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Apple Value Chain Analysis

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Table of contents

1	Introduction	1
1.1	Objectives of the study	1
1.2	Methodology	1
1.3	Characterization of the competitiveness (Common to all report)	2
2	Supply and Demand Dynamic	2
2.1	Focus on fresh apple	2
2.2	General supply dynamic	2
2.3	General demand dynamic	3
2.4	Domestic demand and trade	4
2.4.1	Apple consumption in Syria	4
2.5	Syria position in the world and regional apple economy	5
2.5.1	World production and trade	5
2.5.2	Demand changes in the sub-region	6
2.5.3	Imports trends in the Arab region	8
2.5.4	Syrian apple exports destinations	9
2.5.4.1	Case of Egypt	11
2.5.4.2	Case of Golf countries	12
2.5.4.3	Relative position of regional exporters and Syria	12
2.5.4.4	Syrian Competitors on the regional market	14
2.5.4.5	Syrian position in the sub-regional Apple economy	14
2.5.4.6	Potentials to enter new market - Syrian & EU Association Agreement	16
2.6	Analysis of price trends	17
2.6.1	Apple price in local market	17
2.6.2	Price in export market	19
2.6.3	Differences in trade policies in the sub-region	21
3	Syrian apple value chains	22
3.1	Apple production	22
3.1.1	Planting trees and producing apples	22
3.1.2	Location of production	23
3.2	Apple marketing	25
3.2.1	Local marketing organization	25
3.2.1.1	Traders	25
3.2.1.2	Agents	25
3.2.1.3	Retailers	25
3.2.1.4	Public institution	25
3.2.1.5	Processors:	26
3.2.1.6	Consumers	26
3.2.2	Exporting apples from Syria	26
3.2.3	Main futures and practices in main destination countries	26
3.3	Value chain configuration	27
4	Apple production and marketing profitability	28
4.1	Representative budget	28

4.1.1	<i>Production cost</i>	28
4.1.2	<i>Wholesaler cost</i>	30
4.1.3	<i>Cost of apple retailing</i>	31
4.1.4	<i>Export cost</i>	31
4.2	<i>Consolidate budget: profitability of the various sub-systems and profit distribution</i>	32
4.2.1	<i>Farmer – Exporter</i>	32
4.2.2	<i>Farmer – Wholesaler</i>	32
4.2.3	<i>Wholesaler – Retailers</i>	33
4.2.4	<i>Farmer – Retailer</i>	34
5	Value chain governance	34
5.1	<i>Type of coordination between agent (vertical and horizontal)</i>	34
5.2	<i>Existence of association</i>	35
5.3	<i>Public policy for apple</i>	35
5.4	<i>Quality management along the chain</i>	36
5.4.1	<i>Apple varieties</i>	36
5.4.2	<i>Agents’ concerns for quality</i>	38
6	Conclusions and perspectives	40
7	Main lessons	43
8	SWOT Analysis	45
9	References:	50

Table of Figures

- Figure 1: Fruiting and planted apple trees in Syria
- Figure 2: Apparent Per capita apple consumption
- Figure 3: Syrian Wholesale Fruit price Index (2000=100)
- Figure 4: Trends in major fruit per capita consumption in Syria
- Figure 5: Syrian apple consumption -kg/per capita
- Figure 6: Apple supply balance
- Figure 7: Main apple exporters
- Figure 8: Main apple importers
- Figure 9: Egyptian apple consumption rate
kg/per capita/per year
- Figure 10: Jordanian apple consumption rate
kg/per capita/per year
- Figure 11: Apple consumption rate of Algeria, Libya, Saudi Arabia
kg/per capita/per year
- Figure 12: Trend of apple imports of Arab regional countries
(000 M.T)
- Figure 13: Comparison between main Arab apple imports
and Syrian exports in 2007- 000 Tons
- Figure 14: Share of Syrian apple exports
in main Arab apple imports markets
- Figure 15: Share of Syrian apple exports in production
- Figure 16: Comparison of Apple Exports to Main
Destination Countries
- Figure 17: the differences between Syrian apples
exports share as quantity and value in the Egyptian market
- Figure 18: Apple exports to golf countries- tons
- Figure 19: Syria export share and destination market import share
- Figure 20: Import average volume and annual growth rate (1994 – 2007)
- Figure 21: Selling Price according to classification
SP/kg
- Figure 22: Apple Wholesale and Consumer price 2008 SP/kg
- Figure 23: Apple Wholesale and Consumer price
by governorates 2007 sp/kg
- Figure 24: Comparison among fruits retailed price
- Figure 25: Comparison of Apple Imports Unit Value
US\$/kg
- Figure 26 : Egyptian apple imports unit value versus Syrian apple exports unit value
to Egypt
- Figure 27: UAE apple imports unit value versus Syrian
apple exports unit value to UAE
- Figure 28: Comparison of Apple Exports Unit Value
- Figure 29: Distribution of Apple Area 2007
- Figure 30: Distribution of apple in irrigated area by governorates
- Figure 31: Distribution of apple in rainfed area
- Figure 32: Comprehensive view of the value chain configuration
- Figure 33
- Figure 34: Factors that affect on Quality

List of tables

Table 1: Syrian apple export distribution by destination and trends

Table 2: Distribution of regional imports share among major world apple exporters.

Table 3: The regional apple economy major trends – average value or trends for 2000-2007

Table 4: the development of area, number of trees, and production

Table 5: Distribution of production cost/benefit among three marketing systems

Table 6: Input cost

Table 7: Hired labor costs

Table 8: Distribution of the wholesaler cost/benefit

Table 9: Distribution of the retailing costs

Table 10: Distribution of the export cost

Table 11: Consolidation of the cost/profit of farmer and exporter

Table 12: Consolidation of the cost/profit of the farmer and wholesalers

Table 13: Consolidation of the cost/profit of the Wholesaler and Retailers

Table 14: Consolidation of the cost/profit of the farmer retailer

Table 15: Groups of varieties circulating in Syrian Arab Republic

1 Introduction

Generally, apple is considered one of the most popular fruit. Apple follows the rosary fruit family, and the wild origin¹ is called ALMA related to Alma Ata (city in Kazakhstan). Today, there are approximately 7500 apple varieties around the world planted in different climatic conditions. Apple production ranked at level 17 of total agricultural production. In 2007, world apple production was 65.9 Million tons. 42.2% of this quantity is produced by China, 6.2 % by United States, 4% by Iran Islamic Republic, 3.7% by Turkey, and 3.5% by Russian Federation.

In 2007, at the world level, Syrian apple production is ranked 32, at the Asian continent level 9, and at the Arabic regional level third after Egypt and Morocco.

1.1 Objectives of the study

The general objective of this study is to estimate to what extent Syrian apple is capable to compete in foreign markets. This study focus on the apple value chain flows analyzing at each step actors' current practices, strengths and constraints in order to identify gaps that would required more attention at two levels: the value chain systems and its environments. At the value chain level the study aims at underlining factors that may hindered its efficiency in technical, organisational and financial terms, while the analysis take also into considerations factors related to the policy and global environments in which the value chain evolve s and that may also affect its performances.

Through these steps the study will focus on finding out ways to widening strengths, minimizing weaknesses, concentrate on threats, and take the greatest possible advantage of opportunities available such as increasing the possibility of entering new markets and developing Syrian position in the existing market. On the specific side, the study is focused on:

- analyzing the dynamic of the markets targeted by the value chain
- mapping out the structure of this value chain from the production to the end-users
- defining the levels of technology in all activities along the chain
- presenting the feature of the facilities and supported services available to value chain
- referring to the problems faced by stakeholders along the chain

1.2 Methodology

The analysis rely on the collection of primary data from typical agents of the value chain including producers, traders, exporter and retailers combined with secondary sources such as; official statistical data and previous studies about apple. After that we try to light up the essential points that affect competitiveness by calculating some indicator to clarified the real picture.

¹ Mallosi Severse is the name of the wild variety.

1.3 Characterization of the competitiveness (Common to all report)

Competitiveness is not clearly defined till now because it ranged between narrow concept focused on price and trade competitiveness, and wide bundle almost includes all activities of economy and society.

In the context of this study, competitiveness means the capacity of the country to produce more in effective way. This means: 1. low cost by improving productivity and using resources which include regulation and technology, increasing quality according to the best market information and production technique, the appropriate that is connected to the international needs in addition to the local needs, depending on newly information, and sufficient flexibility in production, storage, and management. 2. Sell more specially from manufacturing products. 3. Gathering direct investments that raise the competitiveness advantages in addition to comparative advantages that the country has.

2 Supply and Demand Dynamic

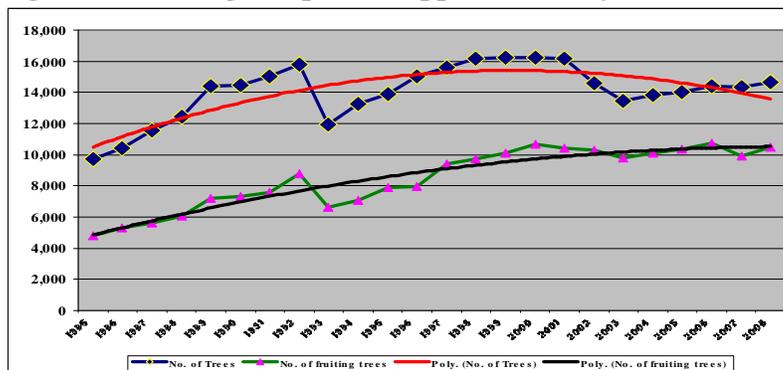
2.1 Focus on fresh apple.

Fresh apple is the main important form of usage because only around 5% of total production goes to processing to produce vinegar and juice. Small part of this quantity prided as sugared apple. Fresh apple is presented in the market during almost 9 menthes benefiting from cold storing technique.

2.2 General supply dynamic

Data from 1985 up to 1997 see the continuous expansion of the apple tree planting. Theses trees are gradually entering into production with delays. This product affected by returns because the supply was very rigid and cannot adjust easily to demand because of price decreasing where tree planted and fruiting does not necessarily means fruits picking if price are too low. In Syria, in the last period, apple benefits like other products from subsidies inputs such chemicals and fuels whereof leads to decreasing cost, but this is changed now because the government releases chemicals and fuels prices.

Figure 1 : Fruiting and planted apple trees in Syria

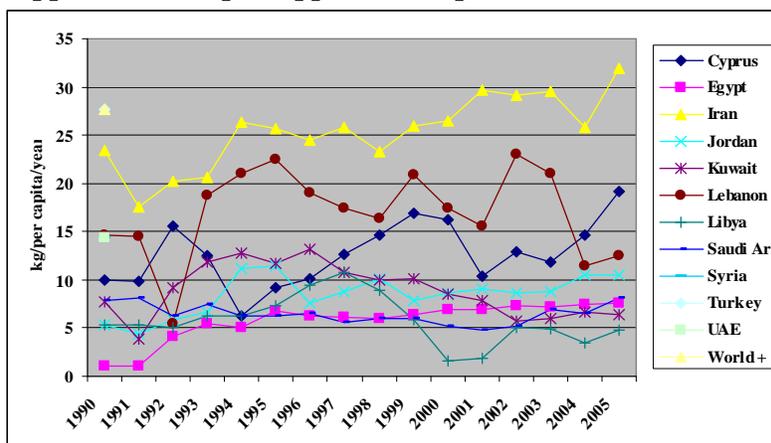


Source: NAPC database

2.3 General demand dynamic

Meanwhile the demand is stagnate if not decreasing. We can observed from the international comparison that this is the case in most of the countries in the region, in particular the gulf countries, with the exception of Egypt and Jordan, where consumption level are lower compare to regional standard.

Figure 2 : Apparent Per capita apple consumption

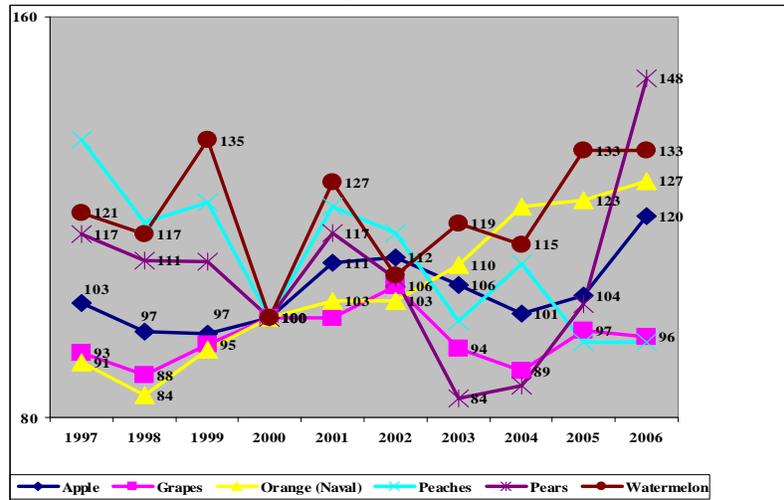


Source: FAOSTAT

This might be related to various factors, but there certainly a type of diet transition. At an initial stage with the income increase and higher availability of Apple (improvement in transports and marketing and retailing of Apple – cold storage technique dissemination), apple consumption tend to penetrate most of population market segments. This may have occurred during the **90's**. After with increasing diet diversification, consumers may have diversified their consumptions (new fruits available on the market...) and thus the per-capita consumption of apple declined (substitution of other type of fruits).The phenomenon is delayed in Jordan and Egypt, where per capita consumption is lower at the beginning of the 90's but now tend to increases faster than in other middle-east countries. It is important to note the fast expansion of apple consumption in Iran and the high level of apple consumption in Turkey.

This shift in demand is also backstopped by the changes in wholesale price index of several fruit: The orange price follow a rather steady increase compared to the apple price that even on an upward trends, remain mostly under the range of 10% during last ten years.

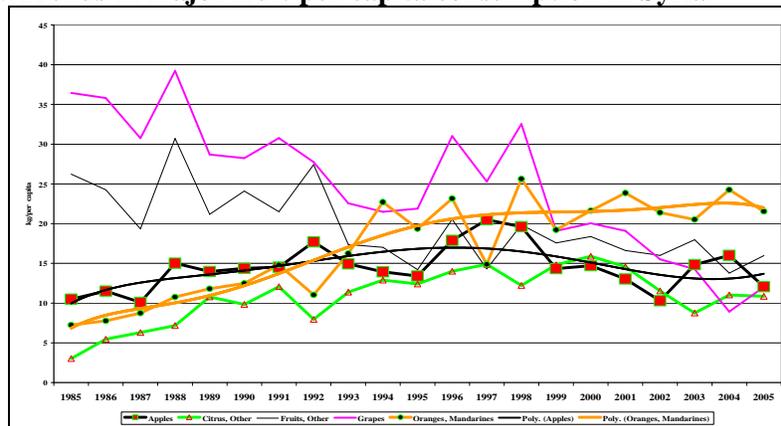
Figure 3 : Syrian Wholesale Fruit price Index (2000=100)



Source: computed from NAPC database

Comparing the trends in per capita consumption in Syria confirm a global downward trends fruits consumption while Orange is the only fruit that shows an upward trend may be related to different reasons such as doubling production from 372 thousand tons in 1996 to 603 Thousand tons in 2007, while the share of exports in production stay slightly at the share of 1.5%, at the same time as the imports of oranges increased from 2.3 tons to 15.9 thousand tons in the same reference period. Also the reason of upward trend of orange consumption connected to specialty of oranges as a fruit and to the supply season where other fruit supply season is not coincident with oranges in the market, and the other kinds of citrus not preferable comparing to it.

