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Production Improvements of Organic Cherries in Izmir Kemalpaşa Region and the Potential Added Value

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1. Introduction

The cherry crop originally harvested in Turkey, is a fruit of early spring and has a substantial place in the Turkish economy. It is mainly produced in Samsun, Zonguldak, Tokat, Amasya, Ankara, Kocaeli, Afyon, Sakarya, Bursa, Balikesir, Denizli and Izmir, and is a source of income for thousands. The number of cherry trees in Turkey increased from 6,230,000 in 1996 to 7,150,000 in 1999 and the product volume rose from 200,000 tons to 250,000 tons.

World cherry production is about 1.5 million tons. Almost all 98% of this production takes place in the northen hemisphere. The main cherry producing countries are: Italy, US, France, Germany, Spain, Turkey, Slovakia, Russia, Greece and Bulgaria.

Table 1. Turkish Fresh Fruit Production by Year (Amount: 1000 Tons)

Products	1995	1996	1997	1998	1999	2000
Cherry	186	200	215	195	250	230
Total	36.000	35.000	36.000	39.000	41.200	41.000

Source: T.C. Tarim ve Köyisleri Bakanligi

Table 2. Number of Organic Producers by Product Groups in Turkey

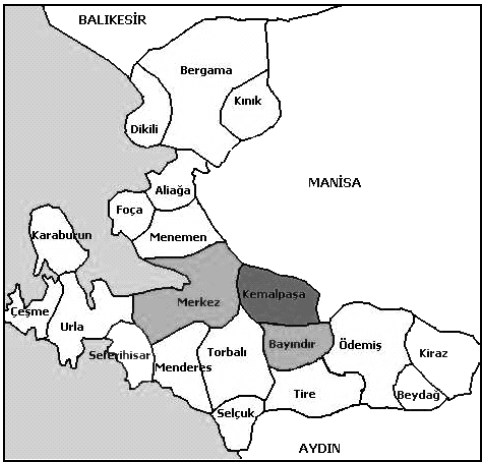
Product Group	1997		1998		1999	
	Number of producers	%	Number of producers	%	Number of producers	%
Dried Fruits	4931	66,48	5499	67,07	6975	56,82
Fresh Fruits	1494	20,14	1165	14,21	2026	16,51
Vegetables	16	0,22	22	0,27	264	2,15
Field Crops	478	6,44	504	6,15	1320	10,75
Medicinal Plants	9	0,12	33	0,40	325	2,65
Others	489	6,60	976	11,90	1365	11,12
Total	7417	100,00	8199	100,00	12275	100,00

Source: Kenanoglu and Karahan, 2000.

Turkey supplies 25% of the cherry trees in the Aegean Region. The most improtant production area is Kemalpaşa (İzmir) followed by Sultan Yaylası (Manisa) and others. The tree numbers and the production in İzmir in 1996 was 438,780 and 13,945 tons respectively, and these numbers increased to 1,059,025 trees and 28,846 tons of cherries in 1999.

The cherries produced in the region are mostly consumed fresh within the same region and some small amount is exported. The export rate, although fluctuating througout the years, shows an increasing trend; in 1995, 4966 tons with a value of 8,915,000 US$ was exported whereas in 2001, 6604 tons with a value 12,580,120 US$ of export was accomplished.

To increase the productivity of cherries, which play an important role in the Turkish economy, research has been carried out on the growing, fertilizing and avoiding of diseases and harmful wild grass.



Map 1. İzmir City and Cherry Production Rate in Kemalpaşa

Table 3. Cherry Production Rate in Kemalpasa

County	Production (tons)	Percentage in the city total
Kemalpasa	26.439	% 83,92

The fight against diseases and insects has been undertaken throughout the last 30-40 years with the use of a chemical called pesticide. This has caused serious problems in human and environmental health and affected the natural cycle badly. In addition, the consumption of synthetic chemical fertilizers is increasing every day and these materials which mix with soil, water and food have been causing serious pollution problems. The wrong amount of artificial pesticide and fertilizers, inappropraite usage rate and other anti-scientific applications bring about the worsening of the problem.

As a solution to diminish the negative effect of the applications in classical agriculture, organic agricultural methods usage have been increasing everyday and organic products are being produced from different plants. After the EU published the ecological agricultural treatee (EG-UO 2092/91), Turkey also legalized this issue.

