



INVESTIGATION POSSIBILITY OF OBTAINING EUROPGAP CERTIFICATION FOR AN AGRICULTURAL DEVELOPMENT COOPERATIVE IN TURKEY*

**TÜRKİYE’DE BİR TARIMSAL KALKINMA KOOPERATIFİNİN İYİ TARIM UYGULAMALARI
(İTU) SERTİFİKASINI UYGULAMA OLANAKLARININ ARAŞTIRILMASI**

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ABSTRACT

In this study, a local cooperative (Kepez and Surrounding Villages Development Cooperative in Canakkale, Turkey) was investigated as a case study for the “Good Agricultural Practices” (EUROPGAP) certification process of farms. The goal of the study was to learn how to solve problems with the certification process and what opportunities certification offered to farmers. With this aim, the organizational structure of a cooperative which markets fresh fruit and vegetables was examined and fifty nine cooperative members were selected for interview by the purpose sampling method. All Fifty nine members were interviewed on subjects related to certification and the data were analyzed.

The results of the study showed that the cooperative’s priorities were investment projects such as a cold storage depot and a packaging line. Although the cooperative knew the benefits of the Good Agricultural Practices certificate, it was not a priority for them to establish a new unit to deal with the certification and to invest with this aim. Although the cooperative members’ knowledge about certification is limited, in the situation where the cooperative makes efforts to obtain certification, farmers will support the management of the cooperative and will apply the principles and rules of the certification.

Key words: GAP, EUROPGAP, Agricultural Development Cooperative, Turkey

ÖZ

Çalışmada, Çanakkale Merkez ilçeye bağlı “Kepez ve Çevre Köyleri Tarımsal Kalkınma Kooperatifinin” İyi Tarım Uygulamaları (İTU) sertifikalandırma çalışmasına başlaması durumunda kooperatif yönetim ve ortaklarının karşılaştıkları sorun ve fırsatların belirlenerek çözüm önerilerinin oluşturulması amaçlanmıştır. Bu amaçla taze meyve sebze pazarlayan kooperatifin yönetim yapısı incelenmiş ve gayeli örnekleme yöntemi ile belirlenen 59 ortağın anket yoluyla elde edilen verileri analiz edilmiştir. Araştırma sonucunda, kooperatif yönetiminin öncelikli yatırım projesinin soğukhava deposu ve paketlenme tesisi olduğu, İTU sertifikasının sağlayacağı yararları bildiği, ancak bu yönde bir yapılanmayı ve yatırım yapmayı öncelikli olarak değerlendirmedeği saptanmıştır. Kooperatif ortaklarının ise İTU sertifikası hakkında bilgi düzeylerinin çok düşük olmakla birlikte, kooperatif yönetiminin belgelendirme çalışması başlatması durumunda işletmelerinde İTU ilke ve kurallarını uygulayabilecekleri ve yönetimi destekleyecekleri belirlenmiştir.

Anahtar Kelimeler: İTU, EUROPGAP, Tarımsal Kalkınma Kooperatifi, Türkiye.

* The abstract of this paper was published in the abstract book of the 2nd. International Congress on Food and Nutrition, held in October 2007 in Istanbul, TURKEY.

