the world with about 69.06 thousand tons, representing about 5.63% of the total amount of world exports of grapes, with a value of about \$ 113.46 million, and a relative importance of about % 6.45 of the total value of global exports of grapes, at an average price of \$1643/ton during the previous period average.

Table (3) - The most important competitive countries in exporting grapes to world markets during the average period (2000-2020)

Country	Export quantity (106 ton)	%	Price exports (\$/ton)	%	Price exports (\$/ton)
Italy	446.17	36.35	675.45	39.91	1514
South Africa	262.94	21.41	417.43	24.05	1588
Turkey	250.46	20.41	216.35	12.45	864
Spain	122.26	9.96	246.35	14.19	2015
Greece	69.06	5.63	113.46	6.45	1643
Syria	34.47	2.81	30.62	1.76	888
Lebanon	20.64	1.68	4.59	0.26	222
Morocco	11.87	0.97	16.59	0.96	1398
Israel	8.40	0.63	13.72	0.79	1633
Tunisia	1.10	0.09	1.16	0.07	1055
Total	1227.35	100	1735.72	100	1414

Source: Compiled and calculated from the United Nations - Commodity Trade Statistics website <https://www.comtrade.org>.

While Syria ranked sixth in the world with about 34.47 thousand tons, representing about 2.81% of the total amount of global exports of grapes, with a value representing about \$ 30.62 million, and a relative importance representing about 1.76% of the total value of world exports of grapes, with an average price of \$ 888/ton during the average of the previous period, while Lebanon ranked seventh in the world with about 20.64 thousand tons, representing about 1.68% of the total amount of world exports of grapes, with a value representing about \$ 4.59 million, and a relative importance of about % 0.26 of the total value of global exports of grapes, at an average price of \$ 222 / ton during the average of the previous period. While Morocco ranked eighth in the world with about 11.87 thousand tons, representing about 0.97% of the total amount of world exports of grapes, with a value representing about \$ 16.59 million, and with relative importance representing about 0.96% of the total value of world exports of grapes, with an average price of \$ 1398/ton during the average of the previous period, while Israel ranked ninth in the world with about 8.40 thousand tons, representing about 0.63% of the total amount of world exports of grapes, with a value of about \$ 13.72 million, and a relative importance of about 0.79% of the total value of global exports of grapes, at an average price of \$ 1633/ton during the average of the previous period, while Tunisia ranked tenth and last in the world with about 1.10 thousand tons, representing about 0.09% of the total amount of world exports of grapes, with a value representing about \$1.16 million, and a relative importance representing about 0.07% of the total value of world exports of grapes, with an average price of \$ 1055/ton during the previous period average.

The Most Important Importing Countries of Egyptian Grapes at The World Level:

Data of Table No. (4) indicates the most important importing countries of Egyptian grapes at the world level during the average period (2000-2020), where the total amount of Egyptian exports of grapes to the most important of these countries reached about 65.92 thousand tons, with a total value of \$ 131.50 million, at an average price of \$ 1995 / ton, the United Kingdom acquired the largest share in the world by about 17.48 thousand tons, representing about 26.52% of the total amount of Egyptian exports of grapes worldwide, with a value representing about \$ 45. 43 million, with a relative importance representing about 34.55% of the total value

of Egyptian exports of grapes, at an average price of \$ 2599 / ton during the average of the previous period. While the Netherlands ranked second in the world with about 9.90 thousand tons, representing about 15.02% of the total amount of Egyptian exports of grapes worldwide, with a value representing about \$ 21.90 million, and a relative importance representing about 16.65% of the total value of Egyptian exports of grapes, at an average price of \$ 2212/ton during the previous period average.

Table (4) - The most important importing countries of Egyptian grapes at the world level during the period (2000-2020)

Country	Import quantity (106 ton)	%	Imports value (\$/ton)	%	Price exports (\$/ton)
United kingdom	17.48	26.52	45.43	34.55	2599
Holland	9.90	15.02	21.90	16.65	2212
Germany	7.76	11.77	21.12	16.06	2722
Belgium	2.40	3.64	6.02	4.58	2508
Saudi Arabia	1.25	1.90	3.36	2.56	2688
other	27.13	41.16	33.67	25.60	1241
Total	65.92	100.00	131.50	100.00	1995

Source: Compiled and calculated from the United Nations-Commodity Trade Statistics website <https://www.comtrade.org>.