The organic agricultural view to the cherry isuue is a must, and Turkey's potential in this area, is a fact. With this hypothesis, the biggest cherry production location in Aegean region, Kemalpaşa is being promoted to concentrate on organic cherry production. With organic cherry production, the positive returns will promote organic cherry production to be popular among the producer, and not only increase the income of the farmers but also promote environmental health and supply healthy food to the consumers.

2. Area and Project Former Analysis

Fruit production in the area has been undergone for years. Cherry, olive and grape production are especially popular. With some fluctuation through the years, cherry production has been depicting an increasing trend.

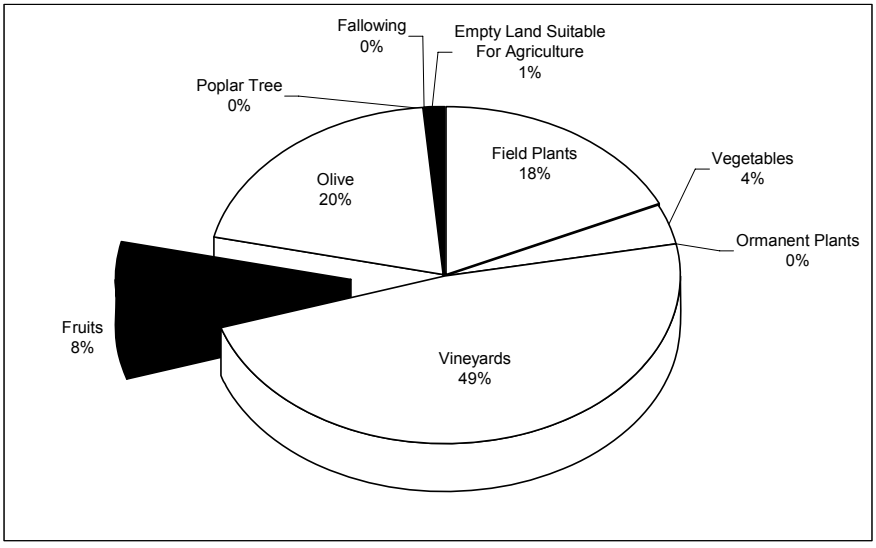
2.1 Economy

Before 1970, the sole economic income was agricultural, but in the last 20-25 years, with industrial penetration in the region, industrial work has been an important income source for the people in the area; besides stock-breeding and beekeeping, flower horticulture has been introduced in some villages and has become their basic function. Agriculture today is shrinking each day by area and more and more people are facing problems such as environmental pollution, water insufficiency, decreasing productivity and problems in marketing the agricultural products.

The total area of the Kemalpaşa region is 63,300 ha. and the agricultural land in this area is 25,714 ha.

Table 4. Distribution of Agricultural Land in Kemalpaşa

Usage	Field Plants	Vegetables	Ornament Plants	Vineyard	Fruits	Olive	Poplar tree	Fallowing	Empty land suitable for agriculture
Area	4,670	991	3	12,340	2,175	5,165	25	20	325



Graph 1. Distribution of land in Kemalpaşa by Activity

As can be seen in Graph 1, most popular in Kemalpaşa is vineyards, followed by fruits. Ten percent (10%) of the agricultural land (2,816 ha.) is owned by the government, and 15% (3,626 ha.) is supplied by the folks, as a total of 6,442 ha. of land is being irrigated. The remaining 75% (19,772 ha.) is in a form of agriculture without irrigation.

Fruit growing, especially cherry, is an important source of income for the area. The major reasons for this are: some advantages in marketing cherry products, the cheapness of its relative costs and the continual increase of the cherry prices.

2.2 Demographics

The population changes in Kemalpasa can be more clearly understood by analyzing the population count changes between 1970 and 1997. The population of 29,848 inhabitants increased to 72,889 in 1997. And the rural population rate decreased from 84% in 1970 to 67% in 1997. This is a relative decrease, since Kemalpasa town center population increased more rapidly and it decreased the rural population percentage.

2.3 Social Profile

Kemalpasa villages are socially open units. This is due to Kemalpasa's strong transportation network, high frequency of transport agents, closeness to a big city as Izmir (its location) and the natural mix of native and newcomer populations.

