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Opportunities for Producing Table Grapes in Egypt for the Export Market: A Decision Case Study

Yaser A. A. Diab [a], Magdi A. A. Mousa [b], Daniel F. Warnock [c①], and David E. Hahn [d]

[a] *Assistant Professor, Assiut University Faculty of Agriculture, Agriculture Economics Department, P.O. 71526, Assiut, Egypt*

[b] *Professor, Magdi A. A. Mousa, Assiut University Faculty of Agriculture, Horticulture Department, P.O. 71526, Assiut, Egypt*

[c] *Associate Professor, University of Illinois, Department of Natural Resources and Environmental Sciences, 1201 South Dorner Drive, Urbana, IL 61801 U.S.A.*

[d] *Professor,Ohio State University, Department of Agricultural, Environmental and Development Economics Agriculture Administration Building, 2120 Fyffe Road, Columbus, OH 43210, U.S.A.*

Abstract

The Barakat Fruit Farm desires to increase their share of the exportable grape market in Egypt. Unfortunately, the grape cultivars currently cultivated by the farm bear fruit after the early market window to the European Union when prices are high. An analysis of the company, competition, consumer, market channel, and conditions, provides insight into possible solutions to the challenges faced by the farm management. Designed for undergraduate classroom use, this case encourages students to think outside of traditional production techniques to arrive at solutions that are viable from both crop culture and financial standpoints.

Keywords: Decision case, horticulture, agriculture economics, grape production

①Corresponding author: Tel: + 1 217-244-9380
Email: dwarnock@illinois.edu

Other contact information: Y. A. A. Diab: yasereco@yahoo.com
M. A. A. Mousa: m_a_ahmed@yahoo.com
D. E. Hahn: Hahn.1@osu.edu

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The Company

Owner

Reda Barakat grew up in Cairo, studied agricultural sciences, and worked as a faculty member in the Faculty of Agriculture at Cairo University. Dr. Barakat wanted to use his experience and theoretical knowledge of real-life production agriculture; therefore, he decided to own and manage a fruit farm focusing on the export market. In 1994, he purchased about 1,500 feddan[1] of land in Nobarya along the Cairo-Alex Desert road (Figure 1) to fulfill his vision of establishing his fruit farm. Before cultivation of crops, the desert land needed substantial reclamation and building of infrastructure.

Figure 1: Location of Barakat Fruit Farm

As can be seen in Table 1, Reda Barakat started his business by cultivating the same successful crops as the neighboring fruit farms. He also analyzed the major Egyptian fruit export trends during the 1984 to 1994 period. Major export crops showed a steady increase during this period in production, area harvested and export value (Table 2). Therefore, he decided to start cultivating peaches, grapes, and apricots as potential export crops on about 500 feddan. Other areas of the farm (260 feddans) are used to cultivate a variety of vegetable and cereal crops.

[1]Feddan is a local measure of land equal to 4,200 square meters or 1.038 acres

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Table 1: Cultivated Areas and Crop Production of the Barakat Fruit Farm

Crop	Variety	Cultivated Area (Feddan)*	Farm Production (Tons)2006	Notes
Apricots	Florida Brins	60	2,442	For export & local market
Grapes	Superior Flame Seedless Thompson Seedless	120	1,105	For export & local market
Peaches	Dessert	60	286	For export & local market
Banana	Maghraby	40	18	Local market
Wheat	Giza 168	100	-	Local market
Vegetables	Various	70	-	Local market
Forage	Alfalfa	50	-	Feedstock for farm animals

* 1,000 feddan are in reclamation

Labor

Skilled managers and laborers are essential if the farm is to operate effectively. Dr. Barakat uses two different kinds of labor to run the farm, contracted and seasonal laborers. The contracted laborers include 1 general farm manager, 3 executive agricultural engineers, and 26 technical assistants. The average salary of the general manager is about 1500 L.E. [2] per month, while each executive engineer earns about 600 L.E. per month. The technical assistants earn about 400 L.E. per month. The general manager is responsible for selecting crops and cultivars to be produced, designing irrigation systems, planning the IPM pest and disease controls, and assigning tasks to the executive engineers and technical assistants. He is also responsible for purchasing inputs and implementing marketing strategies. The executive managers are responsible for the farm operations including the laborers' productivity and overseeing their management; maintaining and altering the irrigation systems; and defining the volume and application time of pesticides. The technical assistants are primarily responsible for farm infrastructure security and fruit orchard conservation, which includes the application of irrigation water, fertilizer, and pesticides. The technical assistants are also responsible for harvesting the mature produce.