Figure 4 : Trends in major fruit per capita consumption in Syria



Source: FAOSTAT

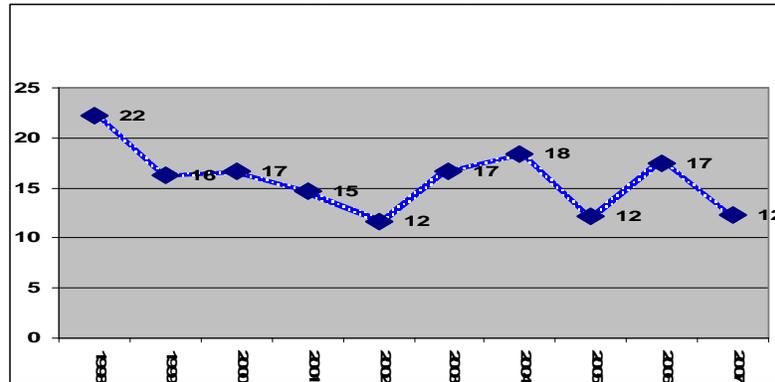
2.4 Domestic demand and trade

2.4.1 Apple consumption in Syria

Figure shows that the apparent consumption of apple per capita per year tends to decline from 1998 to 2007, down from 22 kg to 12 kg. This declining trend of consumption rate could be mostly related to the instability of apple production as a result of climatic condition parallel with increasing number of population, and may be also related to the development of exports at the consumer's expenses. Also part of

this instability could be related to income level if we perceived the apple price increase during the period pointed out to.

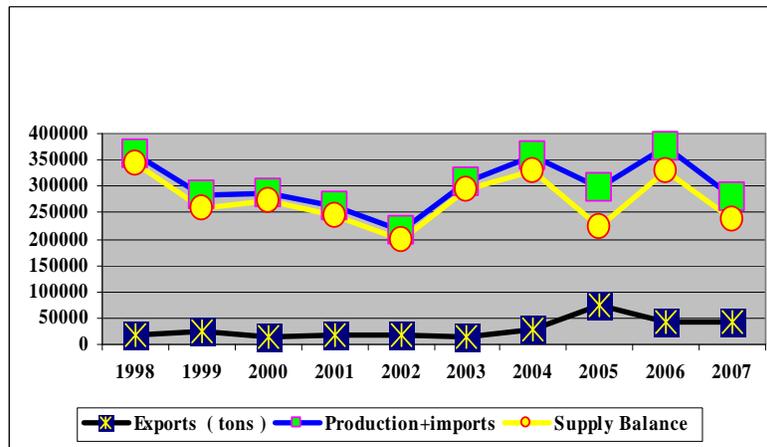
Figure 5 : Syrian apple consumption -kg/per capita



Source: calculated

The following graph shows that Syrian apple consumption is mainly satisfied by local production, imports volume remain marginal and are not exceeding 0.1% of its production. Available quantities of apple in the local market after subtracting the exported quantities constitutes around 85% of total production that ranged between 344 to 238 thousand tons, and the consumer's portion went down from 22 kg/per capita in 1998 to 12 kg/per capita in 2007.

Figure 6 : Apple supply balance



Source: NAPC data base

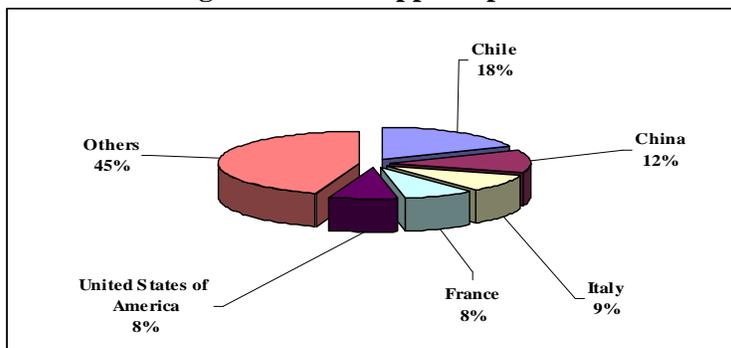
The figure clears that export trend keep almost stable even though production variation. Apple supply balance harmonizes with production variation.

2.5 Syria position in the world and regional apple economy

2.5.1 World production and trade

In 2007, statistics show that Chile is the main international apple exporter in spite of its low contribution to world apple production with 2.1%, its share in apple world exports is 18.2% (Figure). The second exporter is China with a share of 12% of the world trade , and a share in world apple production of 42.2%. These two main exporters are followed in terms of total export shares by: Italy's (9.2%), France 8%, And USA 7.7%.. These 5 countries account for 55% of world exported quantities. This means that these 5 countries have power in apple global market (Figure 7).

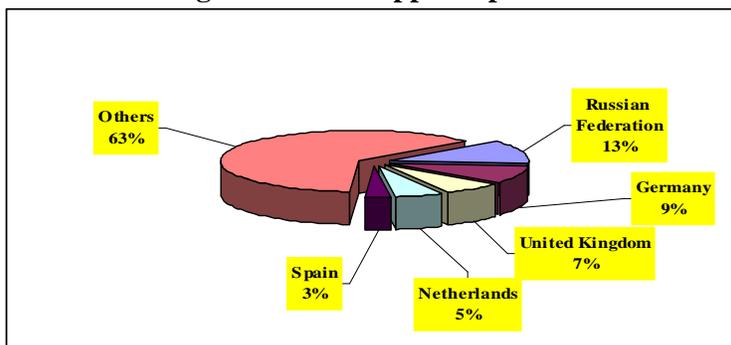
Figure 7 : Main apple exporters



Source: FAO database

With respect to import, statistics show that Russian Federation ranked first with 12.6% of world imports volume. The second importer is Germany with 9% share. United Kingdom, Netherlands, and Spain shared as the following respectively 7.1%, 5.4%, 3.2%. (Figure 8).

Figure 8 : Main apple importers



FAO database

At the Arabic countries regional level² in 2007, the main exporters were Syria 63.7% of total exports, Lebanon 27%, and UAE 6%. The main importers: Saudi Arabia 28.7%, Algeria 17.4%, Emirates 22.7, Egypt 10.3%, and Libya 6.4%.

2.5.2 Demand changes in the sub-region

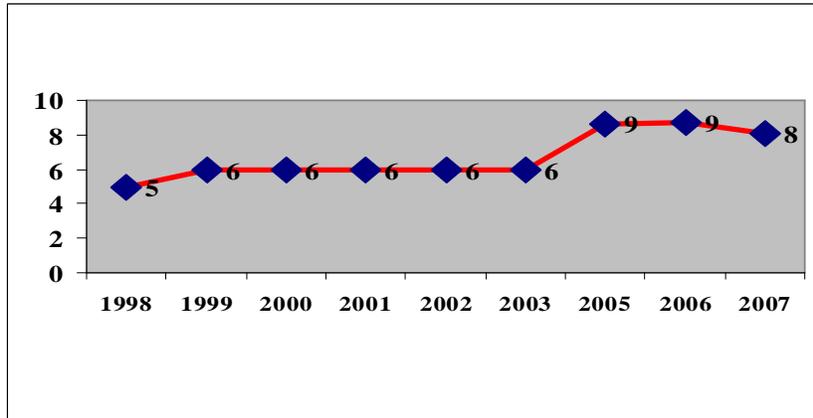
Changes in the apparent consumption of the four main Syrian trading partners indicate the potential trends for the regional apple market (Figure 9, 10,11).

Egypt

The apple consumption is rather low in Egypt compared to regional standard although it increased from from 4 kg/capita/year to 8 kg/capita/year, an increase associated with an increase of both domestic production and imports.

² Source: FSOSTAT.

**Figure 9 : Egyptian apple consumption rate
kg/per capita/per year**

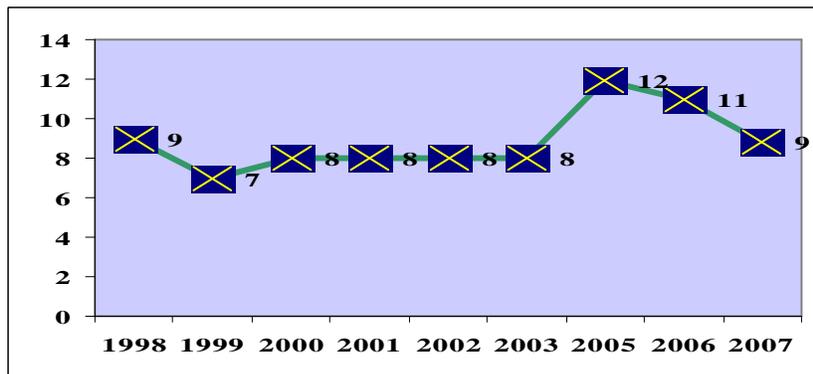


Source: calculated

Jordan

Demand of apple increased from 7 kg/capita/year to 12 kg/capita/year. Consumption trend seems going to increase starting from 2003 to 2006, and recede in 2007.

**Figure 10 : Jordanian apple consumption rate
kg/per capita/per year**



Source: calculated

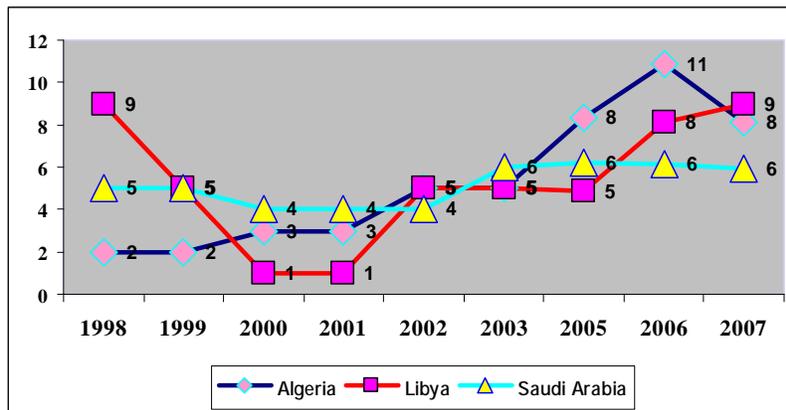
Libyan Arab Jamahiriya

Libya is a new destination for Syrian apple exports starting from 2000. Syrian exports to Libya have noticeably increased during the last years . But Libya imported a big quantity of apple from different countries. Syrian share in Libyan apple imports is around 8.3% in 2007. Apple consumption rate per capita get is 9 kg /year in 2007.

Saudi Arabia

Similar to Egypt, apple consumption rate per capita is rather stable in the studying period from 4 kg/capita/year to 6 kg/capita/year, this comparable level of per capita consumption in this country in spite of higher per capita income indicating that apple is not a preferential fruits in this country.

Figure 11 : Apple consumption rate of Algeria, Libya, Saudi Arabia kg/per capita/per year



Source: calculated

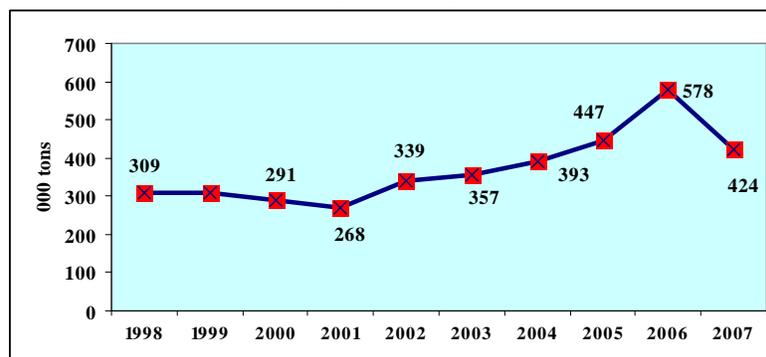
Algeria

Algerian demand of apple changed dramatically from 2 kg/capita/year to 11 kg/capita/year in the studying period. This change of consuming habits maybe due to various factors but to income increase in particular.

2.5.3 Imports trends in the Arab region

Apple imports in the Arab region increased from 381 thousand tons (the average of 1996-2000) to 533 thousand tons in 2007³ (Figure 12). These apple quantity numbers of imports plus production number show the future market trend at the Arab regional level. This trend is an indicator of Syrian exports future, and how to expand its exports in these markets. (See figure 12).

Figure 12 : Trend of apple imports of Arab regional countries (000 M.T)



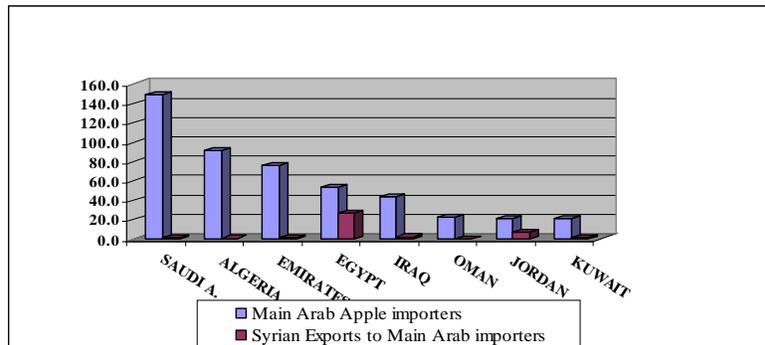
Source: AOAD database

The first apple importer in the Arab region is Saudi Arabia. Its imports varied between an average of 123 thousand in the 1996- 2000 period up to 149 thousand tons in 2007. Algeria's imports varied from 0.5 to 91.4 thousand tons. UAE imports decreased from 103 to 76 thousand tons, at the same mentioned period. Figure 13 shows the comparison between the total volume of apple imported by the main importing countries in the region and the volume of Syrian exports to these countries.

³ AOAD database.

This comparison clearly indicates that Syrian has a very limited share of the imports markets in most of these countries, with the exception of Egypt.

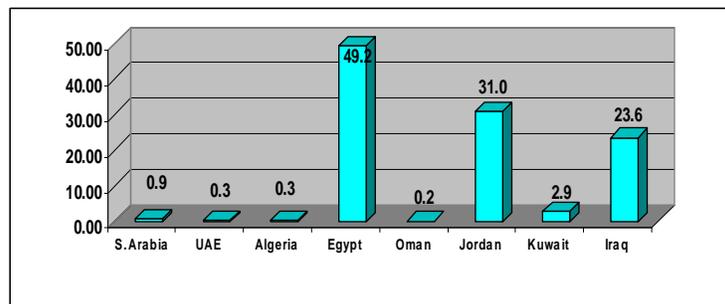
Figure 13 : Comparison between main Arab apple imports and Syrian exports in 2007- 000 Tons



Source: Calculated

In the Arab regional market, Syrian apple exports represent around half of Egyptian imports of apple. At the time whereas Saudi Arabia imports 28% of total Arab regional apple imports, Syrian export's share is 0.9% of its imports. The same contrast for Algeria that imports 17% of the Arab apple regional imports, and Syrian share in his market is 0.3%. Iraq imports share 8% of total apple imports, and Syrian share in his market 23%. These numbers should raise a lot of questions and stay behind of them a lot of work.

