Measuring the competitiveness of the most important Egyptian agricultural exports

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1.Introduction

Export is one of the economic activity engines that deals with all sectors of the economy, when more export growth rate increased in any country, it has reflected positively on the GDP growth rate and income levels and hence living standards. The international trade is also considered as one of international conflict field in which countries compete to acquire the largest possible area in the international market to maximize the economic benefits while continuing to maintain the earned markets and work to expanding them (Othman and Salah Eldeen ,2005) , so the Egyptian agricultural exports development issue replaced a prominent place in the priorities of the Egyptian economic policy under conditions and changes in economic, political and social highly complex, both at the regional or international level . Since the early nineties, Egypt has entered the stage of market system transition in response to the International Monetary Fund agreement (Abdel-Hay ,1996) ,so the government has adopted a comprehensive policy of economic reform depended on internal trade liberalization and divorced market forces in resources allocation and pursuit of increasing role of the private sector in investment and production areas . However, recent years, the role in 2000 of the agricultural sector in total Egyptian exports, had fallen to about 16% compound with 51% in 1975, (The Central Agency for Public Mobilization and Statistics, 2000), due to the intense competition that the exports of those crops had faced, especially the traditional ones such as cotton and rice during the contemporary international variables in the world market (Shoeb and Fadl-Allah,1995), (Mousa and Fawaz, 1999) . Egyptian horticultural export value was also headed downward, , which fell from 2.1% in during the period (1989 - 1985) to 0.9% during the period (1995-2000) (UN, 2000), which calls to reconsider the commodity composition of the Egyptian agricultural which compete their counterparts in the global markets.

2.The research problem

In spite of many of the Egyptian Agricultural Crops have comparative advantage, which represents a great part of the agricultural exports, these exports faced a significant competition from some countries that specialized in exporting the same crops in the international markets, because of the large capacity of the competition countries on meeting the export requirements, as well as the rapid progress in agriculture and export methods, which threatens the loss of traditional markets for Egyptian exports and the lack of information of export commodities specifications.

3.The research goals

This research aims to identify the competitive advantage in the most important Egyptian agricultural exports, by using the composite index to measure the competitiveness of agricultural exports (Abbas ,2000) , so the crops that are selected

is rice and cotton (as a field crops) - Potatoes (as a vegetable crop) - Orange (as a fruit crop) , And those crops have been selected as it is the most important export commodities, so that to achieve the goal of the research that is shedding light on the competitive position for the Egyptian agricultural exports (crops under study) through studying the following objectives: -

1. Identify the most important competitive countries to Egypt in exporting crops under study.
2. Recognition growth rate of exporting crops under study.
3. Evaluate the production of crops under study and its percentage of global production.
4. Identify the most important importing countries of crops under study and Egypt's share of these crops in the global market.

4.Methodology and data sources

The previous objectives can be achieved by the use of the composite index for measuring the competitiveness of exporting crops under study, which reflects the basic conditions of competitive standard (Reham ,2008) and those conditions are : -

1. The exporting commodity should have a comparative advantage.
2. This commodity should be more intensity in the work item use because the economy in which have available labor and high unemployment must be interested in developing industries that can absorb the available work item.
3. Availability in both demand for the commodity and the production of targeted industry in global markets, as measured by industry or by using a market penetration rate.

So for applying the composite index on crops under the study, by using the following standards:

1. Comparative advantage phenomenon measurement .
2. Proportion of average of prices of the most competitive countries to Egypt in exporting crops under study to the price of Egypt.
3. Proportion of both Egypt's production and global production for the crops under study.
4. The market penetration rate.
5. Proportion of the Egypt's exports of crops under study to the countries that had the highest market absorption rates.
6. Measure of Egyptian market share in the most important countries importing commodities under study.

The composite index can be calculated for the competitiveness of the most important agricultural exports through the algebraic sum of the relative position's average of the crops under study through the previous six measurements , So the relative position for the previous measures can be estimated, which is limited between zero and one values, through the following equation:

The relative position =
(Scale factor - Its lowest value for commodity under the study) / (Its largest value - Its lowest value)

So the study will depend on the secondary data obtained from database of Food and Agriculture Organization (FAO) Or bulletins from the World Bank and the International Monetary Fund, and Central Agency for Public Mobilization and Statistics , Central Administration of Agricultural Economics at the Ministry of Agriculture, and unpublished data.

5.Results

5.1. The evolution of the Egyptian export's value: -

Egyptian agricultural exports during the period 1996-2012 was 1.674 billion ton or get about the rate of 13%, Moreover as shown in the table (1) that the average of cotton exports value amounted to about 199.9 million tons, followed by the average of rice exports value, which amounted to about 194.61 million tons, then the average of orange exports value during the same period, which amounted to 157.85 million tons and finally the average of potato exports value, which amounted to about 88.32 million tons .However, the growth rate is increasing of about 21% for orange exports value ,then exports value for both cotton and potato about 3% But the growth rate of rice exports value decrease by 2%.

Table (1) The evolution of both the Egyptian agricultural exports, and exports of crops under the study during the period 1996-2012.