The number of seasonal laborers varies from 40 to 60, based on the amount of work needing to be done. These trained laborers are paid about 25 L.E. per day and are recalled, as needed, through a labor contractor. During harvest season, 15 to 20 seasonal laborers are hired per feddan as the fruit ripens. After harvesting, 10 to 15 seasonal laborers are hired to maintain the fruit orchard by cleaning and burning about one feddan of refuse a day.

[2] 1 L.E. = 0.174 USD in November 2006 when information was collected for case.

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Table 2: Production (tons), harvest area (Ha), and export value (USD $ 1,000s) of major exportable fruit in Egypt

	Bananas			Grapes			Apricots			Peaches		
Year	Production	Harvest Area	Value	Production	Harvest Area	Value	Production	Harvest Area	Value	Production	Harvest Area	Value
1985	203,000	9,660	9	395,000	36,130	136	23,000	2,100	54	13,000	1,260	1
1986	237,000	12,180	7	452,000	45,790	236	21,000	2,940	197	31,000	4,200	34
1987	278,000	14,280	18	510,000	46,630	51	29,000	2,940	37	32,000	4,620	42
1988	355,000	15,543	25	557,000	46,630	34	33,000	2,520	30	33,000	9,660	245
1989	388,000	15,963	141	621,000	45,789	12	42,000	2,520	88	33,000	9,660	299
1990	415,495	14,627	238	584,694	37,952	66	38,000	2,662	16	37,442	9,516	155
1991	392,887	14,147	370	526,716	37,274	312	24,795	2,670	0	52,381	12,566	263
1992	396,497	14,218	21	658,061	57,921	828	44,833	2,923	137	105,000	16,800	765
1993	405,237	13,779	10	726,082	58,392	1,227	45,000	3,000	140	159,000	21,000	1032
1994	459,012	13,973	9	707,049	49,329	610	43,000	3,000	99	213,000	25,500	881
1995	498,679	14,473	10	739,478	49,183	466	53,948	2,956	70	267,000	29,000	367
1996	570,457	15,350	5	943,702	49,961	912	50,611	3,067	0	321,000	32,500	221
1997	635,000	16,814	3	867,905	50,590	498	40,652	3,080	8	376,969	35,635	163
1998	655,570	16,998	7	957,734	52,174	507	45,110	3,199	3	429,853	34,658	138
1999	728,999	22,524	0	1,009,560	59,342	451	43,042	3,350	3	301,191	36,121	60
2000	760,505	22,053	0	1,075,100	59,765	1,875	62,613	4,960	0.36	240,193	32,725	35
2001	849,293	20,707	2	1,078,910	62,355	1,294	71,191	5,138	4	247,300	32,981	26
2002	877,588	21,129	5	1,073,815	56,259	1,817	103,070	6,218	137	339,266	31,368	62
2003	870,886	21,307	27	1,196,852	57,214	2,930	70,424	6,747	65	302,667	31,359	218
2004	875,123	21,270	202	1,275,288	58,193	11,440	72,523	7,484	140	360,937	31,761	385

FAOSTAT - FAO Statistics Division 2007 | 17 January 2007.

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Products

Egyptian grape exports have steadily increased in the last few years due to a) improvements in production and market quality (boxes and packaging materials), b) the availability of sea transport, which has reduced transport costs, and c) the European demand deficit. Because of this, the grape production of Barakat Fruit Farm is directed toward the export markets, and the majority of other fruit production is allocated to the local market. The grape cultivation area in Barakat Fruit Farm represents about 24% of the total cultivated area (120 feddan out of 500 feddan). Three late-season grape cultivars, Superior, Flame Seedless, and Thompson Seedless, are cultivated on 40 feddan each. These cultivars vary in production quantity and quality (Table 3).