Figure 14 : Share of Syrian apple exports in main Arab apple imports markets

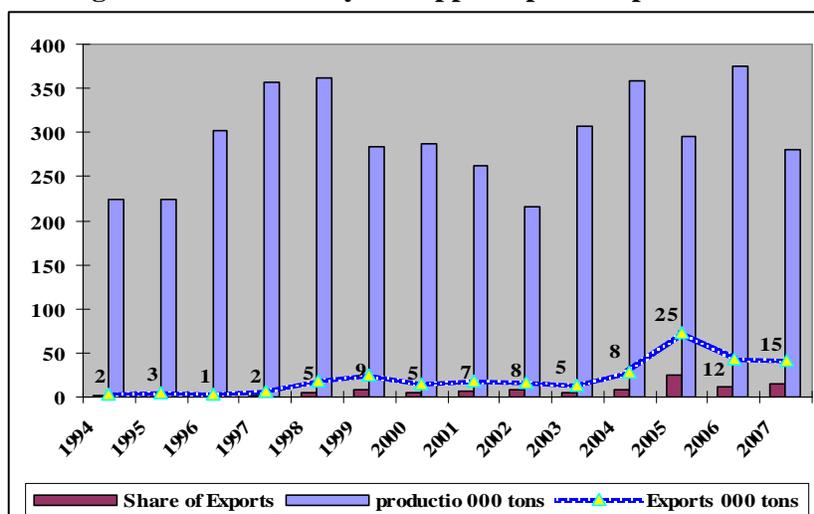


Source: Calculated

2.5.4 Syrian apple exports destinations

Syria exports 15% of its total production in 2007, and its highest share was 25% in 2005. This high percentage in this year resulted of a decreasing production from 358 thousand tons in 2004 to 296 thousand tons in 2005, with increasing apple exports from 28 thousand tons to 74 thousand tons at the same mentioning period, and also may be it resulted of declining trend of demand or changes in relative price. During the period 1998- 2007, apple exports increased significantly from 25 thousand tons to 42 thousand tons. Also at the same period, the share of apple exports to production increased from 5% to 15%. This share increase as mentioned above based on increasing exports in one side and decreasing production in the other side. (See the graph below).

Figure 15 : Share of Syrian apple exports in production



NAPC database

Apple exports in 1998 were for quantity of 17.5 thousand tons with a value of SP 91 millions to increase to 41.8 thousand tons with value SP 867 millions in 2007. Apple exports recorded their largest quantity in 2005 (73.6 thousand tons) and its highest value in 2006 reached SP 1280 millions.

The main destination countries in 2007 were: Egypt, Jordan, Libya, Iraq, and Saudi Arabia. Export quantities to them as a whole constitute 91.7% of total Syrian apple exports, which means that Syrian apple exports are concentrated in 5 destination countries. 62.4% of this exported quantity goes to one country. (see the following table).

Table 1 : Syrian apple export distribution by destination and trends

Destination	2007	Average	Max	Trend
Egypt	62%	43%	75%	5%
Jordan	15%	15%	38%	18%
Saudi Arabia	3%	21%	43%	-9%
Libyan Arab Jamahir	7%	3%	15%	454%
Lebanon	1%	3%	19%	38%
Kuwait	1%	7%	34%	-18%
United Arab Emirates	1%	3%	13%	-19%
Iraq	4%	1%	4%	444%
Qatar	0%	1%	2%	-10%
European Market	0%	0%	2%	69%
Sudan	1%	0%	1%	15%
Yemen	2%	0%	2%	725%
Oman	0%	1%	2%	49%
Algeria	1%	0%	2%	56%
Bahrain	0%	1%	6%	-27%
Russian Federation	0%	0%	4%	-77%
Others	0%	0%	1%	-14%
Total	100%	100%		
3 majors	84%	61%		9%

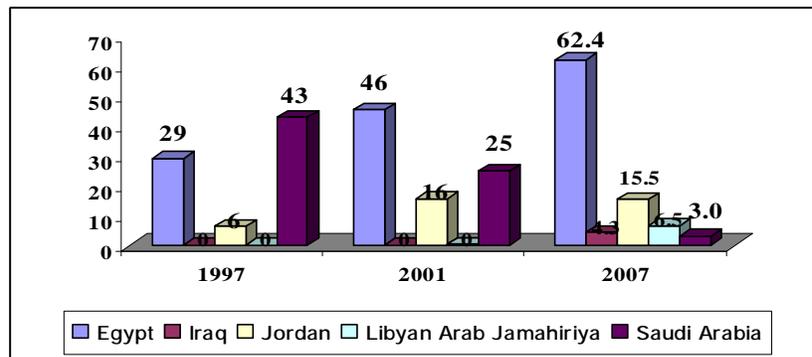
Source: Calculated from NAPC database

The table shows the 3 major destinations and the trend of each destination market.

This rather concentrated distribution of exports volume in a limited number of countries indicate a vulnerable positions since Syrian apple exports depends upon a limited number of country.. To reduce this risk it is necessary to promote a diversification of exported apple destination, based on the analysis of the value chain strong points.

Figure 16 shows the distribution of Syrian exports across major destinations and for three years. It clearly the increasing importance of the Egyptian market and the declining trends of apple exports toward Saudi Arabian, while the Jordan position tends to consolidate and the emergence of the Iraqi and Libyan markets.

Figure 16 : Comparison of Apple Exports to Main Destination Countries

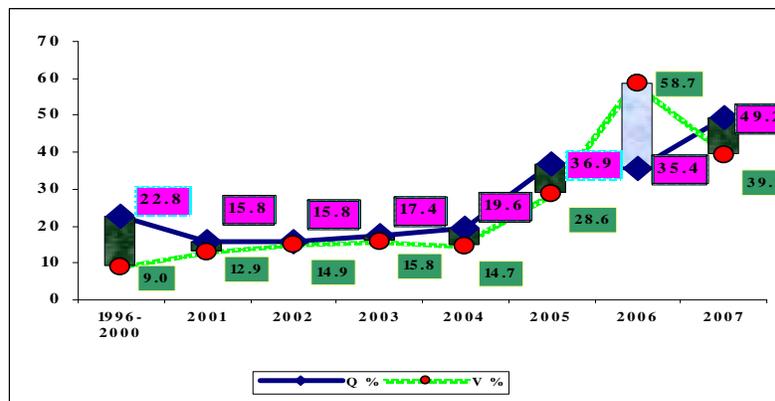


NAPC database

2.5.4.1 Case of Egypt

In the case of Egypt, the major destination for Syrian apple exports it was found that in 2007 the share as quantity (49.2%) is higher than the share as value (39.1%), which means that the Syrian apple gets lower price as the unit value comparing to previous year. In 2006, Syrian share in Egyptian market as quantity was 35.4%, and as value was 58.7%. The unit value was 41.2 SP/kg, 21.1 SP/kg in 2006, 2007 respectively.

Figure 17: the differences between Syrian apples exports share as quantity and value in the Egyptian market

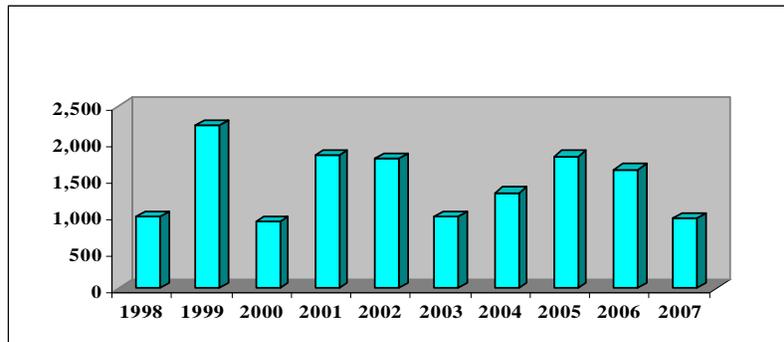


Source: AOAD & NAPC- calculated

2.5.4.2 Case of Golf countries

Apple export statistics to golf countries illustrated the history of good marketing position, but it starting to be instable because these countries become more demanding markets, and the quantities exported to each of Kuwait, Qatar, and UAE started to decline.

Figure 18 : Apple exports to golf countries- tons



Source: NAPC database

By asking some apple exporters how they evaluate this market, some of them mentioned that the main reason behind turning away of these markets is the quality issue meaning fruit size, colour, and test. Because of increasing income level in these countries, consumers look for higher quality standards. As a result, Syrian exporters turn toward regional market where consumers' quality requirements are lower, and require less investment.

Questions are raised with the results of this new orientation. First, which market Syria was oriented to? Second, is it difficult to cope with the needs of high demanding market? Third, is gained profit with current production costs commensurate with competitiveness needs?

2.5.4.3 Relative position of regional exporters and Syria.

Taking trade matrix data from FAOSTAT and looking at the apple exported from major world exporters (China, Chile, EU – France, Poland, Belgium, Netherlands) to the region the following trade matrix has been build to further analyze the respective position of internal regional trade and imports coming from out of the region. It should be underline that this is only an estimate of the trade configuration since trade flows varies from year to year.

Globally major world apple trade exporters supply around 50% of the regional import, the first being Chile followed by US, China and EU countries.; However these major exporters are more dominant on the supply of non producing countries with high income; US is the main supplier of apple for UAE and Kuwait while Chile is the main one for Saudi Arabia and UAE. European countries have a dominant position on their major trading partners in the region (France in Algeria and Italy in Lybia).

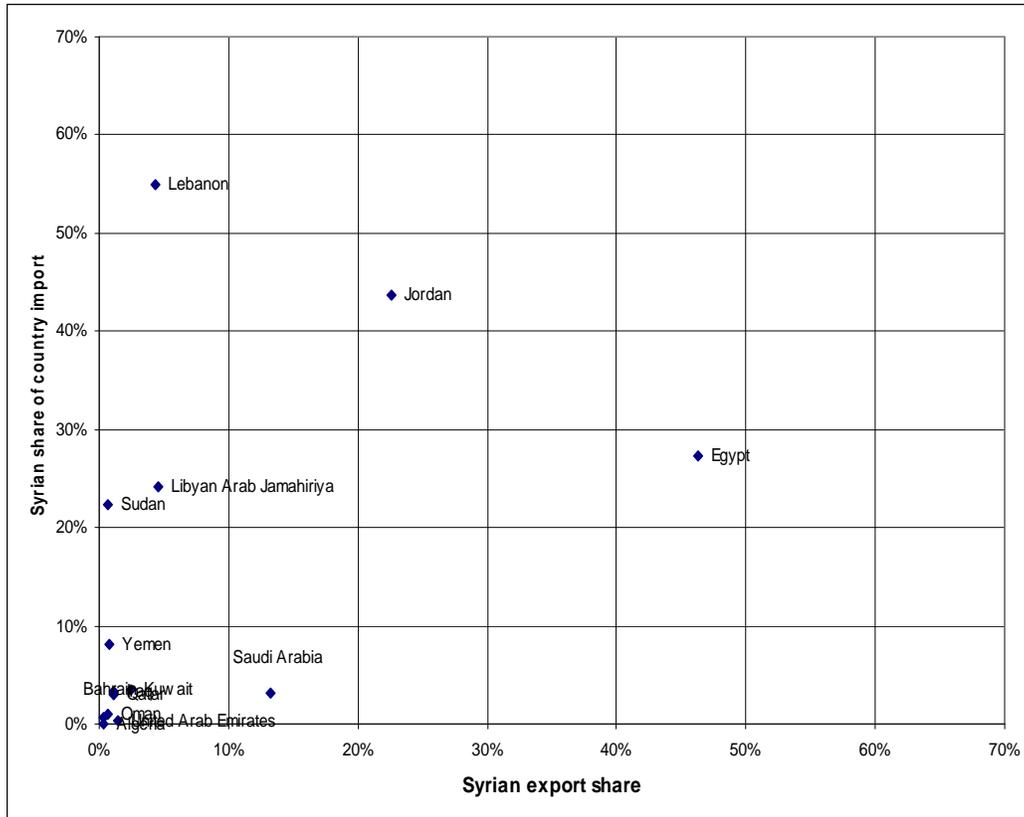
Table 2 : Distribution of regional imports share among major world apple exporters.

Destination (importers)	Origin (exporters)										Total
	Belgium	Chile	China	France	Italy	Netherlands	Poland	USA	Syria	Others	
Algeria	0.2%	-	2.0%	67.1%	2.2%	0.1%	0.6%	-	1.9%	25.9%	100.0%
Bahrain	-	5.8%	5.5%	9.6%	0.6%	0.2%	-	14.0%	0.7%	63.7%	100.0%
Egypt	0.1%	2.7%	2.6%	2.4%	0.6%	-	-	7.7%	36.9%	47.1%	100.0%
Jordan	-	0.1%	-	0.5%	0.2%	-	0.3%	2.5%	30.5%	66.0%	100.0%
Lebanon	-	2.9%	-	0.1%	-	-	-	1.3%	24.6%	71.1%	100.0%
Libyan Arab Jamahiriya	-	-	0.8%	21.6%	63.4%	0.2%	0.4%	-	28.0%	-	100.0%
Morocco	-	0.3%	0.4%	18.9%	4.9%	3.3%	-	2.0%	-	70.2%	100.0%
Kuwait	-	20.5%	4.0%	5.5%	0.5%	0.0%	-	23.2%	3.0%	43.3%	100.0%
Oman	-	1.0%	2.9%	2.7%	-	-	-	1.4%	-	92.1%	100.0%
Qatar	-	-	7.9%	2.8%	-	0.0%	-	4.5%	3.4%	81.4%	100.0%
United Arab Emirates	-	21.9%	11.6%	9.7%	1.7%	0.0%	-	28.8%	0.4%	25.9%	100.0%
Saudi Arabia	-	35.6%	8.8%	8.1%	6.1%	-	-	14.1%	0.9%	26.4%	100.0%
Turkey	-	17.8%	2.4%	4.1%	14.8%	41.5%	-	-	0.5%	19.0%	100.0%
total	0.0%	15.9%	6.0%	16.1%	4.0%	0.5%	0.1%	11.8%	7.0%	38.5%	100.0%
Middle east countries	0.0%	19.6%	7.0%	6.4%	2.7%	0.0%	0.0%	14.6%	7.7%	42.0%	100.0%

Source: (FAOSTAT, 2005) Computed from <http://faostat.fao.org/site/537/default.aspx>

A graph to show the relative position of Syria in his trading partners Syria has a strong position in markets (import share in destination market) that are important (export share): Egypt and Jordan for its export while where is has marginal position (Gulf countries).

Figure 19 : Syria export share and destination market import share



Source: FAOSTAT

2.5.4.4 Syrian Competitors on the regional market

In Egyptian market the Syrian exporters compete with exports from Lebanon, Turkey, US, China and Iran. In the Gulf countries and Saudi Arabian markets they compete with exporters from Australia, Chili and US. In the Jordanian market they compete with exporters from Iran, Israel, Lebanon.

2.5.4.5 Syrian position in the sub-regional Apple economy

For the current situation, the major export outlet for Syria Apple is the regional market. (we include Turkey, since it is possible to be a major player for Syrian trade.

The issue here is to understand to what extent the regional apple market can be a “learning ground” for the Syrian apple value chains players? Then if it (and can) provides the right and relevant incentives to the value chain player, then Syrian apple export market could be enlarged to more demanding market (EU....)

Looking at the various prod, import and export the following group can be identified Among the apple producing countries:

Turkey is the major producer (production equal to the all other country in the region) but remain a minor trade partners with only 11% of the total export of the group.

Egypt is major producing country (more than 500 000t) and importing (10% of total group import. Algeria follow a similar pattern with a rapid expansion of domestic production still below 200 000 tons but with also expanding imports (10% of total group import).