Year	Values of Agricultural exports (million $)	Values of Rice exports (1000$)	% Rice exports to the Egyptian agricultural exports	Values of potato exports (1000$)	% Potato exports to Egyptian agricultural exports	Values of orange exports (1000$)	% orange exports to Egyptian agricultural exports	Values of Cotton exports (1000$)	% Cotton exports to Egyptian agricultural exports
1996	521.09	117.723	23%	79.909	15%	17.328	3%	91.83	18%
1997	442.25	71.363	16%	41.249	9%	14.088	3%	110.223	25%
1998	571.78	135.19	24%	43.224	8%	60.787	11%	158.173	28%
1999	585.76	87.592	15%	46.034	8%	16.421	3%	238.16	41%
2000	518.14	112.565	22%	27.39	5%	16.556	3%	132.272	26%
2001	620.49	133.854	22%	29.75	5%	50.622	8%	186.003	30%
2002	771.78	105.552	14%	42.617	6%	26.541	3%	329.698	43%
2003	937.75	149.926	16%	43.972	5%	39.185	4%	365.865	39%
2004	1314.30	232.164	18%	67.23	5%	76.875	6%	483.023	37%
2005	1167.54	311.031	27%	77.446	7%	74.914	6%	180.547	15%
2006	1086.38	302.13	28%	65.35	6%	65.272	6%	132.8	12%
2007	1502.26	402.612	27%	108.092	7%	99.143	7%	152.969	10%
2008	2115.48	191.11	9%	176.148	8%	238.935	11%	185.365	9%
2009	4372.96	475.933	11%	145.406	3%	494.749	11%	87.494	2%
2010	2845.93	377.85	13%	129.562	5%	397.519	14%	137.353	5%
2011	5031.36	17.102	0.34%	250.654	5%	538.156	11%	264.332	5%
2012	4056.93	84.606	2%	127.351	3%	456.373	11%	163.698	4%
Average	1674.25	194.6061		88.31671		157.8508		199.9885	
Growth rate	13%	-2%		3%		21%		3%	

Source: Food and Agriculture Organization of the United Nations Organization FAO.

5.2. The evolution of both Egyptian export's prices and the most competitive countries in exporting crops under study.

Its shown in table (2) the average of both Egyptian export prices and average export prices of the most competitive countries in exporting crops under study during the period (1996-2012) which showed the following:

- **Orange** : As it showed the average of Jordan's export price amounted to be 669.74 dollar/ton, followed by average of Tunis's export price, which amounted to about

503.65 dollar/ton, then the average Morocco's export price during the same period, which amounted to 471.92 dollar/ton and finally the average of Egypt's export price, which amounted to about 371.92 dollar/ton.

- **Potato** : It is represented that average export price of Tunis amounted to be 439.96 dollar/ton, followed by average export price of Jordan, which amounted to about 438.88 dollar/ton, then the average export price of Italy during the same period, which amounted to 419.97 dollar/ton and finally the average export price of Egypt , which amounted to about 274.66 dollar/ton.
- **Cotton :** It is shown the average of Egyptian export price amounted to be 2630.23 dollar/ton, followed by average of Australian export price, which amounted to about 1592.83 dollar/ton, then the average American export price during the same period, which amounted to 1562.43 dollar/ton and finally the average of Syrian export price, which amounted to be 1478.91 dollar/ton.
- **Rice**: As it showed the average of Italy's export price amounted to be 683.73 dollar/ton, followed by average of Jordan's export price, which amounted to about 555.63 dollar/ton, then the average American's export price during the same period, which amounted to 447.78 dollar/ton and finally the average of Egypt's export price, which amounted to about 386.6 dollar/ton.

Table (2) : Average of export prices in dollars / ton for both of Egypt and the most competitive countries in exporting crops under study during the period 1996-2012.

Orange		Potato		Cotton		Rice	
Country	Average	Country	average	Country	Average	Country	average
Egypt	371.96	**Egypt**	274.66	**Egypt**	2630.23	**Egypt**	386.6
Jordan	669.74	**Tunis**	439.96	**Australia**	1592.83	**Italy**	683.73
Tunis	503.65	**Jordan**	438.88	**USA**	1562.43	**Jordan**	555.628
Morocco	471.92	**Italy**	419.97	**Syria**	1478.91	**USA**	447.78

Source: Food and Agriculture Organization of the United Nations (FAO).

5.3. The evolution of Egyptian production for crops under study.

As it is shown in table (3) that the average of global rice production quantity amounted to be 633.3 million tons, followed by the average of global potato production quantity, which amounted to about 325 million tons, then the average of global orange production quantity during the same period, which amounted to 64.9 million tons and finally the average of global cotton production quantity, which amounted to about 21.8 million tons .Furthermore, As it is shown that the average of Egyptian rice production quantity amounted to be 5822 thousand tons (represented 0.98% of the global rice production), followed by the average of Egyptian potato production quantity, which amounted to about 2745.5 thousand tons (represented 0.84% of the global potato production), then the average of Egyptian orange production quantity during the same period, which amounted to 1961 thousand tons (represented 3.02% of the global orange production)and finally the average of Egyptian cotton production quantity, which amounted to about 220.3 thousand tons (represented 1.01% of the global cotton production).

Table (3) Quantity of Egyptian production in thousand tons and global production in millions tons of crops under study during the period 1996-2012.