As for Germany, it ranked third in the world with about 7.76 thousand tons, representing about 11.77% of the total amount of Egyptian exports of grapes worldwide, with a value representing about \$ 21.12 million, and a relative importance representing about 16.06% of the total value of Egyptian exports of grapes, with an average price of \$ 2722/ton during the average of the previous period, while Belgium ranked fourth in the world with about 2.40 thousand tons, representing about 3.64% of the total amount of Egyptian exports of grapes worldwide, with a value representing about \$ 6.02 million, with relative importance representing about 4.58% of the total value of Egyptian exports of grapes, at an average price of \$ 2508/ton during the average of the previous period, while Saudi Arabia ranked fifth in the world with about 1.25 thousand tons, representing about 1.90% of the total amount of Egyptian exports of grapes worldwide, with a value representing about \$ 3.36 million, and a relative importance representing about 2.56% of the total value of Egyptian exports of grapes, with an average price of \$ 2688/ton during the average of the previous period, while other countries of the world came with about 27.13 thousand tons, representing about 41.16% of the total quantity of Egyptian exports of grapes worldwide, with a value representing about \$ 33.67 million, and of relative importance. It represents about 25.60% of the total value of Egyptian exports of grapes, at an average price \$ 1241/ton during the average of the previous period.

Third - Indicators of The Competitiveness of The Egyptian Grape Crop During the Period (2000-2020)

Market Share:

The market share of Egyptian grape exports to the most important world markets was estimated to identify the extent to which Egyptian grape exports are able to penetrate into these markets, cover the requirements of those markets, and the possibility of increasing export

efforts to those markets, and increasing their market share. Table No. (5), show the market share of Egyptian grape exports to the most important countries during the period (2000-2020), where it was found that the market share reached its highest level in the United Kingdom, reaching about 5.94% of the average total imports of the United Kingdom during the study period. In second place was the Netherlands market, which amounted to about 3.23% for the same previous period. As for the Saudi market, it comes in third place, with an estimated share of that market of Egyptian grapes at about 2.75%, while the Belgian market comes in fourth place with about 2.07% of its total imports of Egyptian grapes, while the German market comes in fifth place with about 1.69% of its total imports of grapes. Egyptian grapes during the same previous period.

Table (5) - Market share index for the most important importing countries of Egyptian grapes during the period (2000-2020)

Years	United Kingdom	Germany	Holland	Belgium	Saudi Arabia
2000	1.12	0.02	0.59	0.75	0.38
2001	1.67	0.15	0.96	0.77	0.62
2002	2.66	0.37	1.60	1.34	1.15
2003	1.99	0.35	1.05	2.65	0.31
2004	3.58	0.55	2.32	3.37	2.62
2005	5.05	0.66	3.48	3.23	1.15
2006	5.85	1.23	3.02	3.75	1.78
2007	7.24	2.09	2.83	3.55	1.67
2008	6.72	3.14	3.96	3.05	0.78
2009	8.38	3.61	5.25	3.65	2.05
2010	7.68	4.29	3.73	0.90	3.32
2011	8.10	4.29	3.85	1.84	2.81
2012	9.41	4.17	4.26	1.14	4.28
2013	7.73	3.36	4.12	0.60	5.07
2014	8.10	3.97	5.31	0.92	11.87
2015	7.39	3.41	5.48	3.49	8.98
2016	10.19	4.77	5.25	2.73	7.63
2017	10.59	5.08	5.41	2.66	8.37
2018	10.95	5.37	5.55	2.53	9.16
2019	11.32	5.63	5.67	2.42	10.02
2020	11.47	5.89	5.68	2.36	10.78
Average	5.94	1.69	3.23	2.07	2.75

Source: Compiled and calculated from the United Nations - Commodity Trade Statistics website <https://www.comtrade.org>.