Libyan and Iraq are also expanding in terms of production and imports. They might follow a growth pathway similar to the one of Algeria (oil income).

Then we have the group of non-producing countries of the Gulf which represent the most important importers in the region (SA 26%, UAE 19%) although the growth of this market is limited. It is important to underline the particular position of UAE which is both an importer and an exporter (27% of the apple imported are reexported) corresponding to 22 % of the group export. Bahrain also play the role of trading hub but it remains a marginal player.

Looking at the Syrian position it should be underline that it is the first exporter in the group 41% of the total exports and that for the period Syrian exports represent 16% of its production. Lebanon **has higher ratio of openness** with 32% of the total national supply (i.e prod+import) exported but while the UAE is a special case (reexporting). Thus **Syria and Lebanon represent the major “regional” players** in terms of supply in the regional market followed by Turkey.

Table 3 : The regional apple economy major trends – average value or trends for 2000-2007

	Production			Imports			Export			Indicators	
	Qty tons	Growth rate	Share	Qty tons	Growth rate	Share	Qty tons	Growth rate	Share	Import/ total supply	Export/ total supply
Turkey	2,364,930	0.0%	57%	3,298	10.5%	2%	18,943	1.1%	17%	0.1%	1%
Egypt	530,596	2.3%	13%	47,723	6.2%	23%	68	10.7%	0%	8.3%	0%
Morocco	342,837	5.5%	8%	5,886	6.0%	3%	45	-11.0%	0%	1.7%	0%
Syrian Arab Republic*	304,637	3.7%	7%	156	815.8%	0%	36,963	41.3%	33%	0.1%	12%
Algeria	165,149	11.6%	4%	51,076	862.6%	24%	1	-13.0%	0%	23.6%	0%
Lebanon	126,778	-0.7%	3%	842	18.5%	0%	40,711	12.2%	37%	0.7%	32%
Tunisia	109,444	0.4%	3%	30	280.0%	0%	45	-75.6%	0%	0.0%	0%
Georgia	79,607	1.5%	2%	164	80.7%	0%	1,548	49.4%	1%	0.2%	2%
Iraq	44,889	-12.9%	1%	52,834	143.3%	25%	0	0.0%	0%	54.1%	0%
Jordan	39,599	-0.6%	1%	15,156	11.0%	7%	1,615	10.9%	1%	27.7%	3%
Libyan Arab Jamahiriya	16,056	17.0%	0%	12,108	29.6%	6%				43.0%	0%
Cyprus	10,171	-1.0%	0%	3,541	14.0%	2%	7	-94.4%	0%	25.8%	0%
Yemen	9,997	37.9%	0%	4,690	19.5%	2%	36	-77.1%	0%	31.9%	0%
Occupied Palestinian Territory	986	1.1%	0%	11,914	-0.3%	6%	52	19.6%	0%	92.4%	0%
Saudi Arabia				130,144	5.0%	62%	1,918	19.2%	2%	100.0%	1%
United Arab Emirates				92,183	-0.2%	44%	24,694	10.9%	22%	100.0%	27%
Oman				20,679	21.3%	10%	171	63.4%	0%	100.0%	1%
Kuwait				17,585	0.6%	8%	124	-85.4%	0%	100.0%	1%
Bahrain				10,327	-7.4%	5%	1,132	278.4%	1%	100.0%	11%
Qatar				8,711	7.0%	4%	95	123.1%	0%	100.0%	1%
Sudan				1,614	64.4%	1%				100.0%	0%
Total	4,145,675		100%	209,417	10.6%	100%	100,031	25.0%	91%	4.8%	2%
Without turkey	1,780,745			206,119			81,088			10.4%	4%

* Syrian official data

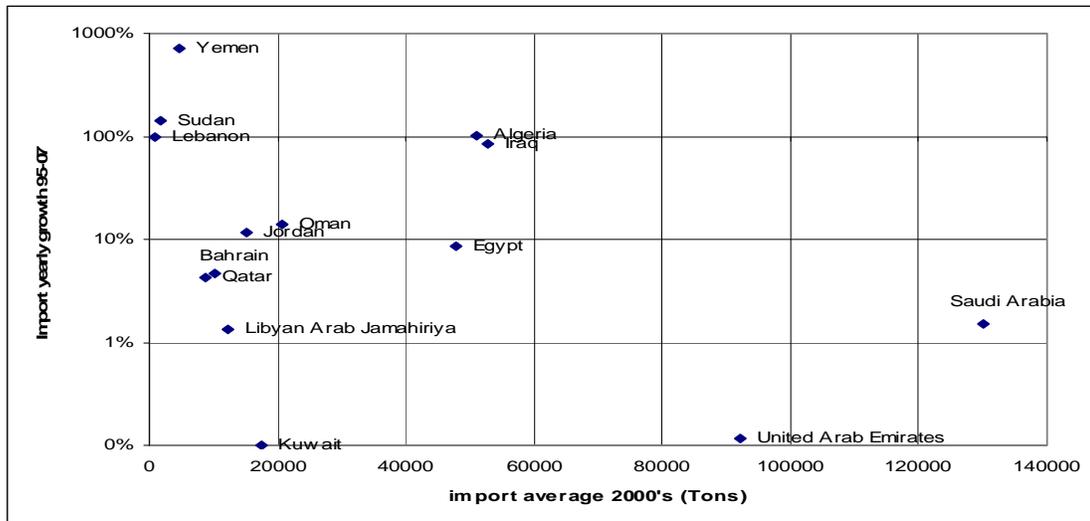
Source: FAOSTAT

Last but not least it is important to underline that the ratio of openness of the local market in term of import (without turkey) its about 10% (i.e. imports/(prod+import) and assuming that most of the export of the region target a country in the group, we observe that 44% of the regional import is regional trade the remaining coming from exporters located outside the region.

The following graph summarizes the dynamic of the regional apple market; there is an inverse relation between the growth of import and the size of import. Meaning that large import market in terms of volume (SA and UAE) acknowledge a slow growth of their market, in other word their market are saturated while the import market having the fastest growth (Yemen, Sudan) remains marginal in volume terms.

The most promising market for exporter are the one in the middle of the graph combing high growth rate and larger volume of imports: Egypt, Iraq, Algeria , and to a lesser extent Oman, Jordan and Libya.

Figure 20 : Import average volume and annual growth rate (1994 – 2007)



Source: FAOSTAT

2.5.4.6 Potentials to enter new market - Syrian & EU Association Agreement

During the studying period, Syrian apple exports to EU countries are very little comparing exports to the Arab regional countries. The main quantity exported to EU is 173 tons in 2007). This limited amount of exports to EU is due to imports limitation impose by the EU which favors its domestic supply and also the technical specification imposed on apple imports.

The prepared draft Association agreement between EU and Syria allowed Syria to export yearly 20 thousand tons of fresh apples, and after three years of implementation there is possibility to renegotiate on increasing this quantity. This quantity agreed on is consider as portion and exempted from tariff.

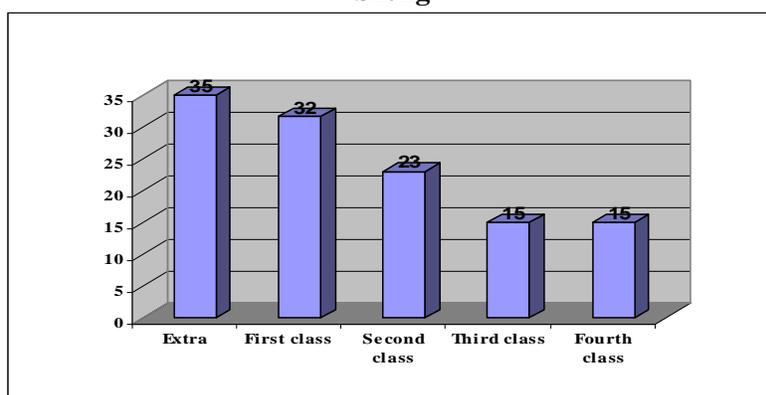
The agreement allows exporting to EU a volume equivalent to 42% of Syrian total exports in 2007. Opening this new market is another challenge alongside Syrian apple production and exporting sectors to improve itself in this demanding market, because there is a bundle of obstacles in front of entering this market, some reasons relating to tough specifications of EU market, but the main obstacle is not yet bringing the agreement into effect between the two parties. Others constrains connecting to Syrian side such as costs of production and transportation, insufficient knowledge on needed standards, and may be absence of interested partners in the EU market as a result of week information exchange.

2.6 Analysis of price trends

2.6.1 Apple price in local market

On the base of farmers and traders explanation, it has been confirmed that the price of apples varies on the local market on depending on the quality of the fruit. Beyond the supply and demand conditions that evolves throughout the year (price seasonality), prices at the wholesale market in Damascus and in the main governorates vary according to the size and the color. The next graph shows price differences starting from 35 SP for Extra, 32 SP for first class, 23 SP for second class, 15 SP for third and fourth class.

**Figure 21 : Selling Price according to classification
SP/kg**



Source: MAAR database

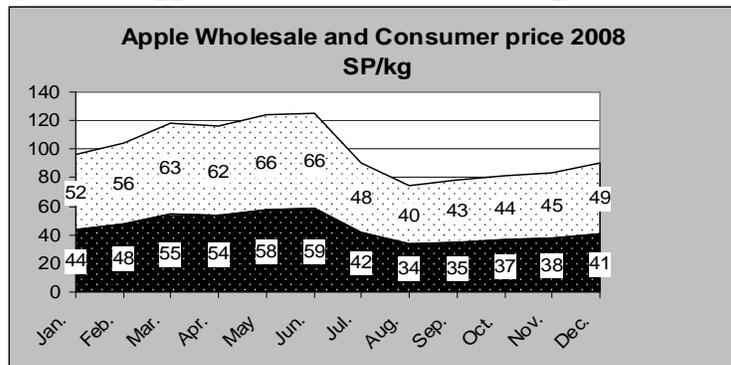
The preliminary comparison with official apple price numbers in the wholesale market and the selling price of farmers shows big price differences, with the exception of the main supply period (July to October), because the average farmer selling price is 24 SP/kg⁴ for three marketing systems that will be cleared later, while the official average wholesale price is 45 SP/kg.

It is worth to mention that only 15% of apple production is sold at nearly 35 SP/kg, but 25% is sold at 25 SP to 30 SP/kg, 40% is sold at 15 SP to 22 SP/kg, 20% is sold at 12 SP/kg to 5 SP/kg.

Another side of comparison between wholesale market price and consumer price in 2008 shows that the price difference is 6 to 8 SP/kg during the year, which formed roughly 29% increase above farmer selling price (See the next graph below).

⁴ Producers' survey.

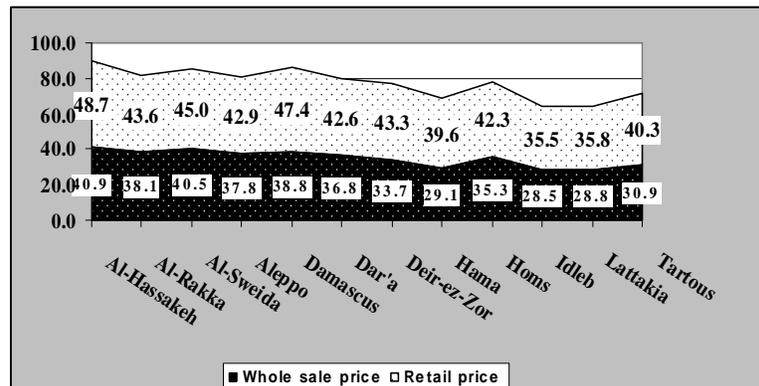
Figure 22 : Apple Wholesale and Consumer price 2008 SP/kg



Source: NAPC database

Another respect of comparison is price changes among governorates also show big price difference between wholesale market price and consumer price (see figure 23).

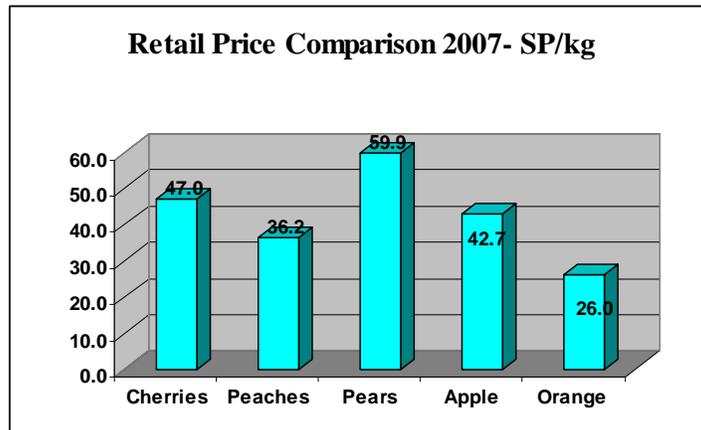
Figure 23 : Apple Wholesale and Consumer price by governorates 2007 sp/kg



Source: NAPC database

Also making comparison among retail price of apple and other fruits help to show if there is relation between apple price variation and time of existing of other alternative fruits in the market, with taking into consideration the ripeness season, ability to store, consumer preferences of these kinds of fruits, and the popularity of apple comparing with others. The following figure shows that apple price is less than alternative fruits such pears. (see figure 24).

Figure 24 : Comparison among fruits retailed price



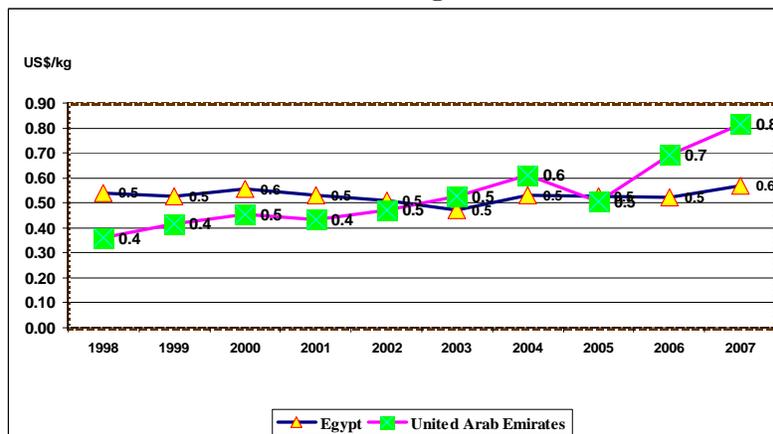
Source: MAAR database

2.6.2 Price in export market

Price formation across the various Syrian export destination markets are affected by various factors including the level of competition between foreign suppliers to these markets and domestic producers if any. While data on prevailing price are not available from accessible sources, price trends in these markets can be capture by using the unit value of apple imports computed from FAOSTAT.

Comparison is done between high and less demanding market in terms of quality requirement, respectively United Arab Emirates (UAE) and Egypt (Figure 25). The Egyptian market price almost keeps stable, while the UAE market changed from low price to high price trend. This is probably due to different factors such as consumers habits, country of origin, apple variety, time of imports during the year. The available and accessible information on these markets do not allows to go deeper in the analysis.