Year	Egyptian production (1000 ton)				Global production (million ton)			
	Cotton	Orange	Rice	Potato	cotton	orange	Rice	Potato
1996	345.7	1613.3	4895.4	2626	19.3	60.8	568.9	312.1
1997	342	1522.1	5480	1802.8	19	65.7	577	303.7
1998	229.7	1441.7	4474.1	1984	18.2	61.7	579.2	301.1
1999	233.1	1636.6	5817	1808.9	18.2	61.9	610.9	299.9
2000	224	1610.5	6000.5	1769.9	18.5	63.8	598.9	327.6
2001	330	1696.3	5226.7	1903.1	21.1	60.1	599.4	311.2
2002	290	1808.6	6105.5	1985.3	18.9	62.1	571.1	316.4
2003	198	1767.7	6176.3	2039.4	19.5	59.8	586.7	314.8
2004	292	1850	6352.4	2546.6	24.5	65	607.6	336.2
2005	202	1940.4	6125.3	3167.4	24.5	63.2	634.3	326.7
2006	210	2120.1	6755	2312.8	24.5	66.1	640.9	307.4
2007	222	2054.6	6876.8	2760.5	25	65.7	656.8	323.9
2008	105	2138.4	7253.4	3567.1	22.5	69.7	688	329.9
2009	95	2372.3	5520.5	3659.3	20.9	68	686.9	334.7
2010	137	2401	4329.5	3643.2	23.6	69.5	702	333.6
2011	181	2577.7	5675	4338.4	26.1	71.2	722.7	375.1
2012	109	2786.4	5911.1	4758	26.5	68.8	734.9	370.6
Average	220.3	1961.0	5822.0	2745.5				
%	1.01%	3.02%	0.92%	0.84%	21.8	64.9	633.3	325.0

Source: Food and Agriculture Organization of the United Nations (FAO).

5.4. The geographic distribution of Egypt's exports of crops under study to the most important importing countries.

Its shown in table (4) the geographical distribution of Egyptian exports of crops under study to the main importing countries during the period (1996-2012) which showed the following:

- Rice : Saudi Arabia is one of the most importing countries of rice during period (1996-2012), as the Egyptian exports quantity is about 1685.97 tons, United kingdom is in the second rank, and the quantity of Egyptian exports of rice to it about 9769.65 tons, , then Cote d'Ivoire , USA and Iraq occupied the III, IV and V ranks where the quantities of Egyptian exports of rice were 5135.76 , 4965.76 and 352.06 tons, respectively, during that period.

- Orange : Russia is considered to be the most imported country of orange during period (1996-2012), as the Egyptian exports quantity is about 60088.41 tons, United kingdom is in the second rank, and the quantity of Egyptian exports of orange to it about 20637.24 tons, , then Netherlands , Belgium and Germany occupied the III, IV and V ranks where the quantities of Egyptian exports of orange were 11766.76 , 1250.83and 1250.83 tons, respectively, during that period.

- Potato: It is shown that Italy is the most imported country of potato during period (1996-2012), as the Egyptian exports quantity is about 46458.8 tons, Germany is in the second rank, and the quantity of Egyptian exports of potato to it about 43689.88 tons, , then Russia , UK and Netherlands occupied the III, IV and V ranks where the quantities of Egyptian exports of potato were 36426 , 27033.35 and 5719.69 tons, respectively, during that period.

- Cotton: It is shown that Pakistan is the most imported country of cotton during period (1996-2012), as the Egyptian exports quantity is about 7659.24 tons, Turkey is in the second rank, and the quantity of Egyptian exports of potato to it about 5465.24 tons, , then Korea , China and Thailand occupied the III, IV and V

ranks where the quantities of Egyptian exports of potato were 5411.4 , 4579.76 and 2800.24 tons, respectively, during that period.

Table (4) The geographic distribution of the average of Egypt's exports of crops under study in tons to the most important importing countries during the period 1996-2012

Rice		Orange		Potato		cotton	
Country	**average**	**Country**	**average**	**Country**	**Average**	**Country**	**average**
Saudi	1685.97	**Russia**	60088.41	**Italy**	46458.82	**Pakistan**	7659.24
UK	9769.65	**UK**	20637.24	**Germany**	43689.88	**Turkey**	5465.24
Cote d'Ivoire	5135.76	**Netherlands**	11766.76	**Russia**	36426.09	**Korea**	5411.41
USA	4965.76	**Belgium**	1250.83	**UK**	27033.35	**China**	4579.76
Iraq	352.06	**Germany**	1212.83	**Netherlands**	5719.69	**Thailand**	2800.24
Japan	105.53	**France**	733.47	**Spain**	2259.46	**Indonesia**	1514.94
Iran	73.47	**Canada**	187.66	**France**	2931.47	**Taiwan**	427.06
Nigeria	13.71	**USA**	25.12	**USA**	239.76	**Bangladesh**	732.06
China	8.59	**China**	19.59	**Belgium**	151.18	**Mexico**	45.41
Indonesia	2.65	**Japan**	3.41	**Canada**	0	**Vietnam**	4.41

Source : Food and Agriculture Organization of the United Nations (FAO).

5.5. Estimate the composite index of the competitiveness of Egyptian agricultural exports and the relative position of each measurement measures for crops under study.