Introduction

Turkey introduced and published the “Good Agricultural Practices Regulation” (GAP) in 2002. The regulation also describes the rules and conditions of the certification process. The GAP standards, which were set by big European food retailers in 1999, were put into practice in 2002 and a “technical and standards committee” was formed to review certification applications. The European Union applies the GAP (EUREPGAP) certificate taking into account 15 previously-issued laws and regulations within the context of the “Common Agricultural Policy” (CAP). The logo of the EUREPGAP standard was changed to GLOBALGAP by a decision made in September 2007. At the present time, in 2007, 100 certification institutes issue GAP certificates in 80 countries. While the number of producers who obtained GAP certifications was 18,000 in 2004, their number reached 69,000 in 2007 (Anonymous, 2007b). GAP certifications in Turkey are issued by 18 certification institutions which are all foreign company agencies. Certification can be provided individually, to a group of producers, or by benchmarking other gained standards. The cost of certification for each producer decreases when the GAP standard is obtained as a group. The GAP certificate, today, is not an obligatory document for buyers in the domestic market in Turkey. Therefore, the GAP certificate is generally arranged for farmers’ groups by exporters of fruits and vegetables. It became important when large European food retailers demanded GAP certification for imported agricultural products by 2005. GAP certification was supplied for the cherry produce of 560 farmers by two development cooperatives and three export companies in Uluborlu, Isparta, where the export of cherries is concentrated. In the same period, the apple and cherry produce of 59 farmers in two villages in Eğirdir, Isparta were certificated (Anonymous, 2006a). The first time that producers obtained GAP certification themselves, rather than from an export company, was in 2007, when 93 producers in Kemalpaşa, İzmir obtained a certificate for a 3050 decaire cherry production area (Anonymous, 2007c).

Generally in Turkey, certification is concentrated in the provinces of Antalya and Mersin from where most fresh fruit and vegetables are exported. Export unions and export companies in these provinces encourage farmers to obtain GAP certification and a laboratory report (analysis of soil, leaf, water and residues) for certification purposes. Moreover, many laws now require certification in order to make GAP certification more commonly used (Yüksel Delice and Delice, 2005b). The Agricultural Bank, within the context of existing agricultural policy, began to grant management and investment loans for GAP at 60% with a

reduced rate of interest (10.4%) in 2005 (Anonymous, 2005). The GAP certificate includes 210 Critical Control Points (CCP) in which compulsory, semi-compulsory and advice-like rules and conditions are described. Half of the 145 compulsory CCPs (51%) describe rules and conditions related to pesticide (CCP: 57) and fertilizer (CCP: 17) usage (Anonymous, 2007a).

Although the quantity of insecticides and chemical fertilizer usage per unit of agriculture area is rather lower than that of European countries; harmful practices for environmental, human and animal health are still used due to lack of knowledge and farmers ignoring the warning labels.

When Karagölge et al. (2004) compared the input usage levels of Turkey and EU countries in agricultural production; they discovered that except for insecticides, the average usage of plant protection products and chemical fertilizer per hectare was lower than in EU countries. Er and Birinci (2006) discovered that plant protection products and chemical fertilizers were used unknowingly by companies involved in conventional peach production in Karacabey, Bursa. As a result of this, not only did production costs increase but it also led to environmental pollution. Yüksel Delice and Delice (2005b) stated that it would be a long and difficult process to adopt widespread usage of GAP certification in Turkey because of the existing agricultural structure and agricultural policies.

This study aimed to define the problems and solutions relating to obtaining GAP certification by the administrators and members of a fruit and vegetable cooperative in the province of Çanakkale. For this purpose, the structure of the Kepez and Surrounding Villages Development Cooperative, which markets the fresh fruit and vegetables of its members, was investigated; and the data from a questionnaire which was applied to 59 members who were selected by the purpose sampling method was analyzed.

Materials and Methodology

146 members of the Kepez and Surrounding Villages Development Cooperative in 2006 form the main population of the survey. Data and documents of the members and cooperative belonging to the 2005-2006 production years are the main materials of the survey. Other studies and publications related to the subject were also consulted for the research. Interviewed members were selected by the purpose sampling method and 40.4% of members were interviewed (Table 1). The questionnaire had two parts. In the first part, all the interviewed members supplied general information related to fruit and vegetable production,

quantity, and marketing. In the second part, for various reasons, only 55 members answered the questions related to the fruit and vegetable production methods they use. Data obtained from the questionnaires and Kepez cooperative files were analyzed, averages and rates were computed, and correlation analysis was carried out.