**Figure 25 : Comparison of Apple Imports Unit Value
US\$/kg**

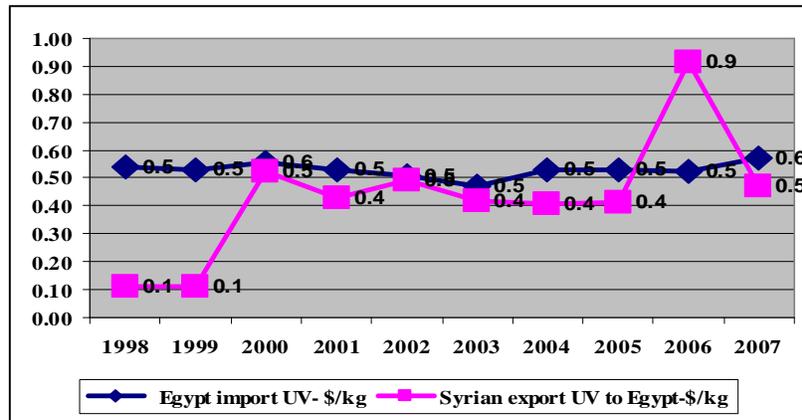


Source: FAO database

Another comparison is done to show the unit value differences of Syrian apple exports to Egypt with the imports apple unit value of Egypt. From the graph below we notice that there is a stabilization of Egyptian apple imports unit value from 0.5 \$/kg

to 0.6 \$/kg, while in the Syrian side the picture is different because apple exports unit value is varied from 0.1 \$/kg in 1998 to 0.5 in 2000, 0.9 in 2006, and 0.5 in 2007 with stable period between 2000- 2005 in the same mentioning period. The graph may possibly reflex another things such as increasing the Syrian apple selling price in Egyptian market as a result of improving a little apple quality standards to raise the price near to the average Egyptian apple imports unit value.

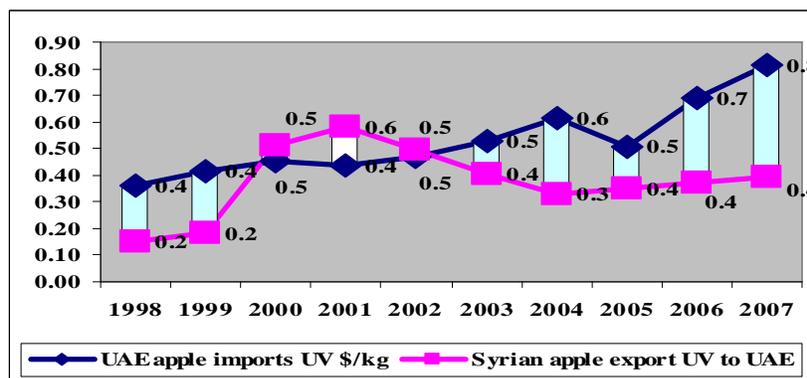
Figure 26 : Egyptian apple imports unit value versus Syrian apple exports unit value to Egypt



Source: FAO database & NAPC database

In the same context, an additional contrast is done to show the unit value differences of Syrian apple exports to UAE with the apple imports unit value of UAE. The next chart sees the unit value increase trend of UAE apple, while at the same time shows the noticeable increase of Syrian apple export unit value to UAE between 2000- 2002 from 0.2 \$/kg to 0.6 \$/kg, and since 2003 goes down to 0.4 \$/kg, and keep stable till 2007. From these results we think that still the quality issues stand behind the price hesitation at the low range price in this demanding market.

Figure 27 : UAE apple imports unit value versus Syrian apple exports unit value to UAE



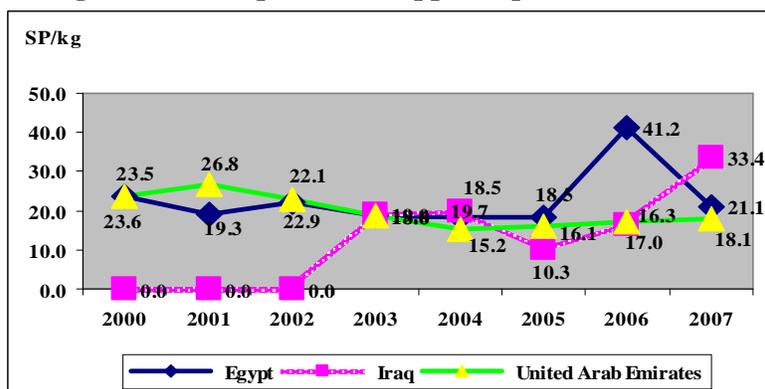
Source: FAO database & NAPC database

One more comparison is done to show the unit value differences of Syrian apple exports to these two mentioning markets in addition to Iraq. This comparison clears as it mentioned above that in Egyptian market Syrian unit price almost keep stable between 18.5 to 23.6 SP/kg, with the exception of 2006 that the price reaches 41 SP/kg. In UAE market, Syrian apple unit price varied between 15.2 to 26.8 SP/kg.

The graph No. (17) shows that the unit value going to decrease in the recent years. Iraqi market is a new market for Syrian apple, this because Iraq is starting to import apple from Syria after the war, and Syrian apple unit value get suitable price from this market. Unit value even it is high, it is difficult to evaluate in the context of existing instability in Iraqi market.

Figure 28 compares the unit value differences of Syrian apple exports to these two mentioning markets in addition to Iraq based on the Syrian export data . It shows that Egyptian market unit price almost keep stable, between 18.5 to 23.6 SP/kg with the exception of 2006. UAE unit price varied between 15.2 to 26.8 SP. The graph shows that the unit value going to decrease in the recent years. Iraq market is new for Syrian apple, this because Iraq is starting to import apple from Syria after the war.

Figure 28 : Comparison of Apple Exports Unit Value



Source: NAPC database

From the above it is complex to define as we mentioned before the reason behind the price change in this quick observation.

2.6.3 Differences in trade policies in the sub-region

Syrian policy for apple trade

Syria has committed itself to liberalize its trade regime by the introduction of various export promotion measures to develop non-oil exports including apple. Therefore, Syria applied more open, liberal and export-oriented policies with more freedom for private-sector in trade activities. Different export promotion measures were put in place through a strategy for export-oriented industrialization, with an aim to diversify exports, improve their quality, and promote higher value added. Consequently, in the last decade, export of apple and other agricultural and non agricultural products have been one of the dominant sources of foreign exchange earnings. Trade liberalization helped in achieving greater growth of apple product, and progress was made in diversifying exports. Furthermore, export restrictions on agricultural products were phased out and the average rate of non oil export growth in 2007 was 52.5%.

For Syrian agricultural export including apple, the policy aimed to accelerate the steps toward creating market economy and expanding the role of private sector in building the economy and developing export of services and goods. The policy incited exporters and producers to make more efforts to improve the quality by using modern agricultural marketing technical means and keeping international standards for goods as well as giving care for packing and packaging to increase their revenue from exporting agricultural products. In the meanwhile, the government focuses on steering

stakeholders for augmenting tradable agricultural products to enlarge the export, and producing new agricultural varieties for export that obtain higher returns. Also, to help producing such varieties production taxes on exports of agricultural commodities were rescinded.

In the context of promoting export, Syria gave priority to preferential trade agreements as a way to improve agricultural trade flows in general. So great efforts have been made to sign bilateral and regional trade agreements such as GAFTA (1998)⁵, the agreement with Turkey (2005) and the Association Agreement with EU, in addition to many other bilateral agreements that aimed to accelerate trade liberalization, and benefit from the reciprocal preferential trade that help in evolving exports and boosting trade.

The important of global and regional trade in domestic economy noticeably increased after Syria has significantly liberalized its external trade, specially after the full implementation of Great Arab Free Trade Agreement (GAFTA).

Since Syria has liberalized its agricultural trade, it eliminated most quantitative and non quantitative barriers as well as most agricultural trade obstacles.

As for import, Syria continued in applying the policy of trade openness on the world markets, gradually liberalizing its markets, allowing import of all agricultural products except some sensitive commodities that might badly affect local production. As a result, despite Syria is self sufficient in apple production, import of apple was allowed and Syrian markets witnessed quite good quantities of imported apple.

Currently, importers are free to import most agricultural products and import was encouraged, when Syria has gradually reduced its tariffs on imported goods and liberalized most of the agricultural commodity trade, including large group of products such as: fruit including apple, vegetables, meat and flowers that are now freely tradable.

Custom duty on imports for apple trade is at 47%. This tariff has been eliminated with GAFTA member countries.

Export of apple to regional markets faces one difficulty which is, according to Syrian exporters, Syrian did not subsidize its apple exports while all exporters of apple in the region receive subsidies from their governments when exporting apple. For instance, Lebanon government pays subsidy equal to 75 LP/kg exported to golf countries, or 50LP/kg exported to Syria or Jordan. Also Egyptian government pays subsidy at 12% of the value of exported freight. In the same way, Turkish government pays subsidy of 10% of each exported freight value.

3 Syrian apple value chains

3.1 Apple production

3.1.1 Planting trees and producing apples

A producer has to invest 10 years of labor and capital being able to harvest apples. It means, that decision making in apple production is rather risky, considering the rapid changes in the apple market at national and regional level.. Farmer gets the seedlings from private or public nursery according to goodness of the seedling. Seedling price is

⁵ In 1998 starting reduction of tariff, and in 1/1/2005 reached zero tariff with member countries.

lower (by more than half in public nursery), but farmer prefer to look for older seedling from the private sector to shorten the time require to establish the orchard.

Farmer provides all needed services during the year and responsible of all fixed and variable costs such fertilizer, insecticide & parasticide, cold storing rent, boxes, transportation, cultivation, irrigation, pruning, application of fertilizer and insecticide, picking, sorting,et).

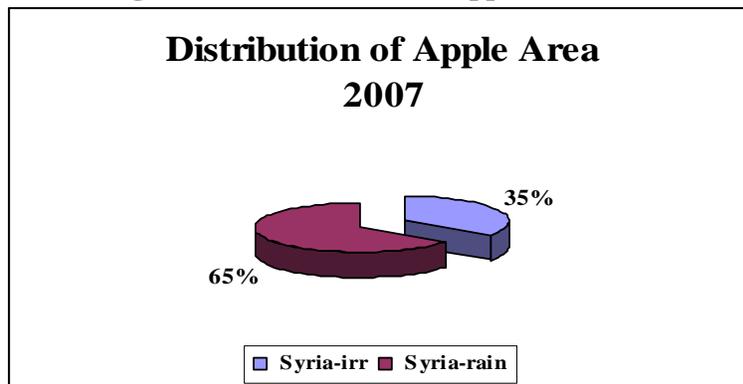
In the fruitful years, the way of marketing reflected on the harvesting technique, and on who do it as a following:

- § In the peak season, farmer marketing around 20% of its production directly to market. In this case the farmer undertakes the picking, classification, packing practices. This marketing quantity includes some variety of apples not suitable to store.
- § Part of apple production marketing through exporter that make an estimation of production and bye it before the repines season, and take care of picking, classification, packing, boxes, transportation practices and costs. By estimation this quantity is about 15% of total apple production (data 2007).
- § The biggest quantity of apple which around 65% of production goes to the wholesale market after storing by the farmer that take care of all mentioning practices before to control supplying side to the market in conformity of estimating demand.

3.1.2 Location of production

Apple is planted in different areas and governorates. The main producers areas are in decreasing order of importance Damascus rural area, Al-Sweida, Homs, Lattakia, and Tartous; in 2007, 35% of apple tree planted area were under irrigation (Figure 29)

Figure 29 : Distribution of Apple Area 2007



Source: NACP database

There is a total of 14.3 Million apple trees planted, 70% of them under fruiting with a total production is 280 Thousand tons.

Table No. 1 shows that there is a decrease in apple area and production. Part of this decline is related to the decline of profitability of apple in one part, and increasing the profitability of other fruit tree in the other part⁶.

Table 4 : the development of area, number of trees, and production

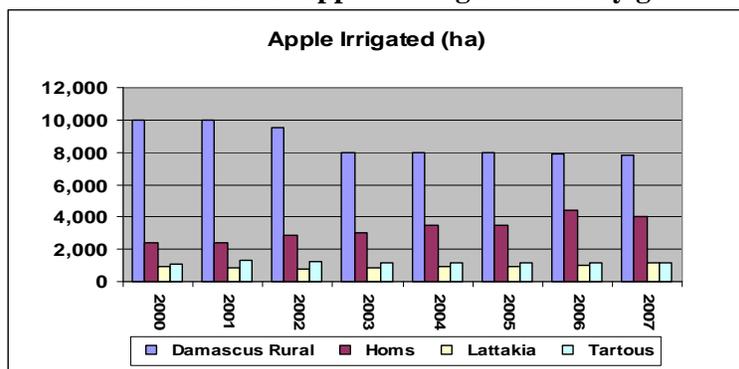
⁶ Producers survey.

Year	Area/ha	Total number of trees- 000	Fruitful tree- 000	Production (ton)
1998	48,488	16,150	9,700	362,001
1999	48,668	16,203	10,120	283,713
2000	49,375	16,204	10,650	286,773
2001	49,477	16,187	10,416	262,963
2002	46,625	14,605	10,294	215,762
2003	43,406	13,459	9,766	306,715
2004	45,083	13,847	10,130	358,164
2005	45,214	14,014	10,344	296,057
2006	46,547	14,410	10,749	374,328
2007	46,544	14,306	9,933	280,247
2008*	47,360	14,638	10,478	360,697

Source: NAPC database & CBS

For apple planted under irrigation Damascus rural is the main apple producing area 32.9% of Syrian total production and 43.5% of the total production under irrigation (Figure 19). In this governorate apple are planted in five zones, but 68% of the production is located in agroecological zone one (Zabadani, Qatana, Al-Tal), and 26% located in zone two (Al-Tal, Yabrood) because apple is growing well in high and cold area.

Figure 30 : Distribution of apple in irrigated area by governorates

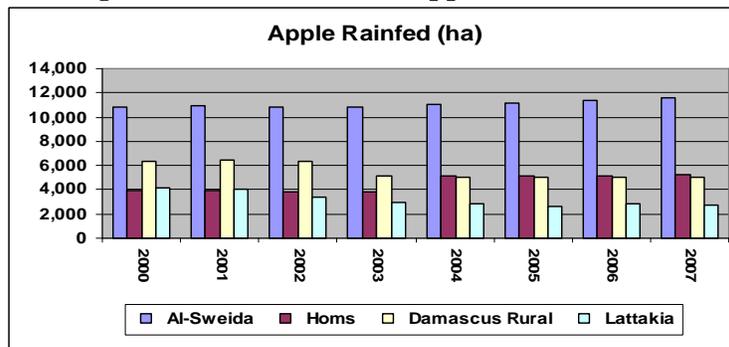


Source: NAPC database

In rain fed areas, Al-Sweida governorate ranks first and its production constitutes 25% of apple produced in rainfed areas and 10% of Syrian total production. Planted area in this governorate distributed between zone one 59% (Al-Sweida), and zone two 41% (Salkhad) (Figure 31).

* add 2008 data that published in January 2010.

Figure 31 : Distribution of apple in rainfed area



Source: NAPC database

3.2 Apple marketing

3.2.1 Local marketing organization

3.2.1.1 Traders

In case of apple, exporters and traders sometime are the same person. This means that they play the similar role in marketing apple.

Mostly this quantity is sold by the way of agent in the market that gets 6% of the sold price as commission

3.2.1.2 Agents

Agents play an important role in the wholesale market, especially in the ripeness season. This role summed up as a link between producers and retailers through bargaining with buyers in the interest of producer. Agents get 6% as commission. Generally each group of producers has his own agent deal with in the market.