5.5.1. The first measurement: Phenomenon Comparative advantage measurement.

Exported commodity has a phenomenon comparative advantage when the ratio between Egypt's exports of the commodity to the total of Egypt's agricultural exports to world is greater than the ratio between the world exports of the commodity to the total of world agricultural exports, which means that the value of the phenomenon comparative advantage is greater than one, and it is calculated by the following equation :

The phenomenon comparative advantage =
(Egypt's exports of the commodity / Egypt's agricultural exports to the world) / (World exports of the commodity / World agricultural exports)

By applying this measurement on data in table1 that showed that Egyptian agricultural exports, and exports of crops under the study during the period 1996-2012 crops under the study , so its found in table (5) all crops under the study had a phenomenon comparative advantage where all of them bigger than the one, but the values were decreasing continuously over time, giving a preliminary indication of a problem in export, and for the crops under the study:

1. Potatoes: Its shown that the analysis of the phenomenon comparative advantage decreased continuously and then came back to rise, and we found that the average scale reached in the first period (1996-2001) was about 4.9% and then fall in the second period (2002-2007)to 4.1% and then returned to rise to 5% in the third period (2008-2012) which was demonstrated a problem in export led to the fluctuation phenomenon comparative advantage over time.
2. Oranges: Its shown that coefficient of the phenomenon comparative advantage was fluctuated but not large fluctuations as in the first period (1996-2001) was approximately 11.5% and then rose in the second period (2002- 2007) to 13.2% on and then increased to rise up to 30.6% in the third period (2008-2012).
3. Rice: The coefficient of the phenomenon comparative advantage decreased continuously and then came back to rise up and then returned to decline again, as

we found that in the first period (1996-2001) is reached 11.4% and rose in the second period (2002-2007) to 14.5% and then decreased significantly to 3.7% on in the third period (2008-2012) which demonstrated a problem in export-led to this remarkable decline in the recent period.

Table (5) Composite index measurements for the competitiveness of Egyptian exports under study during the period 1996-2012.

Measurements	Years	Potato	orange	Rice	cotton
Phenomenon of Comparative advantage	1996-2001	4.90	11.55	11.40	16.67
	2002-2007	4.08	13.22	14.47	17.03
	2008-2012	5.05	30.56	3.73	4.28
The proportion of competing countries prices to the price of Egypt	1996-2001	1.91	1.55	1.17	0.53
	2002-2007	2.04	1.78	1.37	0.66
	2008-2012	1.10	1.13	1.13	0.65
The proportion of Egyptian production to world production	1996-2001	0.64	2.55	0.90	1.49
	2002-2007	0.77	3.02	1.04	1.05
	2008-2012	1.14	3.54	0.81	0.52
Penetration rate	1996-2001	0.90	8.27	3.89	7.01
	2002-2007	1.33	9.44	4.11	7.54
	2008-2012	1.34	8.98	4.19	7.63
Proportion of Egypt's exports to the most importing countries	1996-2001	0.57	0.25	0.04	0.25
	2002-2007	0.54	0.44	0.07	0.43
	2008-2012	0.42	0.26	0.12	0.23
Egypt's share market	1996-2001	0.32	0.06	0.03	0.06
	2002-2007	0.40	0.25	0.09	0.15
	2008-2012	0.24	0.44	0.03	0.02

Source: collected and calculated from the table (1-2-3-4).

4. Cotton: The coefficient of phenomenon comparative advantage decreases continuously as we find that the average scale reached in the first period (1996-2001) about 16.7% and then rose in the second period (2002-2007) to 17 % and then decreased significantly to reached 4.3% in the third period (2008-2012) which demonstrated a problem in export led to the fluctuations in the final period.

The relative position is calculated as it has shown in table (6),that the best crop of the relative position is oranges, followed by cotton that had a relative position better than potatoes and rice, where the oranges is equal to one in recent years, while the potatoes are the least one where its relative position equal to zero in most years.

Table (6) The relative position of the phenomenon comparative advantage for crops under the study during the period 1996-2012.

Years	Potatoes	Orange	Rice	Cotton
1996	0.41	0.00	1.00	0.28
1997	0.00	0.17	0.50	1.00
1998	0.00	1.00	0.36	0.58
1999	0.00	0.09	0.16	1.00
2000	0.00	0.36	0.81	1.00
2001	0.00	0.98	0.64	1.00
2002	0.00	0.15	0.21	1.00
2003	0.00	0.29	0.42	1.00
2004	0.00	0.52	0.48	1.00
2005	0.00	0.86	1.00	0.39
2006	0.00	0.79	1.00	0.23
2007	0.00	1.00	0.91	0.14
2008	0.14	1.00	0.00	0.18
2009	0.04	1.00	0.14	0.00
2010	0.02	1.00	0.12	0.00
2011	0.18	1.00	0.00	0.11
2012	0.08	1.00	0.00	0.05

Source : Calculated from table1 and 5.

5.5.2.The second measurement : Proportion of average of prices of the most competitive countries to Egypt in exporting crops under study to the price of Egypt.

This measurement showed if Egypt had advantage in export prices of the crop with the most important competitor countries that export the same crops, and thus when ever this ratio increased , its indicated to the existence of advantage in Egypt export price of the crop, and can be estimated from the following equation:

Proportion of average of prices of the most competitive countries to Egypt in exporting crops to the price of Egypt =
(Average of prices of the most competitive countries / Egypt price)

By applying this measurement on all crops under study as it had showed in table 5, by using data in table 2 that represented average of crop prices in dollars per ton in both of Egypt and the most competitive countries in exporting crops under study during the period 1996-2012 as follow:-