Table 1. Number of Members and Sample of Kepez and Surrounding Villages Development Cooperative (2006)

Villages	Number of members	Distribution (%)	Sample	Distribution (%)
Kepez*	94	64.3	33	55.9
Yağcılar**	21	14.3	11	18.7
Kalabaklı**	15	10.3	14	23.7
Çanakkale**	9	6.2	-	0.0
Çınarlı**	3	2.1	-	0.0
Taşlıtarla**	2	1.4	1	1.7
Aşağı Okçular**	2	1.4	-	0.0
TOTAL	146	100.0	59	100.0

(*municipality, ** village)

Research Findings and Discussion

Turkey is one of the most important fresh fruit and vegetable exporting countries in the world. Turkey exports 7-8% of its 40-45 billion tones fresh fruit and vegetable production every year. However, the dried fruit and processed fruit exportation is very high. In 2005, Turkey's exports totaled 2.4 billion dollars in value: 974.3 million dollars in fresh fruit and vegetables; 777.2 million dollars in processed fruit and vegetables; and 35.6 million dollars in cut flowers, (Anonymous, 2006).

Findings for the cooperative investigated

Most of the surveyed cooperative members' lands are located inside the boundaries of Çanakkale province, in which the agricultural and tourism sectors are dominant in its economy. Milk and tomato production of Çanakkale province are two of the most important sources of agricultural income (Anonymous, 2002).

Fresh fruit, olives and grapes follow these two crops. In the research area, fruit is the important agricultural produce, mostly apricots and apples, and vegetable production follows fruit. 64% of interviewed farmers' lands are inside the Kepez Municipality boundary and located on a fertile plain near the sea. Fruit orchards are established outside the Municipality boundary. Vegetable production is for self consumption and not for sale. The land of Kepez Municipality is inside the urban area and the İzmir-Çanakkale highway passes through it. The villages of Yağcılar, Kalabaklı, Aşağı Okçular, Çınarlı and Taşlıtarla are near forested areas.

In those villages, horticulture, field crops and animal husbandry are common.

The Kepez and Surrounding Villages Development Cooperative were established in 1989. In that year, Kepez was a still village, and then became a municipality in 1992 following an increase in population. The cooperative was set up to market the fruit produce of its members. Most produce was treated with pesticides.

The number of cooperative members fell from 258 to 146 in 3 years (2004-2006) as the result of a decision by the cooperative management to increase capital investment in cold storage and packaging facilities. During this period, 112 cooperative members gave up their membership for various reasons.

There are five members on the cooperative board. However, in practice management is carried out by the chairperson. Fruit production according to the different species in Kepez and the surrounding villages is given in Table 3, which is taken from a feasibility study of the cooperative prepared for investment. Apples, peaches and apricots are the most common fruit produced in the area.

The cooperative management had planned a cold storage and processing plant with 6000 ton capacity for processing; classifying, packaging and storing fruit taking into account the area's fruit production. Land was bought for the plant. However, investment could not be started since credit could not be obtained from the Ministry of Agriculture and Rural Affairs. Before such an investment is completed, the marketing by the Cooperative of apples produced in the area is not possible. A large quantity of the apples in the investigated area is kept in a private cold storage plant within the boundary of Kepez Municipality with a capacity of 5000 ton/year.

Table 2. Total Fruit Production and The Amount of The Fruits Marketed By The Cooperative in The Region in Tons

	Apricot	Peach	Apple	Mixed fruits	Total
Region's production	1500.0	2000.0	1500.0	-	5950.0
Amount of fruits marketed by the cooperative (%)	942.4 (57.0%)	5.1 (0.3%)	-	705.5 (%42,68)	1653.0
Ratio of amount of fruits marketed by the cooperative and total fruit production in region (%)	63.82	0.25	-	-	27.78
Production of members investigated	949.3 (%46,55)	409.5 (%20,08)	608.5 (%29,84)	-	2039.2
Ratio of amount of fruits produced by members of the cooperative and total fruit production in region (%)	63.29	20.48	40.57	-	34.27

In 2005, the cooperative management marketed a total of 1653 ton of fresh fruit bought from members and non-members. The cooperative marketed 27.8% of the region's fresh fruit production in 2005. Apricots took the first place among the fruits marketed as 57%. The amount of the apricots marketed by the cooperative was 63.3% of the region's apricot production. (Table 2).