3.2.1.3 Retailers

Retailers are buying apple from the wholesale market and are selling it to consumer in shops, and/or to travelling salesmen.

3.2.1.4 Public institution

Along the apple value chain there are several bodies that provide services to value chain stakeholders. MAAR intervenes through several directorates that are involved somehow in this activity such as agricultural production- marketing, economics, and extension that provided different services. Ministry of Economy and Trade work throughout the General Establishment of Storing and Marketing Agricultural and Animal Products (GESMAAP) as trader, exporter, and controller of supply balance in critical time. GESMAAP established in 2000 by the decree 534 as a result of consolidation three companies (GE of Meat, GE of fruits and vegetable, and GE of Storing and Freezing). In 2001, GESMAAP started to work by dealing with different kinds of products such as fruits, vegetables, chicken, and sheep meat. For apple, the establishment buys the products directly from the producers on a contractual basis before the ripeness season. GESMAAP is purchasing around 18000 tons of apples. About 20% to 25 % of this quantity is exported to the Arab regional markets. The rest of the quantity goes to the local market, retailed through public or private shops.

Agriculture Cooperative Bank (ACB) is one of a service provider along the chain that provides two types of loans cash and in kind.

3.2.1.5 Processors:

Nearly around 5% of apple production goes for processing which is a marginal outlet for apple producers and processors. There are different types output processed from apple such as juice, vinegar, and sugared apple. Apple juice is produced mostly by factories that are not specialized in apple juice production only. For example: Mountain Fruit Juice company is a new company established in 1992 and works in producing different products such as juice (apple, grape, tomato, apricot, orange, grapefruit, mango, pineapple), marmalade (orange, apple sauce, apricot, tomato past, cherry, strawberry).

3.2.1.6 Consumers

Apple is a popular fruit in Syria. Mostly, consumers preferred to consume fresh apple while small quantities of apple are consumed as juice or used for candies.

3.2.2 Exporting apples from Syria

As one exporter said, in Syria there are about 51 apple exporters, in addition to farmers that prepared the product, and the exporter sells it to farmer's credit.

Before the ripeness, the exporter is coming to the apple farm, and estimates the volume of production, then make an agreement with farmer on the price. In the ripeness season, the exporter is coming again and takes care of apple picking collecting and sorting procedures. Then the product is washing before storing in the cold house. After that, the exporter is packaging apple in cartoon boxes for export. Exporters are sold part of collected apple to the wholesale market for varieties not fitting to export, and in adverse way, sometime the exporters are buying apple from this market during the supply season for export.

Concerning competition, there are two types of competition, one related to Syrian apple exported to other market and faced existing of other country's apple in this market. The second type, as one exporter was mentioned, Syrian apple goes to some markets that provides high export subsidy, and reexports it abroad with different nationality. The same action was done by some Syrian exporters that import high quality apple that demanding in some markets and not available domestically in specific time, and reexporting it.

3.2.3 Main futures and practices in main destination countries

With Jordan: The Jordanian imports of Syrian apple were 70% of its total apple imports. But in the recent two years, China's apple take a noticeable position in the Jordanian apple imports market, and competes the Syrian apple in this market.

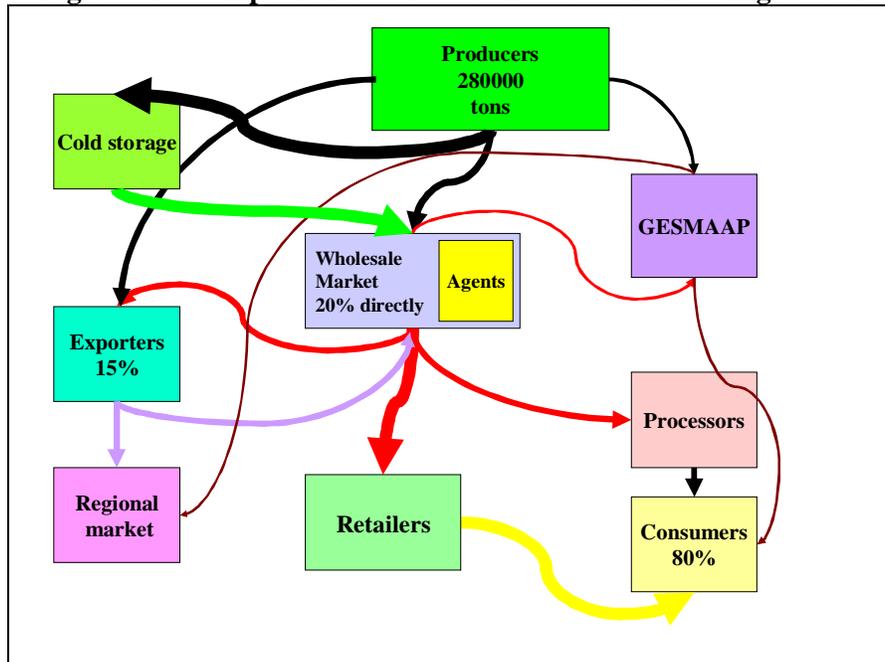
With Egypt: apple is soled in the Egyptian market by agent that gets 5% from selling value as commission. Only Egypt is taken truck filled up of apple, while trucks goes to other countries loads with different kinds of fruits.

With Lebanon: existing of agricultural calendar that prevents entering Syrian apple from 1/12 to 31/1 to protect national production.

3.3 Value chain configuration

Widespread look to the branching of apple value allowed to understand the possible connection and relation among actors along the chain. As the next figure show, it is not a very complex chain that includes a lot of actors and process, but its complexity resulted from being several actors play similar role such as producers, exporters, and traders.

Figure 32 : Comprehensive view of the value chain configuration



Source: by author

As we see from the previous figure, it clear that the main player of the chain is the trader and exporter, and the main destination of apple is the wholesale market that dealing with the most quantity of apple by gathering and distributing it to different actors and activities.

Three major sub-systems can be derived from the value chain flow charts taking into account the various destination of the production and the seasonality of marketing (Figure 33).

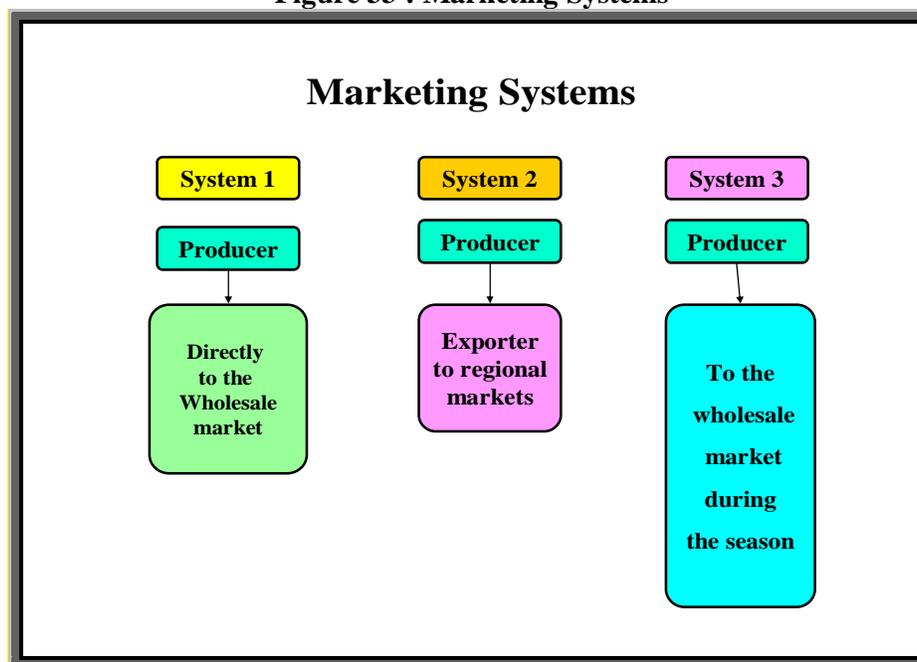
The first system concerns the direct selling of apple by the farmer to the wholesale market place during the main producing season. This system represents 20% of apple marketing flows.

In the second system apple are sold to exporter or trader usually by unwritten contract before or in the ripeness season at the farm gate (system 2).

For the third system apples are sold to the wholesale market by farmer after time of cold storing aiming to control the supply and to get high price out of ripeness season (system)

The following figure shows the way of marketing in the three systems.

Figure 33 : Marketing Systems



Source: by author

It is worth to mention that, based on our estimation; around 80% of marketing apple goes to the wholesale market place which is the major marketing line (system 1+3).

4 Apple production and marketing profitability

4.1 Representative budget

4.1.1 Production cost

Production cost is calculated first for one donum and then converted for one ton of apple produced in farmers' field. The orchard establishment cost are taken as fixed cost while all the costs associated to the orchard maintenance (cultivating & cleaning, pruning, fertilizing) and the harvesting are variable costs. Establishing apple farm needs 10 years to be economically fruitful. The cost share of establishing apple farm in the fruit age year cost is obtained by distributing the total establishing cost on the life duration of apple tree (40 years). This share is varied in accordance of the marketing system that farmer is followed as we mentioned.

Fixed costs represent respectively 1.2%, 2.3%, 1% of total cost for the three system respectively, Variable costs consist of intermediate Inputs & Services costs (fertilizer, insecticide & parasticide, cold storing rent, boxes, and transportation costs) while the share of that constitute 51.7%, 48.4%, 60% of total one ton costs⁷ in that order, and hired Labour (cultivation, irrigation, pruning, application of fertilizer and insecticide, picking, sorting,et) that forms 46%, 49%, and 39% of total one ton cost. Table 5 summarizes the major financial indicators for the three systems clears the production and marketing cost components paid by farmer, and the revenue:

⁷ This rate is changed depending on the marketing system

Table 7: Hired labor costs

The cost and the share of the main components of hired labor						
	1		2		3	
	%	Value sp/kg	%	Value sp/kg	%	Value sp/kg
Sorting	30.3	2.0	0.0	0.0	30.3	2.0
Rent worker/one	25.3	1.7	46.4	1.7	25.3	1.7
Picking	15.2	1.0	0.0	0.0	15.2	1.0
Irrigation	9.2	0.6	16.9	0.6	9.2	0.6
Breeding&Pruning	8.3	0.6	15.3	0.6	8.3	0.6

Source: calculated data

On the base of reviewing apple production cost and focusing on the main cost components according to the three system of marketing that mentioned before, it is necessary to ask first what is the most profitable system? Second, why this system became profitable? Third, how the chain should work to make these three systems run parallel in profitable way?

Table 5 shows that system No. 3 is coming first in the context of profit, then system No. 2, and system No. 1. These Results reflect clearly that when the farmer opt for system 3, or the exporter in system 2 has the ability to control the supply time through cold storage for long period allowed them to earn more because it can benefit from higher price due price seasonality and also because they are in a better position to negotiate the price. This comparison confirms that it is worth investing in cold storage.

4.1.2 Wholesaler cost

In the wholesale market, there are tow types of traders. One who works as an agent in the market and help on selling apple to traders or retailers through bargaining, and at the end he gets 6% as commission. This case commonly exists with apple that is sold directly in the ripeness season in the market (system 1). In this system, commission paid forms 9.2% of total cost. The second case, trader in the wholesale market is bought apple during the whole supply period, storing it, and reselling to the retailers benefiting from profit that gain as a result of controlling price during the whole apple supply period. The following table refers to the cost elements, and the benefits:

Table 8 : Distribution of the wholesaler cost/benefit

Value per output- SP/ton		
	Agent	Trader
Fixed costs	0	0
Variable costs		
commodity in process	0	26,531
Total Intermediate Inputs & Services	0	2,959
Total Hired Labour cost	0	3151
Total other cost	0	697
Total variable cost	0	6,807
Total costs	0	33,338
Revenue		
Total Revenue	0	35,000
Net revenue	1,320	1,662

Source: calculated data

The study considers all costs paid by the wholesaler as a variable cost. Variable cost elements are the value of purchasing apple, Intermediate Inputs & Services (cold

storing, transportation, boxes, and shop rent), hired labor cost (sorting and hired worker), and other costs such (electricity, phone, fees, income tax). The first component of costs consists 79.6% of total costs, hired worker 7.7%, and cold storing 5.2%.

The wholesaler gains around 1.6 SP/kg. It is necessary to mention that the wholesaler commerce with very huge quantities of apple, and apple trading is one of many products dealing with in the market.

4.1.3 Cost of apple retailing

On the opposite side, the retailer deals with small quantities of many products, and when he buys fresh apple from farmer through agent or from the wholesaler, the price varied because it is determined according to the supply season and to the quality. The price paid by retailer is around 22 to 24 SP/kg for seasonal apple, and 35 to 40 SP for out of seasonal apple as the average price. Table No. 9 shows the cost details of the retailer and clears that 96% of the cost is for purchasing apple from the wholesale market, and only 4% for other costs because dealing with apple as activity is one of many activities the retailer dealing with:

Table 9 : Distribution of the retailing costs

Value per output- SP/ton		%
Fixed costs	0	0
Variable costs		0
commodity in process	35,000	96
Total Intermediate Inputs & Services	575	2
Total Hired Labour cost	500	1
Total other cost	363	1
Total variable cost	1,438	4
Total costs	36,438	100
Revenue		
Total Revenue	40,000	
Net revenue	3,563	

Source: calculated data

4.1.4 Export cost

The main important markets for Syrian apple are Egypt and Jordan. The study considers the Egyptian case to trace export cost starting from the farm. The exporter is buying apple mostly by verbal contract with farmer, and he cares of all procedures starting from picking to exporting. Average purchasing price is more or less 22 SP/kg. The total cost of picking, and sorting is 3 SP/kg, cold storing 3.5 SP/kg, and transportation cost is about 8.5⁸ SP/kg. The average cost of renting cold truck from Syria to Egypt during the 6 month is about \$3000 (135 thousands SP), and its capacity 22 tons. Trucks are goes to Egypt by two ways land and sea. The transportation cost by sea is less but there is no insurance. Fees that are paid around 1.8 SP/kg. The price in Egyptian market depends on supply and demand, and the exporter is sold apple to its account by Egyptian agent in the market. The average selling price is around 50 SP/kg. The next table shows the distribution of export cost/benefit

⁸ this cost includes transportation inside and out side country.

Table 10 : Distribution of the export cost

Item	Value per output SP/ton	%
	Export	
Fixed costs	0	0
commodity in process	24000	52
Total Fixed costs	24,000	52
Variable costs	0	0
Total Intermediate Inputs & Services	16,909	37
Total Hired Labour cost	3,182	7
Other cost	1,800	4
Total other cost	1,800	4
Total variable cost	21,891	48
Total costs	45,891	100
Revenue		
Total Revenue	51,818	
Net revenue	5,927	

Source: calculated data

As table is cleared, variable costs form 48% of total cost. Intermediate costs shape 77% of this cost and 37% of total cost. These costs consist of transportation cost 20%, cold storing 8.3%, boxes 8.3%, and fuel tax 8.2%⁹. Purchasing apple from farmer forms 52% of total cost. At the end, the exporter gains nearly more or less 5.9 SP/kg.

4.2 Consolidate budget: profitability of the various sub-systems and profit distribution

4.2.1 Farmer – Exporter

Budget consolidation in system two (farmer ► exporter) shows that farmer share in 100% of fixed cost and 26% of total variable cost, while exporter part in 74% of total variable cost. In respect of gross revenue, farmer shares in 30%, and exporter shares in 70%. In reverse form, exporter shares in 30% of net profit whereas farmer part in 70%. This comparison explains that exporter variable costs exceed three times farmer variable costs.