1. Potatoes: Its is shown from the analysis in table 5 that the coefficient of the measurement decreases continuously and then came back to rise, As we found that the average of the measurement is reached in the first period (1996-2001) about 1.9% and were up in the second period (2002-2007) to 2.04 % then returned to drop at 1.1% in the third period (2008-2012) which demonstrated a problem in export led to the fluctuation of the measurement over time.
2. Orange: The analysis showed in table 5 that the coefficient of the measurement fluctuates but not large, thus the average of the measurement in the first period (1996- 2001) about 1.55% and then rose in the second period (2002-2007) to 1.8 % and then fell to 1.13% in the third period (2008-2012) which demonstrates a problem in export led to the fluctuation of measurement over time.
3. Rice: It is shown from the analysis in table 5 that the coefficient of the measurement fluctuated continuously as we found that the average of the measurement reached in the first period (1996-2001)About 1.17% and rose in the second period (2002-2007)to 1.37 %, and was significantly reduced to 1.13% in the third period (2008-2012) which demonstrated a problem in the export-led to this remarkable decline in the recent period.
4. Cotton: The analysis showed in table 5 that the coefficient of the measurement fluctuated continuously, So the average of the measurement reached in the first period (1996- 2001)About 0.53% and rose in the second period (2002-2007) to 0.66% and then fell to 0.65% in the third period (2008-2012) which demonstrates a problem in the export-led to this decline in the recent period.

The relative position: By calculating the relative position of this measurement , which is shown in table (7) that the best crop in relative position of this measurement is potatoes that were better than the rest of the crop relatively, where it were equivalent to one in most years ,Followed by orange who got the second ranking of the relative position in most years, then rice comes in third place, while cotton was in last place.

5.5.3. The third measurement : Proportion of both Egyptian production and global production for the crops under study.

This measurement is used to estimate the importance of Egypt's production of crops under study regard to the global production of them, and the more this

percentage increased indicates that the presence of the productivity advantage in producing crops, it is estimated from the following equation:

Proportion of both Egyptian production and global production= (Egypt's production of the commodity / Global production of this item).

By applying this measurement on crops under the study by using data in table 3 that showed the Egyptian production in thousand tons and global production in millions tons of crops under study during the period 1996-2012, its found that the percentages of those crops are considered to be more modest than the production of

Table (7) The relative position of ratio between the average of price of competitive countries and the price of Egypt for crops under the study during the period 1996-2012.

Years	Potatoes	Orange	Rice	Cotton
1996	1.00	0.61	0.56	0.00
1997	1.00	0.48	0.38	0.00
1998	1.00	0.57	0.42	0.00
1999	1.00	0.69	0.49	0.00
2000	0.97	1.00	0.37	0.00
2001	0.97	1.00	0.53	0.00
2002	0.84	1.00	0.62	0.00
2003	1.00	0.78	0.44	0.00
2004	1.00	0.68	0.44	0.00
2005	1.00	0.72	0.61	0.00
2006	1.00	0.94	0.50	0.00
2007	1.00	0.39	0.42	0.00
2008	1.00	0.86	0.73	0.00
2009	0.56	1.00	0.80	0.00
2010	0.98	1.00	0.59	0.00
2011	0.82	0.72	1.00	0.00
2012	1.00	0.42	0.96	0.00

Source : Calculated from table 2 and 5.

world as shown in the table (5), The maximum rate was for oranges, during the years of the study, and it is found for other commodities under study that : -

1. Potatoes: It has seen from the analysis in table 5 that the coefficient of measurement increased continuously as we found that the average of measurement reached in the first period (1996-2001) is about 0.64% and then rose in the second period (2002-2007)to an average 0.77% , and continued to rise to 1.3% on third period (2008-2012).
2. Orange: As it has shown from the analysis in table 5 that the coefficient of measurement is grown up , thus the average of measurement in the first period (1996 -2001) is about 2.55%, then rose in the second period (2002-2007) to 3.02% and then continued to increase up to 3.54% on the third period (2008-2012) .
3. Rice: It is shown from the analysis in table 5 that the coefficient of measurement fluctuated continuously as the average reached in the first period (1996-2001) To 0.9% and slightly increased in the second period (2002-2007) to 1.04 % then decreased significantly to 0.8% on average for the third period (2008-2012) which is demonstrated a problem in the export-led to this remarkable decline in the recent period.
4. Cotton: It is cleared from the analysis in table 5 that the coefficient of measurement is fluctuated continuously up then returned to decline again to, as the average

reached in the first period (1996-2001) About 1.49%, and declined in the second period(2002-2007) to 1.05 % and then continued to decline in the third period (2008-2012) reaching 0.52% which is demonstrated a problem in the export-led to this decline over time.

The relative position is shown in the table (8) that the best crop of the relative position is the orange where is relatively better than the other crops,

Table (8) The relative position of ratio between Egyptian production to the global production of crops under the study during the period 1996-2012

Years	Potatoes	Orange	Rice	Cotton
1996	0.000	1.000	0.010	0.525
1997	0.000	1.000	0.207	0.698
1998	0.000	1.000	0.068	0.361
1999	0.000	1.000	0.171	0.332
2000	0.000	1.000	0.233	0.338
2001	0.000	1.000	0.118	0.432
2002	0.000	1.000	0.193	0.398
2003	0.000	1.000	0.175	0.160
2004	0.000	1.000	0.138	0.207
2005	0.064	1.000	0.063	0.000
2006	0.000	1.000	0.123	0.043
2007	0.000	1.000	0.086	0.015
2008	0.236	1.000	0.226	0.000
2009	0.210	1.000	0.115	0.000
2010	0.178	1.000	0.013	0.000
2011	0.159	1.000	0.032	0.000
2012	0.240	1.000	0.108	0.000

Source : Calculated from table 3 and 5.

where the orange equal to one in all the years, followed by the Cotton who received the second ranking of the relative position in most years, then rice comes in third rank, while potato was the last one.