This richness in the social structure shows itself by some cultural activities in the region througout the year.

2.4 Related Foundations

County Agricultural Management operates with the following staff: 1 County Manager, 3 Agricultural Engineers, 4 Agricultural Technicians, 5 Vets, 2 Vet. Health Tecnicians, 2 Workers, 2 Officers and 2 Drivers, adding up to a total of 21 employees. Both in terms of responsibility and area operation, county agricultural management is not related with organic plant production.

Bornova Area Plant Protect Research Institute: This operation undertakes plant protection research and applications in the area. Generally it deals with the present or prospective problems in the area and their diagnosis and their solutions. In addition it deals with problems in various topics regarding integrated combat programs. There is not yet a unit in the institute about organic agriculture. They are working in alternative combat methods of vineyards and olives, but they have not yet started any study on organic cherries.

2.5 Obstacles

2.5.1 Producer Information

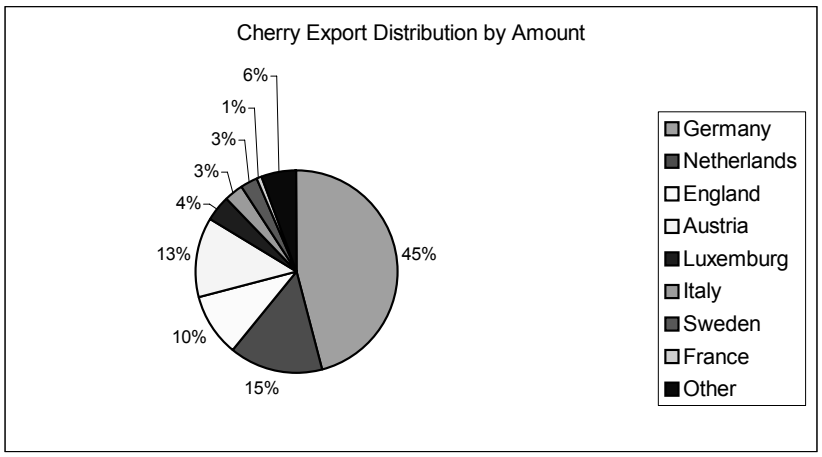
Organic production has brought about the abandonment of some techniques in the conventional production, Such as using biological techniques instead of artificial fertilizers, combat medicines and hormones. At this stage, all the past habits should be left aside and the producers should know what they are doing by using the new techniques. However, since organic agriculture is a new concept in the area, the cherry producers do not have sufficient information about the subject.

2.5.2 Marketing Channels

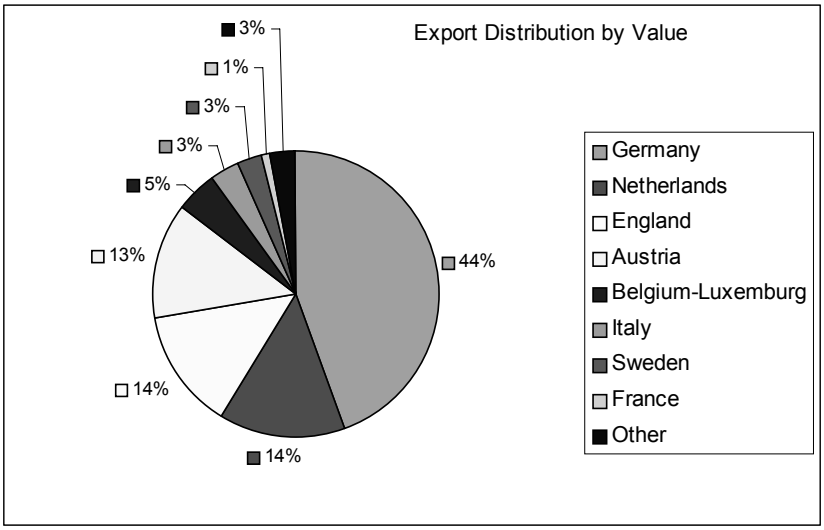
There is not yet a good marketing channel for the organic cherries, considering the fast increase in the potential demand. As there is no organic marketing channel, the products are reaching the consumers with the same channel as the conventional products. This will cause the organic

products not to reach their real higer value, but be under-valued due to of being dependent on the conventional marketing channels.