The next table shows the cost/profit distribution of farmer and exporter and its share in the total cost/benefit of apple marketing from production to destination market:

Table 11 : Consolidation of the cost/profit of farmer and exporter

Consolidated export system				
Items		per ton of final output-SP	share of farmer	share of exporter
export apple	Fixed cost	0	100	0
	Variable cost	29,672	26	74
	Gross revenue	29,672	30	70
	Net revenue	19,778	70	30

Source: calculated data

4.2.2 Farmer – Wholesaler

In the context of the same comparison, in system three (farmer ► wholesaler) budget consolidations illustrate that farmer part in 71% of total variable costs, while

⁹ MET issued a decision stated to cancel a fuel tax with Jordan in January 2010. Jordan takes the same action.

wholesaler share in the rest 29%. Referencing to net revenue, farmer shares in 89% of net revenue, while wholesaler shares in 11%. See table No. 9

Table 12 : Consolidation of the cost/profit of the farmer and wholesalers

Consolidated wholesaler system				
Items		per ton of final output-SP	share of farmer	share of wholesaler
Wholesale market apple	Fixed cost	175	100	0
	Variable cost	23,834	71	29
	Net revenue	39,082	89	11

Source: calculated data

4.2.3 Wholesaler – Retailers

Budget consolidation system of (wholesaler ► retailer) shows that the wholesaler shares in 82.6% of total variable cost comparing to 17.4% share of retailer. While the wholesalers share in net revenue forms 31.8%, and the retailer share forms 68.2%.

Table 13 : Consolidation of the cost/profit of the Wholesaler and Retailers

Consolidated retailer system				
Items		per ton of final output-SP	share of wholesaler	share of retailer
Retailer market apple	Fixed cost	0	0.0	0
	Variable cost	8,244	82.6	17.4
	Net revenue	5,225	31.8	68.2

Source: calculated data

Results are cleared in table 13, reflect in abstract figures that the retailer gains more and pay less comparing to the wholesaler. But is this the real story?

To respond to this inquiry, it is necessary at the end of the value chain to start the analysis from the starting point of the chain by considering all different practices of each actor. Producer is the first actor. Budget shows in table 5, farmer profit ranging from 7.6 SP/kg to 13.1 SP/kg on the basis of the marketing system. This return is the highest one along the chain. However, the farmer is produced limited quantity of apple, spends 11 years with accumulated cost, and with seasonal risk related to climatic factors.

Exporter is one of the main actors along the chain, and he plays as a leader of the chain in the midst of the wholesaler. Exporter gain is around 5.9 SP/kg, and exporting apple is one of many fruit products that working on. But exporting as activity needs huge amount of investment in equipments, labor, and services with the risk to lose markets in destination countries as a result of quality concerns in one part and increasing competitors in destination market, in the other part.

Table 8 shows as it is mentioned above that the wholesaler gains only around 1.66 SP/kg. But it is necessary to focus on the fact that the wholesaler commerce with very huge quantities of apple, and apple trading is one of many products the wholesaler is buying and selling in the market.

Retailer profit is cleared in table 9. He gains as profit about 3.5 SP/kg. But It is necessary to point out that the retailer commerce with very small quantities of apple comparing to the wholesaler and exporter (around 100 -200 kg/each week), and apple trading is one of many products selling in his shop.

Net profit share of each actor in its total cost changes the efficiency evaluation of the players. Farmer net profit share constitutes 53% in system 1, 174% in system 2, and 78% in system 3, which means system 2 is more profitable to producer. While exporters net profit share 13%, wholesaler 5%, and retailer 10%.

4.2.4 Farmer – Retailer

Budget consolidation from the starting point of the chain (farmer) to retailer shows different view because the farmer shares in 100% of fixed costs, 92.2% of variable costs. and 79% of net revenue. Results in table 14 mean that farmer pays 92% of the variable costs and get 79% of the net revenue. The question is who is the loser?

All the consolidations above among different actors show each of them somewhere ensure gain.

As results, the chain is working, and each one make profit, but the problem exist in the work mechanism along the chain. This mechanism includes all practices, roles, public decisions that together need to be harmonized to increase efficiency of the chain.

Table 14 : Consolidation of the cost/profit of the farmer retailer

Consolidated farmer retailer system				
Items		per ton of final output-SP	share of farmer	share of retailer
Retailer market apple	Fixed cost	175	100.0	0
	Variable cost	18,465	92.2	7.8
	Net revenue	16,973	79.0	21.0

5 Value chain governance.

5.1 Type of coordination between agent (vertical and horizontal).

Vertically relation among actors along the chain is almost complementary. Even with hidden dissatisfaction between producers and traders for the unfair price determination in the market.

On the other side, horizontal relation among actors depends upon the categories of actors. At the producers' level, there are no forma relation in the specific production area for exchanging information, expertises and practices. Extension units play an effective role in organizing activities such as field days for selected product like apple, categories of producers and distinguished farm. Participants are coming from different sub region and governorates producing apple for exchanging experiences.

At the level of exporters, there is no clear relation among traders and/or (exporters) because they are considering that expertises about export activities and information should stay secret for business continuity. This lead to a waste of potential gain in efficiency for apple exporters that could improve their practices through experience and information exchange.

For payment

No body along the chain complains about the payment. Farmer as example received his money from trader directly in one payment or in many payments according to agreement among them.

5.2 Existence of association

Currently, General Peasant Federation is the farmer association that operates in all governorates, and farmer are grouped in cooperative at the village level. Several actors along the chain believe that it is necessary to set up specific institutions involving all the actors of apple value chain to better organize the apple production and marketing in order to to achieve a higher standard of production.

Exporters and traders are considered as the leaders of the chain because they play a key role in balancing the market through controlling the supply and demand side. Because of that, it is necessary to create a body that includes main traders and exporters. This new body should take care in systematic way of all issues of production quality and facilitate all marketing obstacles internally and externally¹⁰.

5.3 Public policy for apple

Since the 1970s, apple production has developed in Syria by area, production, and Yield. In 2007, apple production almost doubled compare to 1985 as a result of concentrated effort by the Ministry of Agriculture and Agrarian reform (MAAR) to enhance planting apple as a traditional important crop by providing low price seedlings, subsidizing inputs, and providing loans. The Government established an Apple Board¹¹ to take care of all issues related to apple. Recently, the Ministry of agriculture and Agrarian Reform (MAAR) was branched this office to General Establishment of Agricultural Scientific Research (GEASR) aiming to gathered all scientific efforts to serve this product.

GEASR as an entity is working on developing varieties through Apple Improvement Center that stated in the main producing area in Damascus Rural (Sarghaya).

For credit on input

The Agriculture Cooperative Bank (ACB) provides loans for establishing apple farm only in rainfed area, because the agricultural policy put a priority on fruit trees extension in rainfed area only (with the exception of citrus tree). In this context, (ACB) has modified the interest rates on loans, except the loans to purchasing agricultural inputs. The interest on the short loans becomes 8% for private and joined sectors, and 7% for cooperative member. For mid term loans: for private and joined sectors 9% for agricultural purpose, and 10% for agro- industry, for cooperative member 8%, and 9% respectably. (ACB) grants loan for different purpose such buys sorting, and packaging machines, machines to produce boxes. For long term loans: for private and joined sectors 10%, 11%, and for cooperative member 9%, 10%. (ACB) grants loan to build frozen storehouse, to buy refrigerator cars, and for producing line of marmalades.

¹⁰ In October 2009, the deputy Syrian Prime Minister Mr. A. Alldardari launched the start of formulating an exports assembly of agricultural products.

¹¹ Apple Board consists of experts in planting, pruning, varieties, grafting, et.

Apple seedlings are provided by public nursery at subsidize price, but farmer some times prefer to buy more mature seedlings from private nursery to shorten the years before fruit age.

5.4 Quality management along the chain

5.4.1 Apple varieties

Syria produces two distinguished varieties (Golden and Starking), in addition to many other varieties.

Golden delicious and starking delicious are the most popular varieties. These two varieties are considered the king among the others, and the father of all varieties. Table 15 shows the groups of varieties planting in Syria depending on suitable stand location, and ripeness period.

Table 15 : Groups of varieties circulating in Syrian Arab Republic

Group of varieties depending on mature	Main varieties	Date of ripeness	High of planting area over sea/ M	Number of needed cold hours/H/year	Suitable planting area
Early mature	Early red bird- stark earliest- golden lody- sugary- scraggy	15-30 July	Over 500 to 600	500-800	Low mountain flats
Medium early mature	Crafinishtine- June crimes- summer delicious- wethy- duble red dershawi- Abo gabra	1-30 August	600-800	1000-1400	Medium high area
Late mature	Red gold- Cortland- Starking delicious- golden delicious- wazark golden- leez golden- golden 972- yellow spour- top red- your arid- June arid	1-20 September	800-1000	1000-1400	High mountains
Very late mature	Stark remson- york arid- rom buty- torly wiseb- scarlet rechar- bil golden- blashink golden- graft smith- fugy- stsking duble red- smony- berberion- winter banana	20 Sep. to October	1200-1800	1200-2000	High mountains

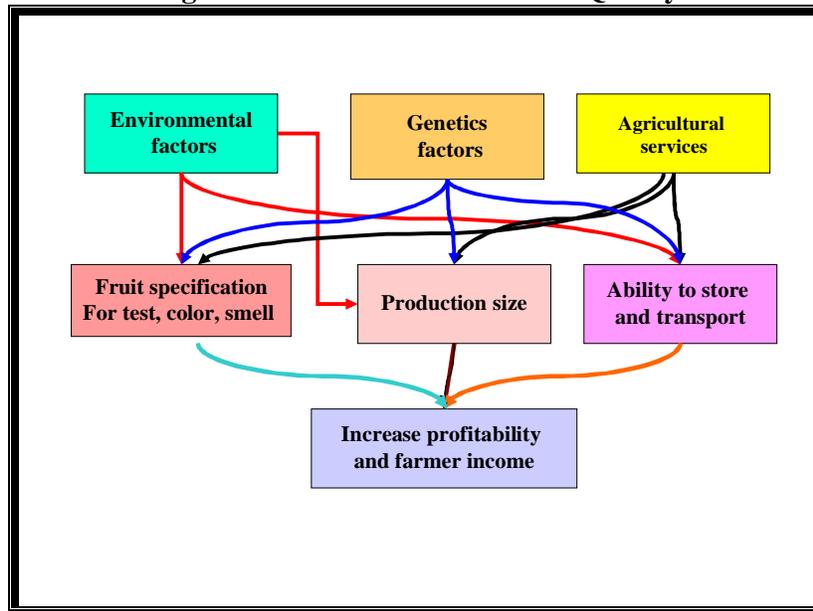
Source: Apple in Syria- written by Attiah Nasar 2007

Apple quality are characterized by various attribute such test, colour, and the absence of chemical residual as a results of using bio-fighting programs. Many factors affect the quality issues such as genetics factors, agricultural services, and environmental factors that at the end increase profitability and producers income because all of the above influence the following characteristics:

- fruit specification which affects test, color, and smell;
- ability to store and transport; and
- production size

Apple quality be affected by three active factors; environmental factors, genetics factors, and agricultural services. All the three together affected on fruit specification, production size, and ability of apple to store and transport. Fruit specification includes test, color, and smell, for example: the specific level of apple farm highness over sea defines the intensity of color, which means if we go up increase the darkness till definite level. Production size closely be connected to the previous three factors in overlapping relations, for example: the yield, and the size of fruitage be affected directly in one season, by climatic changes or services provided in spite of having specialized genetic factors. Ability of apple to store and transport are very important characteristic of apple production, because this allowed producer to keep product under its control out of the main supply season, and to transport internally an externally without damages. These specialty leads to get high price and increase profitability of this work. The high quality standard for Syrian apple needs to keep all these factors mentioning above at high level of performance. The following figure clarifies the needed factors for good quality:

Figure 34 : Factors that affect on Quality



Source : by author

Currently, Syrian apple faces a big challenge in maintaining or strengthening its market share in its current destination countries in one side, and to look forward entering new market in the other side. There also a domestic challenge relating to its profitability comparing to other kinds of fruits. The main step necessary to adapted to face the previous challenges is to focus on the field of quality issues.

What is quality?

In the past, inferior quality apple found their way to the supermarket shelves, resulting in disappointed consumer. Standards were put in place to ensure poor quality produce which not sold to customers. These quality standards are used throughout the supply and distribution chain.

Fruit quality attributes such as size, color, freedom from defects, shape, and firmness, can be measured by a number of different methods. The absolute reference point is

the way a consumer perceives and interprets the quality of fruit. Each variety of apples has unique characteristics that undergo sensory evaluation by the consumer during the eating experience to determine ripeness quality. The use of consumer sensory panel can be an important part of apple quality assessment, as instrumental measures may lack sensitivity.

A characteristic of great importance in most fruit tested by consumers is the texture. Texture not only relates to the structure when eating, but also the feel of the fruit externally. The need for an accurate and automated instrumental measure that can predict consumer judgment is deriving scientists to further investigate the quality indices of fruit.

5.4.2 Agents' concerns for quality

Good quality is the concern of producer, traders, and consumers, because producing apple in the context of international standards in parallel with consumer needs is the window to get high price, strength Syrian position in partner markets, and to enter new market, and to have capability to provide the product coping with unstable consumers desires.

Consistency between actors of criteria.

It is difficult to say that there is not enough consistency of criteria along the chain. But the real case shows that. Generally each actor seeks for more profit with less work on improving the level of services provided to the product. Some apple producers prefer to sell apple to the trades and exporters before the ripeness season, may be to reduce the risk that joined marketing procedures. Unavailability of specialized workers in the main production period¹² is one of the reasons behind selecting this way of marketing. This practices lead to reduce farmer profit. May be this is resulted from lack of enough knowledge and information about needed standards and technique.

This disorder of knowledge on the needed criteria from production to marketing leads to lose the comparative and competitive advantages through the chain.

Criteria used by the various actors to characterize and assess the quality (embodied and market attribute, visible/invisible attribute)

Size

Size of fruit is the one of the main criteria that is valued the quality by various actors along the chain. But each one has his own way to determine size. Producer by his practices is classified apple to three levels; big, medium, small. Exporter is classified apple that is prepared for export by measuring fruit diameter, also to three level 6 to 7 CM, 6 CM, and 5 CM.

Colour

Generally, the range color of the apple is from green, yellow to red depending on variety and ripeness degree. In domestic market, easily consumer chose variety depending on the color of fruit because there are two main varieties golden Delicious¹³, and starking Delicious¹⁴. Mostly, consumer prefers the yellow one because it is juicier than starking. In regional market, the picture is differing because

¹² Producers interview.

¹³ Golden delicious: This variety varied between green, dim green, dim greenish yellow, dim yellow, light red and yellow.

¹⁴ Starking Delicious: This variety varied between completely dark red, dull red, and stripy red

in the main destination market of Syrian apple consumer prefer the red one. Color is not connecting only to the variety itself, but also to the production area because red intensity is depended on the level of highness. This factor as example is one of the obstacle in front of Syrian apple to respond to the golf market needs that prefer the red intensity starking variety.