5.5.4.The fourth measurement: The market penetration rate.

This measurement is used to calculate the external demand availability for crops under study, by calculating the ratio between imports and apparent consumption (production + imports - exports), which is estimated for a group of countries representing the highest importing countries for the crops under study were selected ten countries for each crop, The penetration rate is calculated for each country , then the algebraic sum is calculated to the penetration rates for these countries to get a final number for each crop separately, So it can be estimated by the following equation : -

Market penetration rate =
The country's crop imports / (The country's crop production + The country's crop imports - The country's crop exports)

Then estimated the algebraic sum of the group countries which represent the highest importing countries for that crop as it has showed in table 4 that showed the geographic distribution of average of Egypt's exports of crops under study in tons to the most important importing countries during the period 1996-2012, So by applying this measurement on all crops under study, as shown in table (5) , It is found that: -

1. Potatoes: it is seen from the analysis that the most important markets that imported potato is (Netherlands - UK - Belgium - Germany - Canada - Spain -

Italy - Russia - France - US A) , It is turned out that the measurement coefficient has not a noticeable fluctuation, but generally it tends to rise, also found that the average of measurement is reached in the first period (1996-2001) about 0.9 and then rose in the second period(2002-2007) to 1.33 and then continued to increase, reaching 1.34 in the third period (2008-2012), Which demonstrates a stable performance of export and rising of foreign demand for the Egyptian potato exports.

2. Orange: It is cleared from analysis that the most important markets in importing oranges are (Germany - France - Netherlands - United Kingdom - China - Russia - Belgium - Canada - United States - Japan) , As it can be seen from the analysis that the measurement of coefficient fluctuated significantly and thus the average in the first period (1996-2001) is about 8.87 and then rose in the second period(2002-2007) 9.84 and then fell to 8.98 in the third period (2008-2012) which it is demonstrated a problem in export orange in its main markets led to the fluctuation over time.
3. Rice: It is shown from the analysis that the most important markets in importing rice are (Saudi Arabia - China - United States - Iraq - Japan - Iran - United Kingdom - Indonesia - Nigeria - Cote d'Ivoire) and the measurement coefficient is grown up continuously, as we found that the average of measurement reached in the first period (1996-2001) about 3.89 and rose in the second period (2002-2007)to 4.11 and then 4.19 in the third period (2008-2012).
4. Cotton: The analysis is found that the most important markets importing cotton is (China - Turkey - Indonesia - Belgium - Thailand - Vietnam - Mexico - Pakistan - Korea - Taiwan) and the coefficient of measurement was stable somewhat heading upward, also found that the average reached in the first period (1996-2001) about 7.01 and rose in the second period (2002-2007) to 7.54 then continued to increase, reaching 7.63 in the third period (2008-2012), which demonstrated that there is a stability in the export performance and rising in foreign demand for Egyptian cotton exports.

The relative position of the measurement was found that the best crop in as shown in the table (9) was orange where had a relatively position better than other crops, where orange was equal to one in all years, followed by cotton which won the second position in all years, then rice comes in third position, while the potatoes is the last one.

5.5.5.The Fifth measurement : Proportion of the Egypt's exports of crops under study to the countries that had the highest market absorption rates.

This measurement is used to estimate the position of Egypt's exports of crops under study to countries that have been identified in the previous measurement (penetration rate) because the latter measurement is fixed for all countries that export to these markets and thus it must be known Egyptian exports of crops under study into these markets, by the equation as follow:

Egypt's exports to the most importing countries of crops =
(Egypt's exports of the commodity to these countries / Egypt's total exports of the commodity)

Table (9) The relative position of penetration rate of the crops under study during the period from 1996 to 2012

Years	Potatoes	Orange	Rice	Cotton
1996	0.00	1.00	0.38	0.86
1997	0.00	1.00	0.44	0.90
1998	0.00	1.00	0.42	0.91
1999	0.00	1.00	0.48	0.94
2000	0.00	1.00	0.37	0.72
2001	0.00	1.00	0.36	0.70
2002	0.00	1.00	0.34	0.72
2003	0.00	1.00	0.33	0.71
2004	0.00	1.00	0.33	0.71
2005	0.00	1.00	0.33	0.78
2006	0.00	1.00	0.36	0.83
2007	0.00	1.00	0.37	0.87
2008	0.00	1.00	0.36	0.85
2009	0.00	1.00	0.39	0.84
2010	0.00	1.00	0.35	0.83
2011	0.00	1.00	0.41	0.80
2012	0.00	1.00	0.36	0.79

Source : Calculated from table 4 and 5.