Organic cherry export markets are mainly: Germany, England, Netherlands, Finland, Austria, Belgium and Luxemburg. Some believe that conventional cherries might give us insights to the market potential of organic cherries.



Graph 2. Cherry Export Distribution by Amount



Graph 3. Cherry Export Distribution by Amount
Source: State Statistical Institute

2.6 Measures in Calculation

In order to show the value increase and calculate project income, net present value, Benefit/Cost rate and internal rate of return criteria have been used.

2.7 Basic Priciples

2.7.1 Product Output

Product output is 1400 kg/daa. in the conventional production and is assumed to be 744 kg/daa. in the shift to organic production methods.

2.7.2 Unit Size

Each cherry growing unit in the county is assumed to have approximately 10 daa. land and the number of cherry trees per one daa. area is approximately 40.

Table 5. Cherry Price According to Years

Years	1996	1997	1998	1999	2000
Cherry Price (US$)	1,60	1,59	1,89	1,45	1,98

Table 6. Analysis of Related Important and Critical Obstacles

Topics	**Related**	**Important**	**Critical**
Land Productivity	+		
Food Implicity of Land	+	+	
Land Structure	+	+	
Topographics	+		
Water Sufficiency	+	+	
Labor rate	+	+	+
Labor Quality	+	+	+
Labor Cost	+	+	+
Capital	+		
Capital Risk	+	+	
Technology	+	+	
Marketing Channel	+	+	+
Producer Knowledge	+	+	+
Expert Knowledge	+	+	+
Publishing	+	+	+
Research	+	+	

2.7.3 Product Price

For the year 2001, the price for conventionally produced cherry is approximately 800,000 TL/kg, whereas certified organic cherry produce is 2,500,000 TL/kg.

2.7.4 Extension of The Project

The extension of the project is assumed to be 10%, so by the end of the 3rd year 30% of the cherry producers will be producing organic cherries.

2.7.5 Required Investment for The Project

Vehicle:	29,500,000,000
Computer:	1,000,000,000
Current Costs	
Fuel:	1,500,000,000
Paper:	300,000,000
Trap and Phenomenon:	6,000,000,000
Overtime Work:	1,500,000,000
Brochure:	800,000,000
TOTAL INVESTMENT	40,600,000,000

Table 7. Yearly Work in Cherry Production

Procedures	Jan	Feb	Mar	Apr	May	Jun	Jly	Agu	Sep	Oct	Nov	Dec
Soil Work			X								X	
Pruning		X										
Fertilization			X		X							
Irrigation				X		X	X		X			
Foot Hoeing		X			X							
Cultural Procedures			X		X	X	X			X	X	
Produce						X	X					

2.8 Financial Analysis

- Keeping in mind the tree numbers in the county and taking into consideration that each unit has 10 daa. cherry land and 40 trees in each daa., the total unit number is found to be 938 farm units.
- Cash flows for the area before and after the project is calculated to be 10% of the country total for the first year (94 units) 20% for the second year (188 units) and 30% for the third year (281 units).
- The farm units involved in the project can only sell their product as organic at the end of the third year. Consequently, the involved units in the project not only face productivity loss in the first year, but they also cannot sell their product as organic cherry and thus face decreases in net revenue. On the other hand, the units not involved in the project, show higher net revenues, since they do not face productivity decreases.
- The joining of units each year can only have organic production certificates at the end of the third year, so 30% of nation-country selling of organic products can only be accomplished after five years.

- The reveue's present value of 10% of 938 units in the country is found to be 7,791,661,964,460 TL (with 10% rate), and the internal rate of return is found to be 25.46% by enterpolation.
- Benefit/cost without the project was 3.20 and this has become 3.81 after the project.

3. Conclusion and Comments

Organic agricultural applications are daily in Turkey and in the world as a solution for the diminishing of environmental pollution and human health problems caused by conventional agriculture.

With this point, a project of organic cherry production is analyzed in the most important cherry production area in the Aegean region, Kemalpaşa.

With the spreading of organic agriculture, an absolute profit increase is expected. Consequently, besides the promotion of environmental and human health issues by organic agriculture, the income level of farmers will also increase, leading to prosperity and a better life standard for the farmers. Also, with the decrease in use of pesticide, unit costs will decrease and thus, in the in the long term it will benefit the balance of trade for the country by decreasing the exports.

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