Table 3: Economic Indicators for Table Grapes Produced on Barakat Fruit Farm

Variety	Cultivated Area (Feddan)	Production (Ton/Feddan)	Export	Local Market
Superior	40	9 to 11	54%	46%
Flame Seedless	40	8 to 10	60%	40%
Thompson Seedless	40	8 to 9	44%	56%

Source: Barakat Fruit Farm, 2006.

Estimation Model

Production parameters for attaining quality grapes in Egypt are readily available (Azancot, 2000; Berger, 1998; Tayel et al., 2008). Many small producers of Egyptian grapes utilize less than optimal production practices due to limited access to information. Management at the Barakat Fruit Farm does not have this limitation and opted to maximize harvest quantity and quality by adapting a drip irrigation system to supply water and chemical fertilizer to the vineyard. Barakat Fruit Farm management and laborers are skilled in grape cultivation thereby ensure consistency of product and the ability to change cultural practices as needed to increase crop production or quality. Importantly, the trained laborers live close to the farm, providing an added level of security in the event of unforeseen production issues.

Local Competition

Egyptian producers of table grapes in Minia, Gharbia, Behera, Dakahlia, Giza, Menoufia, and Beni Suef governorates are the main competitors for Nobarya producers (Figure 2). These competitors include large-scale farmers, small-scale farmers and farmer associations, who commonly cultivate early maturing grape cultivars. Southern Egypt grape producers may have some climatic advantages over northern Egyptian grape producers, but are at a disadvantage with transportation and cold chain facilities.

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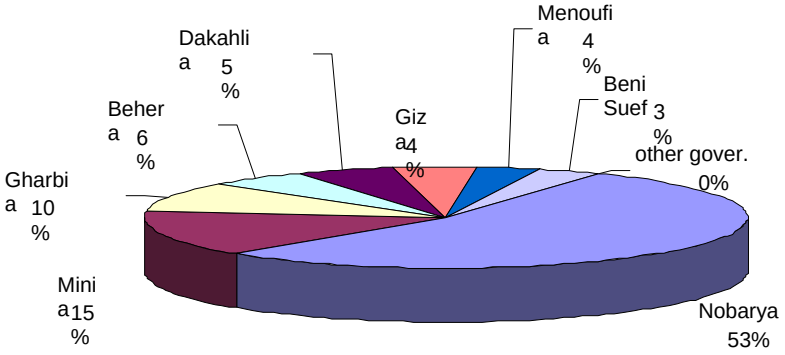

Figure 2: Table grape production by region in Egypt.
Source: Swanson et al. 2004 - MUCIA DATABASE, 2006.

With the exception of the Nobarya area, where late season grapes are cultivated, only a small amount of the grape production from the regional Egyptian competitors mentioned above, as little as 1.4 % (El-Sawalhy et al., 2008), goes to the export market. The second-class and third-class grapes from all regions are shipped to the local market, which negatively affects local area grape prices. For example, the Egyptian table grape production in the 2005 season was about 1,275 million tons. About three percent of this amount was exported abroad, while the rest (97%) was consumed domestically.

International Competition

A window of opportunity for fresh table grapes in the foreign market, especially in the European Union (EU), exists. For a two-month period, the supply of table grapes is reduced in Europe accompanied by an increase in product price, due to scarcity (Figure 3). Egyptian producers and exporters are using this opportunity to their advantage as the grape harvest begins in May and continues until the end of September (for white varieties) or into November (for red varieties). The peak occurs when many competitors halt supply and before other competitors initiate supply. During this time high prices occur.