Market Penetration Rate for The Egyptian Grape Crop:

The market penetration rate for a commodity is one of the most important and most used measures to measure the competitiveness of any country in exporting these commodities, because it represents a measure of the extent to which world markets absorb the exported commodity under study, which also shows the extent of its potential increasing exports of that commodity in these markets, and then contributes to the development of policies for the external marketing of the commodity in each world market, that is, it measures the market's ability to absorb additional quantities of the exported commodity under study, and the value of

this indicator ranges between zero and one, and therefore the higher the value result this indicates the expansion of the market and its ease of entry as a result of its dependence on imports to a large extent in the expansion of domestic demand, and vice versa.

Table (6) - Penetration coefficient, the most important countries importing grapes during the average period 2000-2020)

Years	Holland	Belgium	Saudi Arabia	United Kingdom	Germany
2000	0.27	0.07	0.07	0.61	0.10
2001	0.68	0.77	0.37	0.33	0.01
2002	0.58	0.48	0.59	0.49	0.11
2003	0.13	0.69	0.54	0.54	0.03
2004	0.51	0.08	0.03	0.03	0.02
2005	0.50	0.56	0.65	0.67	0.05
2006	0.87	0.60	0.50	0.22	0.01
2007	0.70	0.31	0.31	0.49	0.16
2008	0.37	0.28	0.12	0.37	0.47
2009	0.42	0.85	0.35	0.35	0.74
2010	0.42	0.43	0.56	0.55	0.54
2011	0.30	0.12	0.66	0.46	0.64
2012	0.61	0.58	0.50	0.02	0.41
2013	0.15	0.29	0.60	0.15	0.54
2014	0.81	0.50	0.37	0.37	0.55
2015	0.35	0.35	0.35	0.35	0.74
2016	0.55	0.12	0.52	0.37	0.63
2017	0.17	0.23	0.50	0.60	0.61
2018	0.60	0.76	0.44	0.57	0.73
2019	0.32	0.24	0.56	0.55	0.56
2020	0.26	0.74	0.13	0.34	0.02
Average¹	0.47	0.43	0.42	0.40	0.37
Upper lim.	0.87	0.85	0.66	0.67	0.74
Lower lim.	0.13	0.07	0.03	0.02	0.01

Source: Compiled and calculated from the United Nations - Commodity Trade Statistics website <https://www.comtrade.org>.

Data of Table No. (6) refer to the penetration coefficient of Egyptian grape exports to the most important imported markets during the period (2000-2020), where the Netherlands market took the lead compared to the rest of the other import markets, as its minimum level reached about 0.13% in 2003, and its maximum amount reached about 0.87% in 2006, with an annual average of about 0.47. This value means that Egyptian grape exports to the Netherlands represent about 0.47% of the total amount of grape consumption in the Netherlands. This shows the high average value of the penetration coefficient of Egyptian grapes to the Netherlands, which indicates that this market can accommodate a larger quantity of Egyptian grape exports. The Belgian market also ranked second, as it ranged between a minimum of about 0.07 in 2000, and a maximum of about 0.85 in 2009, with an annual average of about 0.43. This value means that Egyptian grape exports to Belgium represent about 0.43% of the total. The amount of grape consumption in the Belgium market, and this also explains the high average value of the penetration coefficient of Egyptian grapes into the Belgian market. In third

place, the Saudi market came, as it ranged between a minimum of about 0.03 in 2004, and a maximum of about 0.66 in 2011, with an annual average. It amounted to about 0.42, and this value means that Egyptian grape exports to the Saudi market represent about 0.42% of the total amount of grape consumption in the Saudi market, and this also explains the high average value of the penetration coefficient of Egyptian grapes into the Saudi market.