By applying this measurement on previous selected countries in the previous measurement (penetration rate) for each crop, as shown in the table (5) by using data in table 4 :

1. Potatoes: It is seen from the analysis that Egypt didn't export potatoes to Canada and Belgium, where the Egyptian exports for them was equal to zero except some years that were issued by simple proportions from Egypt to Belgium, and the analysis has found that Egyptian exports of potatoes had high levels where the average of export ratios in the first period (1996 – 2001) is amounted to 57% and in the second period (2002-2007) amounted to about 54%, but in the last period (2008-2012) tended to decline and amounted to about 42%, suggesting Egyptian exports of potatoes dropped in recent years.
2. Orange: The analysis showed that Egypt did not export potatoes to Japan, China, where the Egyptian exports was equal zero for them except for some years that were issued by simple proportions from Egypt to them. Whereas, The main reason for the decline in market share to some Asian countries and the lack in other countries that there is a ban on Egyptian citrus in these markets due to many reasons, including insect infestation and the use of pesticides is environmentally friendly, as well as some of the reasons relating to marketing operations. On the other hand, it is found that Egypt's exports to the Netherlands, Britain and Germany (European countries) have been high, so the average export ratios were about 25% in the first period, and increased in the second period to 44% and decreased in the last period (2008-2012) to 26%, which refers to the fluctuation in exports that was attributed to those markets.
3. Rice: The data is shown that among the selected ten countries that there were two countries that Egypt export to them : Saudi Arabia and the United Kingdom while there are four countries that Egypt did not export to them, including China, Indonesia, Iran and Nigeria, while the last three countries that Egypt export by simple percentages for them : Iraq, Japan, Côte d'Ivoire, also it is showed growing

export rates in the first period about 4% and then increased to 7% in the second period and continued to increase to 12 % for the last period, indicating increased permeability of Egyptian rice exports to foreign markets.

4. Cotton: Its cleared from the analysis that Egypt does not export cotton to Mexico, Vietnam and Taiwan, where the Egyptian exports was for them equal to zero except for some years that were issued by Egypt to Taiwan by simple proportions, and analysis is found that Egyptian exports ratios of cotton is high, in the first period amounted to 25% and in the second period rose and amounted to about 45%, but in the last period tended to decline and amounted to about 23%, suggesting the Egyptian exports of cotton declined in recent years, foreign markets.

The relative position is calculated as explained in the table (10) showed that the best crop in terms of the relative position is the potato where it relatively better than the other crop, where the potato is equal to one in most years, followed by cotton which received the second order, then orange comes in third position, while rice was in the last one.

Table (10) The relative position of proportion of Egypt's exports to most important countries import crop under the study during the period 1996 – 2012

Years	Potatoes	Orange	Rice	Cotton
1996	0.97	1.00	0.00	0.68
1997	1.00	0.79	0.01	0.00
1998	1.00	0.06	0.00	0.34
1999	1.00	0.17	0.00	0.38
2000	0.52	0.01	0.00	1.00
2001	1.00	0.06	0.00	0.39
2002	1.00	0.46	0.00	0.67
2003	0.88	1.00	0.00	0.55
2004	1.00	0.87	0.00	0.92
2005	0.86	1.00	0.00	0.68
2006	1.00	0.42	0.00	0.73
2007	1.00	0.73	0.00	0.87
2008	0.996	1.00	0.21	0.00
2009	0.93	0.37	0.00	1.00
2010	1.00	0.82	0.08	0.00
2011	1.00	0.00	0.11	0.61
2012	1.00	0.75	0.28	0.00

Source : Calculated from table 4 and 5.

5.5.6.The sixth measurement: Egyptian market share in the most important countries importing commodities under study.

This measurement is used to measure the presence of the Egyptian market within the markets of most countries importing crops under study, and is calculated by the following equation:

Egyptian market share =
(Egyptian exports to imported countries/ total imports of imported countries) x 100

Then calculated the algebraic sum of the markets that imported crop under study, and by applying this measurement on data in table 4 , as it has shown in the table (5), it found that as Egyptian exports weren't exist in some markets, the Egyptian market

resides within the combined markets in varying proportions that could be illustrated as follows on the crops under study: -

1. Potatoes: Analysis showed that the average Egyptian market share in the first period was about 32% and then rose in the second period to 40%, but the average has fallen to 24% as an average for the last period.
2. Orange: It is showed from the data that the presence of Egyptian orange exports were weak in the first period as an average for the first period 6%, then the situation in the second and third periods change where export of oranges grew to 25% through the second period and continued to increase to 44% through the third period of total imports.
3. Rice : The analysis explained that the average of Egyptian market share in the first period was about 3% and then rose in the second period to 9%, but the average fell to 3% on the last period.
4. Cotton: The data showed that the presence of Egyptian cotton exports are weak in the first and third periods within the total imports as an average for the first period about 6% and then increased to 15% as an average for the second period and in the last period cotton export decreased to 2%.

The relative position is calculated for this measurement shown in table (11) in the appendix that the best crop in terms of the relative position is the potato which had a relatively position better than the other crops , where the potato is equal to the correct one in most years, followed by oranges which won second place of the relative position in most years, then rice comes in third place, while cotton was the last one.

Table (11) The relative position of Egypt's share in most important countries import crop under study during the period from 1996 to 2012

Years	Potatoes	Orange	Rice	Cotton
1996	1.000	0.149	0.000	0.025
1997	1.000	0.174	0.005	0.000
1998	1.000	0.103	0.000	0.099
1999	1.000	0.000	0.038	0.234
2000	1.000	0.000	0.079	0.825
2001	1.000	0.137	0.000	0.076
2002	1.000	0.230	0.000	0.633
2003	1.000	0.930	0.000	0.735
2004	1.000	0.572	0.000	0.381
2005	1.000	0.826	0.033	0.000
2006	1.000	0.321	0.080	0.000
2007	1.000	0.344	0.053	0.000
2008	0.614	1.000	0.067	0.000
2009	0.395	1.000	0.125	0.000
2010	0.430	1.000	0.049	0.000
2011	0.745	1.000	0.000	0.070
2012	0.405	1.000	0.050	0.000

Source : Calculated from table 4 and 5.