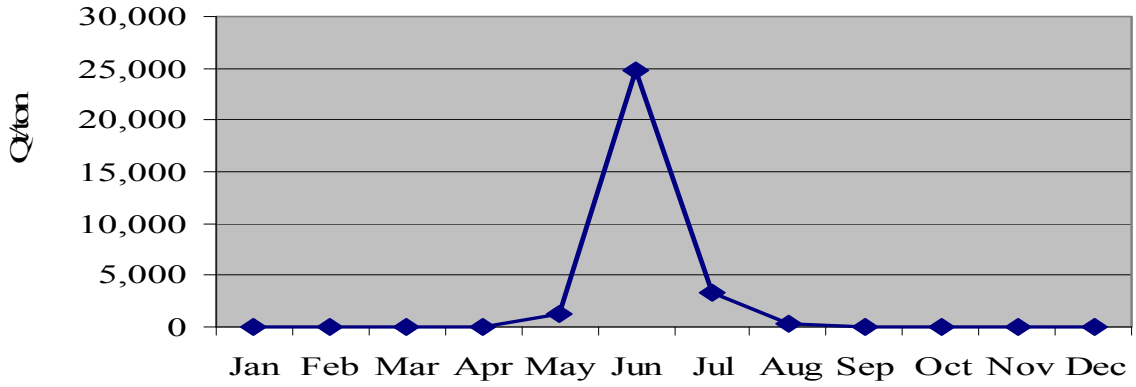

Figure 3: Egyptian monthly exports of table grapes to European Union.
Source: Swanson et al. 2004 - MUCIA DATABASE, 2006.

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Table 4: Tons of Egyptian grapes exported monthly to the European Union, Gulf States, and Asia during 2005

		MONTH												
	Country	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
EU	England					675	12,557	1,602	315	24				15,173
	Netherlands					175	6,615	1,193	63	15				8,060
	Italy					80	1,886	152						2,118
	Germany					74	1,300	189						1,562
	Belgium					183	1,338	34						1,555
	Norway					15	328	59						403
	France					35	282	2		7				327
	Sweden						165							165
	Finland					14	103	14						132
	Ireland						68	50						118
	Austria					1	72							72
	Spain						19		8					27
	Czech						19							19
	Greece						1	2						3
	Other						1							1
	Sub-Total					1,252	24,753	3,298	385	46				29,735
Gulf	Emirates					35	418	272	123	67	2			917
	Other					63	670	608	156	14	3	5		1,520
	Sub-Total					97	1,089	880	279	81	5	5		2,437
Asia	Russia						533	188						720
	Other					23	522	210	232	178	87	2		1,255
	Sub-Total					23	1,055	398	232	178	87	2		1,976
	Total					1,373	26,896	4,576	897	305	92	8		34,148

Source: Central Agency for Public Mobilization and Statistics (2007).

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The Egyptian grape market share in the world market is greatly influenced by the time of export, export prices of competitors, and the quality of product being exported (El-Sawalhy et al., 2008). A marketing study tour in the EU examined the export of Egyptian table grapes and found that few competitors appeared between May 15 and July 1. However, several Mediterranean countries also began exporting table grapes to the EU market, including Israel, Jordan, southern Spain and Greece. There are also non-Mediterranean suppliers, primarily Brazil and Mexico, who partially supply table grapes during this time. In addition, grapes imported to the EU from Argentina, Chile, South Africa, India, and Pakistan are gaining an increased market share during this period (Saied, 2001). Even with competition, however, Egyptian grapes represented 3.6%, 3.5 %, and 2.4% of imported grapes during 2004 in the United Kingdom, Italy, and Netherlands markets, respectively (Eurostat, 2007). The opportunity exists for Egypt to increase its market share of table grapes in the EU during this window. El-Sawalhy et al. (2008) reported that Egyptian grape exports may be increased in certain EU markets, but that price is the key factor to effectively competing in the world market.

Consumer

The consumer, specific target markets, types of clients, their purchasing power and their needs will be discussed in this section of the case. The EU market is considered the largest market for importing table grapes from Egypt, especially UK, Netherlands, Italy, Germany, and Belgium (Figure 4).

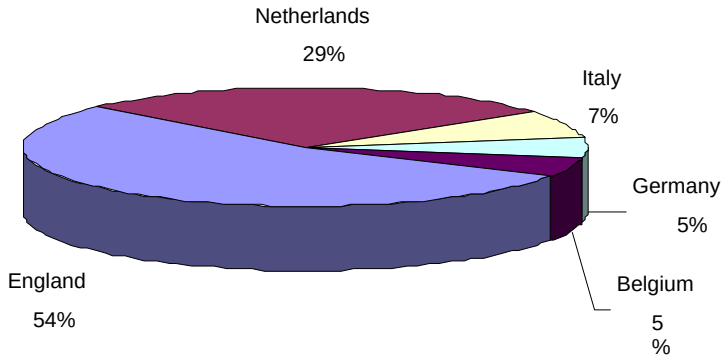

Figure 4: The Main EU Markets for Egyptian Table Grapes, 2005
Source: Swanson et al. 2004 - MUCIA DATABASE, 2006.