As for the fourth place, the UK market came, as it ranged between a minimum of about 0.02 in 2012, and a maximum of about 0.67 in 2005, with an annual average of about 0.40. This value means that Egyptian grape exports to the UK market represent about 0.40% of the total amount of grape consumption within the UK market, while the German market ranked fifth and last, as it ranged between a minimum of about 0.01 in 2001, and a maximum of about 0.74 in 2015, with an annual average of about 0.37. This value means that Egyptian grape exports To the German market, it represents about 0.37% of the total amount of grape consumption in the German market.

These previous markets are considered to have the ability to absorb Egyptian grapes, as shown in the previous table, the high rate of penetration to most of the other markets under study, which indicates the existence of potentials for the development of Egyptian exports of grapes to these markets, and this requires drawing up a production policy for development of Egyptian grape exports, especially in countries that Its penetration rate is increasing and stable.

Indicator of The Apparent Comparative Advantage of The Egyptian Grape Crop:

It is evident from the data of Table No. (7), which deals with the apparent comparative advantage index for the Egyptian grape crop during the average period (2000-2020) amounted to about 5.88, and the value of that measure ranged between a minimum of about 1.53 in 2001, due to the low value of Egyptian exports of grapes in that year, and a maximum of about 12.11 in 2011, due to the high value of Egyptian exports of Egyptian grapes in that year, which indicates that the Egyptian grape crop has a comparative advantage in world markets in that period.

Table (7) - The apparent comparative advantage index of Egyptian grape exports during the period (2000- 2020)(value in 10⁶ million)

Years	Value of Egyptian Grape Exports	Value of Egyptian Agricultural Exports	Value of World Grape Exports	Value of World Agricultural Exports	Apparent Comparative Advantage
2000	1.19	341	2502.4	1150549	1.60
2001	1.29	390	2493.1	1150178	1.53
2002	1.90	364	2693.7	1150920	2.23
2003	2.94	484	3735.5	1149437	1.87
2004	10.96	692	3292.7	1152403	5.54
2005	16.85	857	3956.9	1146472	5.70
2006	21.83	834	3987.6	1158334	7.60
2007	59.58	1206	4934.9	1134611	11.36
2008	33.05	2640	5675.0	1143616	2.52
2009	78.50	3799	5659.9	1202490	4.39

2010	202.04	4249	6215.6	1084742	8.30
2011	298.66	4675	6967.6	1320239	12.10
2012	224.46	3919	7211.1	1337671	10.62
2013	183.38	4522	7893.5	1396563	7.17
2014	245.15	4641	8052.9	1367117	8.97
2015	272.66	4306	8464.3	1381840	10.34
2016	109.47	5023	8976.2	1374479	3.34
2017	136.46	5023	9452.4	1374479	3.95
2018	302.23	4974	9903.3	1376933	8.45
2019	144.36	6058	10450.5	1410083	3.22
2020	131.07	6447	10894.6	1435026	2.68
Average	118.00	3116	6353.03	1257056	5.88
Upper lim.	302.20	6447	1089.6	1435026	12.1
Lower lim.	1.19	341	2493.1	1084742	1.53

Source: Compiled and calculated from the United Nations - Commodity Trade Statistics

The Coefficient of Instability of The Egyptian Grape Crop:

The calculation of the instability coefficient is one of the important indicators through which it is possible to identify the extent of fluctuation in the quantity, value, or price of the exported commodity, and thus to identify the extent of continuity and stability of the exports of the commodity under study, which can help in drawing up and setting policies to encourage exports correctly. Table No. (8) show that the quantity of Egyptian grape production in thousand tons is characterized by relative stability during the period (2000-2020), as the value of the stability coefficient for the quantity of Egyptian grape production exceeds zero in all years and ranges between a minimum of about 97.38 in 2002, and a maximum of about 163.40 in 2017, with geometric average of about 129.80%. It was also shown from the table that the quantity of grape exports is characterized by relative stability during the same previous period, as the value of the instability coefficient increases from zero in all years and ranges between a minimum of about 11.86 in 2013 and a maximum of about 97.13 in 2000, with a geometric average of about 42.18%.