Coping with consumer preferences by tending to produce red intensity apple is difficult in general because consumer behavior desires change faster than ability to change the variety planted. In Syria, as we mentioned before, two main varieties take place, and more than 70% of trees under fruitage. Also, 80% of apple production complies with national needs. Another obstacle in front of producing red intensity apple in Syria because the planting area distributed among different climatic conditions not cope with needed condition of the red one. Also, the main destination market of Syrian apple imports the two varieties in parallel.

In recent years, many producers planted new varieties in addition to the golden and starking to comply consumer desire, but still the 95% of planting area is from golden and starking variety.

Legislation in place, norms.

The government issued several decrees to organize the work procedures and improve the quality of apple. On the production side, in 2006, MAAR published the decision no. /2852/ connected to producing clean agricultural products according to IPM program. On the export side, MAAR and MET work to facilitate export procedures such the needed paper for exporting. Here in below the needed papers:

- export license- Ministry of Economy and trade and MAAR
- Exporting invoice – from exporting company
- Origin certificate - Ministry of Economy and trade
- Health certificate - Ministry of Agriculture and Agrarian Reform

On the quality side and under the Syrian standardise classification No. 63/1977, apple fall under three levels:

Exceptional level (its diameter not less 7 cm), and the difference between the longer and the shorter not more 0.5 cm in each box.

First degree (its diameter not less 6 cm), and the difference between the longer and the shorter not more 1 cm in each box.

Second level (its diameter not less 5 cm), and the difference between the longer and the shorter not more 1 cm in each box.

In 2009, Syrian government be more interested in the export issues. President Bashar Al Assad issued the legislative decree No. 6 to establish the “Export Development and Circulation Body” that aims to developing and spreading exports match with national development plan, and contribution in improvement of products and increase its qualification and competitiveness capacity.

Also in 2009, a law No. 27 was issued to establish Syrian Exporters Union. These union objectives are: first, organizing the export activity, and developing and circulation exports. Second, presenting exporters and adopt their issues internally and externally. Third, participate in developing legislative and regulative structure. Fourth, raise marketing capacity of exports.

In the same context, a privet assembly was established in 2009 under the name of Syrian Exports Assembly of agricultural products that is aimed to improve the marketing capacity of agricultural products.

6 Conclusions and perspectives

The value chain analysis suggests that addressing the following issues is necessary to improve the competitiveness of apple in Syria:

- 1 A major global development in recent years has occurred in production and trade of apple. Syrian apple need to adapt faster to this market trends in size of production, and in new varieties.
- 2 Buyers in destination countries especially in Golf country's clients are increasingly more demanding in terms of apple quality and standards, which suggests that these markets should not be taken for granted, and Syrian public and private apple sector stakeholders need to adopt major improvements in the existing supply chain to sustain exports to these markets.
- 3 Take care of the regional market which is currently the most important one for Syrian apple exports. Notwithstanding the importance of the EU market in the near future.
- 4 The exportable pack out ratio¹⁵ (the ratio of apple that meets export quality standards and the total volume of fruit purchased from farmers for the export market) is generally low. This has significant implication, the most important of which is the fact that, in the absence of clear grading and quality standards, exporters are forced to reduce prices offered to farmers.
- 5 Another implication is that so far the domestic market offered an alternative outlet for exporter to sale apple that do match export requirement. In other words the domestic market demand makes export possible. As the domestic market is stagnating, this will reduce the capacity of the exporters to be profitable and competitive.
- 6 Major extension support should provide considerable assistance to apple farmers in Syria to improve their plant nutrition management at the farm level to produce fruit of improved quality, size consistency, and appearance, which in turn would increase exports to existing partners and to developed market.
- 7 Extension units should spread knowledge at the farm level about new varieties that in demand regionally and globally.
- 8 Even though the fact that the raw material prices, services, and the labor dominate the apple value chain costs, the issue facing public and private stakeholders in the apple value chain is not necessarily to focus completely on production cost/price reduction at farm level as much as it is related to establishing a supply chain that rewards quality for a market-bearing price of exportable apple.
- 9 The value chain suggests that raw material prices can go as high as 70% of the farm-to-market value chain and both the farmer and the exporter can still realize healthy profit margins. However, this is true if this can be the case only in situations when ratios of exportable apple consolidated post-farm are high.
- 10 Without exception, such pack out ratios is low for more developed markets.

¹⁵ Through the limit investigation it was difficult to estimate this ratio because the exporter buys the whole quantity without classification.

- 11** Regional market is the skyline in the short extend that Syria should work on to strengthening its position and extending apple exports before moving to other markets.
- 12** There is a need of existing of third party controlled grading and quality standards which help in reducing the quality risks linked to apple price that determined sometime randomly and resulting unfair price estimation for farmer when dealing with exporter.
- 13** You may also mention the reinforcement of exporters capacity in having info on export market and playing a role in establishing quality management long the value chain (best practice, quality reward mechanism...).
- 14** Putting a quality control is important but not enough to upgrade the quality standard.
- 15** In light of the benefits associated with drip irrigation, increased credit support to farmers for adoption of such systems is anticipated to improve apple farming operations in Syria, especially after the obligatory decision to move to drip irrigation system.
- 16** Exports as activity should organize in compatible way, and it is important for Syria to study the destination markets carefully to draw the future of these markets in term of quality, size, income, and lifestyle. This study will help to put new export strategies in these markets.

7 Main lessons

- Ü Exporting is becoming a vital issue for the Syrian Apple sectors. The main challenge faced is how the sector can gradually evolve toward a more competitive player in the regional market and beyond.
- Ü At this stage, exportation process, sub-systems can be viewed as an extension of the domestic markets since most of the exporters are also at the same time operating as wholesaler on the domestic market. Even though more attention is given for exported batch of apple (sorting), the export capacities are still hampered by logistical problem such as packaging and transport. An Apple sector weakness is also due to a weak management of the quality along the marketing chain.
- Ü The expansion of Syrian exports can rely on its natural comparative advantage focusing on the promotion and supply of high quality apples targeting the more demanding markets in the region and outside the region (EU). But this would require major support and investment in the capacity of the value chain players. However the strategy may not fit to the whole range of types of agents in the value chain and this option may lead toward a segregation between a group of value chain agent that would be efficient at each stage and the rest of the apple producers and traders that would be confined to less remunerative markets.
- Ü Another option is to strengthen current Syrian apple sector position on markets where it has already a good position for intermediate quality segments (Egypt and Jordan) where consumers might be less sensitive to product packaging and appearance. The high potential growth of opening market (Iraq, Algeria, Lybia?) with middle-income consumer's market segment can offer additional outlet to Syrian producers within this options. If this option is followed competitiveness should be strengthened by reducing unit cost and improve coordination and cooperation between agents of the systems. Up to now, the competitiveness is based on the rather favorable agro-climatic environment and the proximity of the exporting market. Strengthening the current position of Syrian apple production on the middle income segment of consumers would require upgrading the capacity of the sector to manage large volume that is beyond the capacities or major exporters.
- Ü The qualities versus the mass market strategies are not necessarily in opposition. The implementation of both options would require investing in human resources development and the establishment of institutions that facilitate the coordination among actors. However, the “mass market” strategy might be easier to implement in the short run as it would be less demanding in terms of capacity building and would be more inclusive in terms of number of apple value chain agent concerned. The development of high quality sub-chain targeting more demanding market where competition from major world exporters occurs could be based on the experience acquired by both private and public institutions in strengthening of the current Syrian Apple exports market.

8 SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none"> - Availability of suitable climate condition to raise apple; - Best practice followed by farmer in apple production; - Syrian apple varieties are in demand in the destination countries, specially the red one (Starking Delicious); 	<p>Opportunity</p> <ul style="list-style-type: none"> - Great ability to increase production by increasing planted area in the rainfed mountainy lands; - Link between trademark (brand) and production area; - opportunity to inter new market; - enhance apple processing sector;
<p>Weaknesses</p> <ul style="list-style-type: none"> - 30% of fruitage trees are out of economical production age; - No subsidy on export comparing to neighbors countries; - No coordination and share of information along the chain; - Absence of advertisement on Syrian apple for Merchandising it in the external market; - Weak of classification and packaging process; - Lack of specialized field laboratory that measured starch rate, acidity value, and fruit hardness; - Absent of a union to organize the sector; - High cost of recording a brand; - Non existing of sea transport insurance; - Non activating the agreement between Syria and Egypt to transport by sea; 	<p>Threats</p> <ul style="list-style-type: none"> - High cost of production and transportation; - High competition in destination markets; - Trade diversion from market to another relating to quality; - 62.4% of exported apple goes to one country;

Annex 1

Apple varieties:

A. Starking delicious

1. *Completely dark red*

2. *Dark red*

3. *Red good appearance*



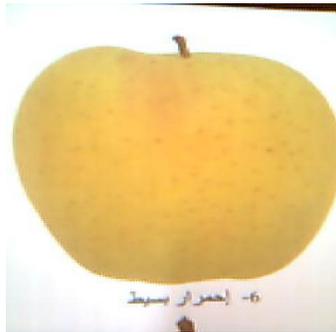
4. *Dull red 50%*

5. *red acceptable appearance* 6. *stripy red 75%*



B. Golden delicious

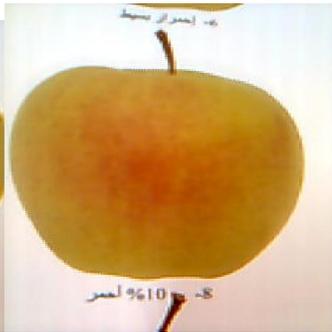
1. Light Red



2. Red intensity 5%



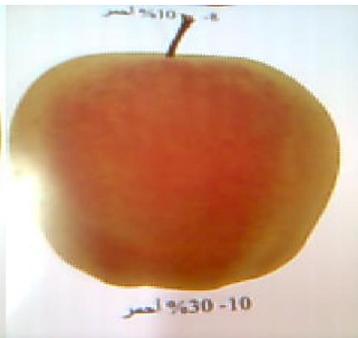
3. Red intensity 10%



4. Red intensity 20%

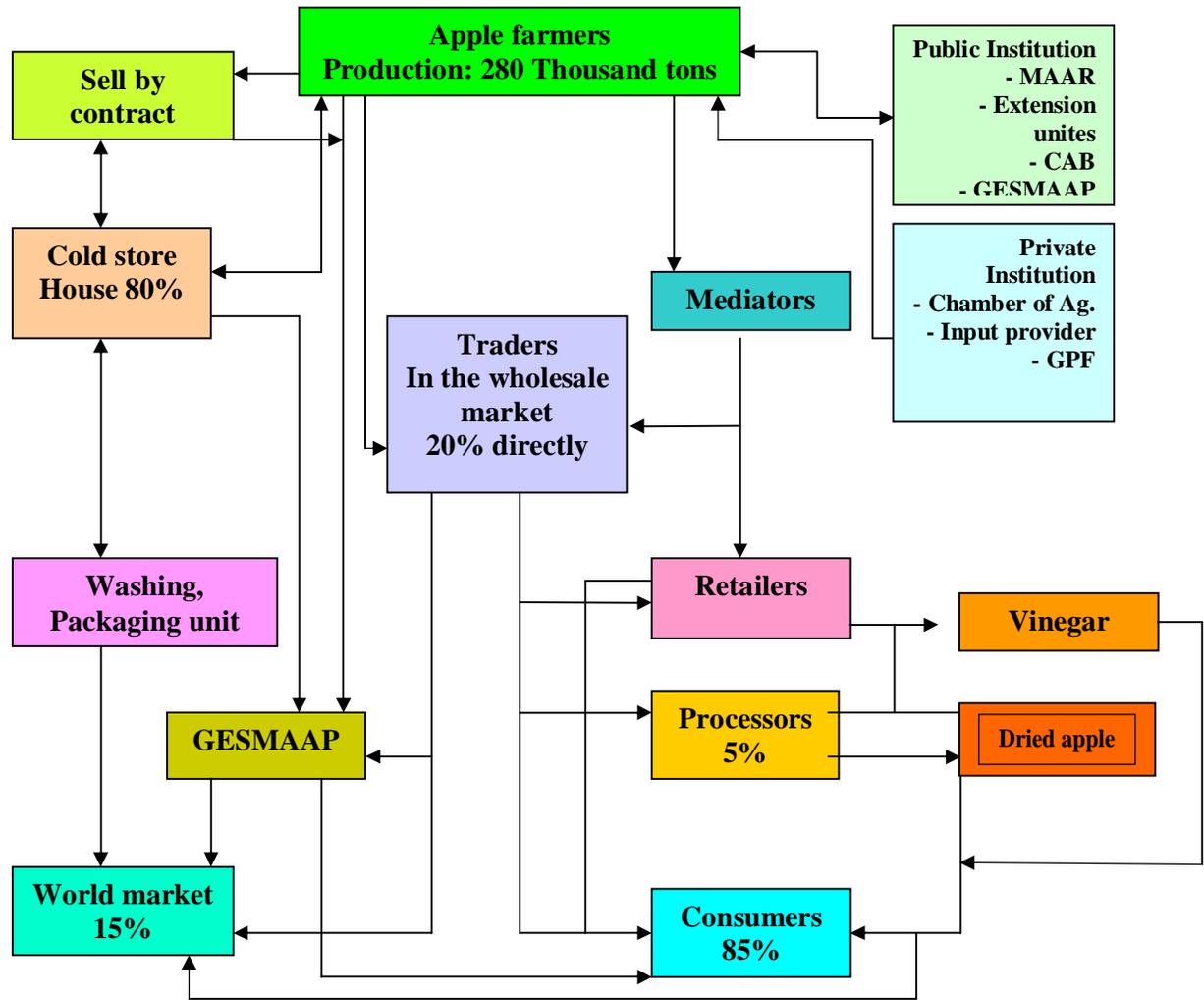


5. Red intensity 30%



Annex 2

Apple Value Chain 2007



Contact list

Public institution

- *MAAR Directorates (agricultural affairs- marketing, economic- -----)*
- *General Establishment of Storing and Marketing Agricultural and Animal products (Public establishment);*
- *Cooperative Agricultural Bank;*

Private institution

- *Syrian Agricultural Chambers Union*
- *Damascus Agricultural Chamber*
- *Damascus Wholesale Market (Souk Alhal committee);*

Exporters

- *General Establishment of Storing and Marketing Agricultural and Animal products (Public establishment);*
- *Al Zoghbi Office for exporting and importing;*
- *Ahmed Abo Warde (Exporter);*
- *Mosa Dakhlala (has cold house & Exporter)- Damascus Rural Area- Al Zabadani-Surghaya;*
- *Ahmed Geniat (exporter-Homs);*
- *Mohamad Mahmoud Mershed – Exporter- Al – Sweda;*

Producers

- *Attiah Nasar- Apple producer- Homs governorate;*
- *Nikola Shaheen, Apple producer*
- *Yahia Al Sawan (producer) – Damascus- sargaza*
- *Mamoun Al Atter (producer) – 9/8/2009- Homs, Al Kseer area*
- *Elyas Elyas – (producer) -Hama- Barsheen- rain fid area*
- *Adnan Ashiosh – (producer) - Al Sweda*

9 References:

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- *Eng. Abdul Hameed Al-Imam, "Analytical Study of the Relative Advantage of Some Major Agricultural Products in the Midland Region".*
- *AOAD Statistic yearly book*
- *Attiah Nasar – "Apple in Syria, and prepare it to international marketing".*
- *A Handbook For Value Chain Research, Prepared for the IDRC by Raphael Kolinsky and Mike Morris**
- *"Middle East Food" magazine, published by CPH World Media.*