This may be attributed to the more than 379 million people with good incomes (GDP per capita = 23,200 €) and the trend toward a healthy lifestyle that is increasing the demand for fresh fruits and vegetables. The EU also has a limited capacity to produce fresh fruits and vegetables, which creates seasonal shortages (Eurostat, 2007). The EU market is relatively close to Egypt, which results in low

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transportation costs. Therefore, the EU is a promising market for Egyptian grapes. Finally, there are also the emerging markets of Eastern Europe countries like Poland and Hungary that observe quality standards like EurepGAP but are less stringent than Western Europe in this aspect. After careful consideration of all crops produced on the Barakat Fruit Farm, the management decided that grapes were the most likely crop that could be produced for export.

Market Channels

Egyptian market chains for horticultural crops have strengths and weaknesses (Alaa, 2004). Market channels, specifically the distribution system to local and export markets, the market organization (wholesale markets and middlemen), and the market share for Egyptian table grapes can be divided into the domestic market (97%) and the overseas markets (3%). The domestic market can be subdivided into retail, institutional, and processing, while the overseas fresh markets can be again subdivided into conventional and organic. Various factors influence the competitive advantages available to Egyptian products traveling through the market channel and must be assessed when estimating potential profitability of a product (Alaa, 2004).

When estimating the potential profitability of table grapes, the margins charged by different intermediaries in the export industries are influenced by many different factors. These include the type of grape produced (cultivar, season, and quality), the current and expected future harvest situation, the level of demand, and the price trend. All of these factors make it extremely difficult to provide information on typical margins in the trade. For the purposes of this case, the following numbers presented in Table 5 are very rough guidelines on the mark-up added to the buying price by each type of middlemen and exporter. For many horticultural products, middlemen and exporters pool product from several farms until a suitable volume is available for exportation (Alaa, 2002). Barakat Fruit Farm, like most small farms, does not have the international connections or the product volume to market their products directly to international clients and must rely on middlemen and exporters for the distribution of product. Interviews of exporters and farmers also revealed that a margin of about 25% to 40% is added to the prices that exporters take from farmers. Farmer estimates of price increases in grapes agree with those on other horticultural crops (IFAD 2008). The level of these increases for any given crop is based on cultivar, season, and quality.

Table 5 illustrates the per ton value of Egyptian grapes exported during 2005 to the European Union, Gulf States, and Asia. The values presented exclude packaging at the farm level and assume a 5%, 10%, and 20% loss rate at the wholesale, retail, and export levels, respectively. Packing, grading, and shipping costs are included at the retail and export level.

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Table 5: Per Ton Value of Egyptian Grapes Exported during 2005

Costs and Prices	Egyptian Pounds L.E.	U.S. $
Production Costs	501	86
Farm Price	1,200	207
Net Margin for Farmer	699	121
Farm Price + Transportation/Loading (Wholesale Cost)	1,270	219
Wholesale Revenue (Wholesale Price)	1,500	259
Net Margin/Wholesale	230	40
Wholesale Price + Loading (Retail Cost)	1,625	280
Retail Revenue (Retail Price)	2,000	345
Net Margin/Retail	375	65
Wholesale Price + Loading/Shipping (Export Cost)	5,889	1,015
Export Revenue (Export Price)	9,280	1,600
Net Margin/ Export	3,391	585

Source: CARE, ACID/VOCA, MALR, and ITC. 2004.

Conditions

The Teaching Notes for this case examine the challenges facing the farm manager. The farm produces cultivars of grapes that mature at the end of June. This is an issue as the farm's exportable grape product misses the most of the EU's early market, i.e., the mid-May to the end-of-June window. Grape exportation from Egypt to the EU plummets from late June to mid-July. The Barakat Fruit Farm management believes there are several options that can be pursued to increase the percentage of exportable grapes produced on the farm for this early market window. The owner of the Barakat Fruit Farm is considering three possible solutions to the company's current situation:

1. Replace the existing late season cultivars in the grape vineyard with early season cultivars,
2. Adjust applied agricultural practices and farm structure to produce high quality grapes for the early market using the existing vineyards, or
3. Cover the existing grape vineyard with plastic sheets (thiran) to hasten crop maturation.

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