Table (8) - Development of the instability coefficient for the production capacity of Egyptian grapes during the period (2000-2020)

Years	Production	Export quantity	Export price	Export value
2000	97.51	97.13	1.190	98.81
2001	97.89	95.45	1.290	98.71
2002	97.38	94.01	1.900	98.10
2003	109.70	92.58	2.940	97.06
2004	117.50	85.58	10.96	89.04
2005	129.20	75.40	16.85	83.15
2006	133.20	72.19	21.83	78.17
2007	138.50	46.30	59.58	40.42
2008	143.10	59.25	33.05	66.95
2009	127.00	52.78	78.50	21.50
2010	126.00	16.13	2.040	102.04
2011	122.10	31.09	98.66	198.66
2012	127.90	16.05	24.46	124.46

2013	133.50	11.86	16.62	83.38
2014	149.60	13.48	45.15	145.15
2015	158.70	30.10	72.66	172.66
2016	159.10	41.80	90.53	9.470
2017	163.40	34.08	63.54	36.46
2018	161.90	31.09	102.23	202.23
2019	146.20	34.34	55.64	44.36
2020	120.60	41.80	68.93	31.07
Geometric average	129.80	42.18	20.42	73.57
Upper lim.	163.40	97.13	102.23	202.23
Lower lim.	97.38	11.86	1.190	9.470

Source: Compiled and calculated from Table (1).

The same table also shows the instability of the Egyptian grape export price, as it fluctuates between increase and decrease during the same previous period, as the value of the instability coefficient increases from zero in all years and ranges between a minimum of about 1.19 in 2000, and a maximum of about 102.23 in 2018, with a geometric average of about 20.42%. The same table also shows the instability of the value of Egyptian grape exports, as it fluctuates between increase and decrease during the same previous period, as the value of the instability coefficient increases from zero in all years and ranges from a minimum of about 9.47 in 2016, and a maximum of about 202.23 in 2018, with a geometric average of about 73.57%. It is clear from the previous analysis that the production of Egyptian grapes during the average of the previous period was more stable than the quantity of exports, the export price, and the value of exports. This means that the external demand for these products is greatly affected by factors other than the price levels, which calls for attention to study these factors and other variables, and to work on more stability, which leads to the stability and continuity of Egyptian exports of Egyptian grapes in foreign markets.

CONCLUSION

The grape crop is one of the important fruit crops that are grown for local production and export to increase the state's foreign currency earnings and to compensate for the deficit in the Egyptian trade balance. Therefore, exports are receiving great and growing attention from the state, so that they have become a priority for decision-makers in recent times. The development of Egyptian agricultural exports is closely linked to global events and changes. Therefore, there is a great and growing interest in creating a better export climate that is appropriate to the current global changes and events, especially after the Russian-Ukrainian war. This contributes to increasing the ability of these exports to access foreign markets, by increasing their competitiveness. In order to reduce the deficit in the overall trade balance, which amounted to about 26.83 billion dollars. The deficit in the agricultural balance amounted to about \$ 6.89 billion in 2020, and the fruitful area of the grape crop amounted to about 133.81 thousand feddan, representing about 9.28% of the total fruitful area of fruit, which is about 1.44 million feddan, and the production reached about 1.30 million tons, representing about 11.22% of the total fruit production, Egypt produces the equivalent of 6.49% of the total global production of grapes, and the value of Egypt's grape exports amounted to about \$131.07 million, which represents about 2.91% of the value of global exports of grapes, amounting to about \$10894.6 million during 2020. The grape crop is one of the main fruit crops in Egypt, with a high

nutritional value because its fruits contain a high percentage of water and easily absorbable glucose sugar, in addition to vitamins, mineral salts and organic acids. Grapes also have an economic importance in exploiting lands that are not suitable for growing other fruit trees, such as sandy lands and lands are of little fertility.