5.6. Estimate the composite index of competitiveness of Egyptian exports crops under study.

It is seen from the table (12) that the composite index of competitiveness that potatoes (vegetables crops) is the biggest among competitive commodities which give attention to vegetables exports (potatoes) in the future, followed by orange (fruit crop) and then cotton and finally rice (field crops) which indicates the difficulty of the competition faced by field crops (rice, cotton) in export.

Table (12) the composite index of competitiveness of Egyptian exports crops under study.

Year	Composite index of Potato	Composite index of orange	Composite index of rice	Composite Index of cotton
1996	0.7	0.5	0.3	0.3
1997	0.7	0.4	0.2	0.3
1998	0.7	0.5	0.2	0.3
1999	0.7	0.3	0.2	0.4
2000	0.6	0.4	0.3	0.6
2001	0.7	0.5	0.3	0.4
2002	0.6	0.5	0.2	0.5
2003	0.6	0.7	0.2	0.5
2004	0.7	0.6	0.2	0.5
2005	0.6	0.7	0.3	0.3
2006	0.7	0.6	0.3	0.3
2007	0.7	0.6	0.3	0.3
2008	0.6	0.8	0.2	0.2
2009	0.5	0.7	0.2	0.3
2010	0.6	0.8	0.2	0.1
2011	0.6	0.6	0.3	0.3
2012	0.6	0.7	0.3	0.1

Source: collected and calculated from tables (6-7-8-9-10-11).

6.Recommendations

For increasing the competitiveness of agricultural exports in general and commodities under the study in particular, this research recommended the following :

- The study is recommended to expand the cultivation of Potato , which is characterized by competitiveness despite the high volatility of output and export performance from one period to another and transfer the expertise specialized research centers through a well-defined system.
- It is necessary to provide information and secondary data for Egyptian agricultural exports, according to its type and thus expand the study of competitive advantage for exported commodities to give the best results.
- Improve the performance of the internal marketing system in terms of marketing functions such as sorting, grading and mobilization of internal and external transfer and increase storage capacity in export ports and determine the control and inspection agencies to shorten the export procedures.
- Improve and develop production by following the policy of productivity and cut costs to increase capacity to meet the requirements of export to the global market.

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قياس تنافسية أهم صادرات المحاصيل الزراعية

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الملخص

يعتبر ميدان التجارة الدولية أحد ميادين الصراع الدولى التى تتنافس فيها الدول للاستحواذ على أكبر مساحة ممكنة فى السوق الدولية لتعظيم المنافع الاقتصادية لها لذلك تحتل قضية تنمية الصادرات الزراعية المصرية مكانة بارزة فى أولويات السياسة الاقتصادية المصرية فى ظل ظروف وتغيرات اقتصادية وسياسية واجتماعية شديدة التعقيد سواء على المستوى الإقليمى أو الدولى ، ولكن لوحظ خلال السنوات الأخيرة أن دور القطاع الزراعى فى الصادرات المصرية الكلية قد تراجع ، حيث مثلت قيمة الصادرات الزراعية نحو ٥١% من الصادرات الكلية عام ١٩٧٥، ثم انخفضت هذه النسبة الى نحو ١٦% عام ٢٠٠٠ (الجهاز المركزى للتعبئة والاحصاء، ٢٠٠٠)، وذلك بسبب المنافسة الشديدة التى تتعرض لها حاصلات تلك الصادرات، خاصة التقليدية منها كالقطن والأرز فى الأسواق العالمية فى ظل المتغيرات الدولية المعاصرة (موسى وفواز، ١٩٩٩)، (شعيب وفضل الله، ١٩٩٥). كذلك اتجهت قيمة الصادرات البستانية المصرية كان نحو الانخفاض والتآكل التدريجى، حيث انخفض من ٢,١% فى متوسط الفترة ١٩٨٩- ١٩٨٥ الى ٠,٩% خلال متوسط الفترة ١٩٩٥-٢٠٠٠ (ريهام احمد ٢٠٠٨)، الأمر الذى يدعو إلى ضرورة إعادة النظر فى التركيب السلعى للصادرات الزراعية المصرية بتنويعها بمحاصيل أخرى يمكن أن تنافس مثيلاتها فى الأسواق العالمية ، لذا يهدف هذا البحث الى تحديد الميزة التنافسية لأهم الصادرات الزراعية المصرية التى تتمتع فيها مصر بميزة نسبية وذلك من خلال استخدام المؤشر المركب لقياس تنافسية الصادرات الزراعية ، ولقد تناول البحث بعض السلع وهى الارز والقطن (محاصيل حقلية) – البطاطس (محصول خضر) – برتقال (محصول فاكهة) ، ولقد تم اختيار تلك المحاصيل نظرا لانها من اهم السلع التصديرية ، ولتحقيق هدف البحث فى إلقاء الضوء على المركز التنافسى للصادرات الزراعية المصرية (محاصيل موضوع الدراسة) من خلال استخدام المؤشر المركب لقياس تنافسية صادرات المحاصيل موضوع الدراسة والذى يعكس العناصر الاساسية لمعيار التنافسية والذي توصل ان البطاطس (محصول خضر) يعتبر هو الاعلى تنافسية بين السلع موضع الدراسة وهو ما يعطي بضرورة الاهتمام بصادرات الخضر (البطاطس) في المرحلة القادمة كمحصول تصديري.