Due to the increasing interest in exporting because it is one of the most important sources of obtaining foreign currency, and one of the sources of national income, so the agricultural sector is interested in raising the value of its exports of grapes, as one of the most important agricultural exports with the suffering of export in the recent period and with the high growth rate of agricultural imports, by the growth rate of agricultural exports, which led to a deficit in the trade balance amounting to about \$ 26.83 billion in 2020, in addition to the presence of competing countries in the export of grapes, which negatively affects both the Egyptian producer and exporter, thus affecting the quantity and value of Egyptian exports from this crop in the world market.

The research aims to develop Egyptian exports of grapes by increasing their competitiveness in international markets, and assisting export policy makers in the possibility of increasing the amount of exports of grapes.

Some indicators of external marketing efficiency of the Egyptian grape crop were used, represented in the price competitive position index, and the coefficient of instability, with the measurement of fulfillment of export operations. The research relied on secondary data issued by various agencies, including the Central Agency for Public Mobilization and Statistics, Center Information for the Ministry of Commerce and Industry, in addition to the United Nations and the World Bank websites on the Internet.

It was found from the results: that the annual growth rate in each of the total production and consumption, the quantity and price of export, and the value of exports of the Egyptian grape crop reached about 1.90%, 1.50%, 15.70%, 10.06%, and 20.30%, respectively during the period (2000-2020), and by studying the export performance indicators of the Egyptian grape crop using the competitive advantage index, we find that it has exceeded the one during the previous period, which indicates the importance of this crop as an important export crop. These countries are (Italy, South Africa, Turkey, Spain, Greece, Syria, Lebanon, Morocco, Israel, Tunisia) with rates of about (36.35%, 21.41%, 20.41%, 9.96%, 5.63%, 2.81%, 1.68%, 0.97%, 0.63% and 0.09%), respectively, during the same previous period.

By studying the most important world markets of the Egyptian grape exports were Netherlands, Germany, Belgium, Saudi Arabia, and other countries which amounting to about 15.02%, 11.77%, 3.64%, 1.90%, 41.16% respectively, during the same previous period. and by studying the market penetration coefficient for Egyptian grape exports during the average period (2000-2020), it was found that the most important of these countries are Netherlands, Belgium, Saudi Arabia, United Kingdom, Germany with rates of about 0.47%, 0.43%, 0.42%, 0.40%, 0.37%, meaning that each country obtains the previous percentage of its needs from the Egyptian grape crop, respectively, during the average of the previous period, and it is clear that the market penetration rate of the Dutch market has increased as an average for the previous period.

As for the instability coefficient for the quantity of production, the quantity of exports, and the price and value of exports of the Egyptian grape crop, the study find that the quantity of production and the quantity of exports were more stable than the price, while the value was the most volatile during the same previous period. By studying the market share of Egyptian grape exports to the most important importing countries (United Kingdom, Germany, Netherlands, Belgium, Saudi Arabia), it is clear that these percentages decreased during the study period between Egypt and those countries, as they reached about (5.94%, 1.69%, 3.23%, 3%, 2.07% and 2.75%, respectively, during the study period.

In light of reviewing the various results of the study, a set of recommendations can be put forward that may benefit the makers of agricultural policy and internal or external marketing of Egyptian grapes to increase its production and exports to various world markets. The following are the most important of these recommendations:

1. It is necessary to study the Arab markets importing Egyptian grapes with the opening of new markets, especially the Saudi market, where the market share is about 2.75%, during the average period of the study.
2. Studying the markets of competing and importing countries of Egyptian grapes by establishing a database to determine the capacity of each market according to the required specifications, in addition to increasing promotional efforts for Egyptian grape exports.
3. It is necessary to study the European (Dutch, Belgian) and Arab (Saudi) markets, as it is clear that the penetration coefficient index has risen to those markets, reaching about (0.47%, 0.43%, 0.42%) for each of them, respectively, during the average of the previous period, and this indicates the possibility of increasing Egyptian exports of grapes to those markets.
4. Work to reduce production costs and transport prices for Egyptian grapes exports, while increasing support for exporters, especially in the case of opening new markets.
5. Egyptian grapes should be exported through the regulatory authorities, and the exported grapes should be in conformity with international standards in terms of the amount of pesticides and chemicals authorized.

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