The cooperative marketed 49.8% of the fresh apricots to the internal big firms. The second important sales target is the commission agents of İzmir Fruit and Vegetable Wholesale Market. 7.6% of fruit is sold for fruit juice (low quality fruit picked from under trees). The cooperative management has pointed out that it is impossible to commence work on obtaining a GAP certificate before the cold storage and packing house investments are completed since only a very small amount of fruit can be marketed (27.8%) without cold storage facilities, and as a result farmers' income cannot be increased. If the investment is completed, the number of members will increase and all horticultural products of farmers, including vegetables, can be sold by the cooperative. It is rational therefore for the cooperative to have a GAP certificate.

Findings on the demographics of the members investigated and their horticultural production and marketing activities

The average age of members was 51.8. The average education (in years) of members was 5.76. The youngest members were from Kalabaklı. The average age of members in Kepez Municipality, which had the most members, was 55.3. The cooperative had no female members. In the survey it was found that the wives and mothers of most members were illiterate.

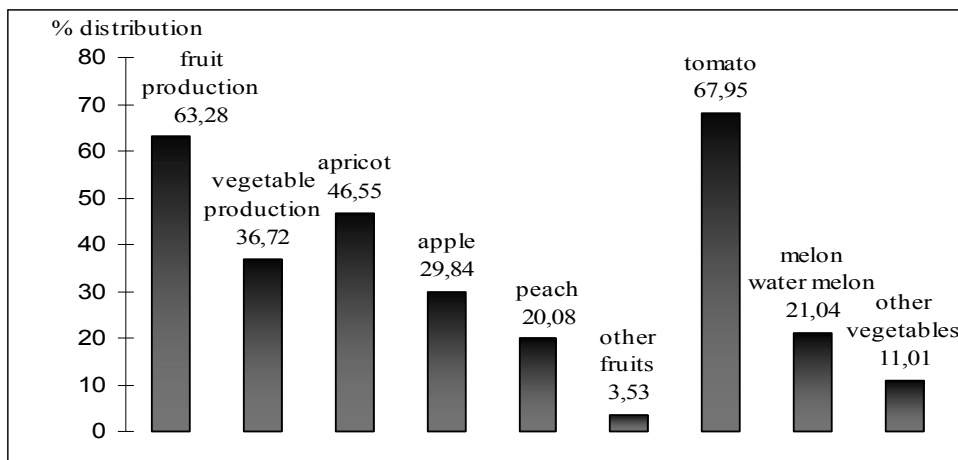
Table 3. Characteristics of Members of Kepez and Surrounding Villages Development Cooperative.

Village of members	Average age	Average education (year)	Average family size	Average number of elderly	Total farm area (daa)	Average farm size (daa)
Kepez (33)	55.3	5.48	3.52	1.33	1604.5	50.1
Yağcılar (11)	49.7	5.73	3.45	1.55	1560.0	141.8
Kalabaklı (14)	44.4	6.50	4.14	0.57	1103.0	78.8
Taşlıtarla (1)	61.0	5.00	6.00	2.00	42.0	42.0
General (59)	51.8	5.76	3.69	1.20	4309.5	74.3

The largest average family size was in Kabaklı village (4.14). The highest number of elderly family members (1.55) was in Yağcılar (Table 3). 78% of the investigated members had income apart from farming. 52.2% of those who had a source of income outside farming

had a pension, and 30.4% received income as a local market (bazaar) seller. Only one of the members was not interested in farming and he had given his farm for rent. The average size of the investigated farms was 74.3 decaire. In respect of members' farms, 30.7% of the farm area was used for field crops, 24% for fruit, and 8.3% for vegetables. On the farms studied, the average number of plots of land devoted to fruit growing was close to three (2.97). One farmer had twelve fruit plots. Also, in some fruit plots there were two or three species of fruit. Members stated that mostly apricot and peach trees were found in the same plot. The vegetable gardens' total production area is not given because winter and summer vegetables can be cultivated on the same land or in new fruit plantations or in fields. The cooperative's members have 362.1 decares of vegetable gardens, but the vegetable acreage is 528 decares.

The total production in 2005 of members investigated in this study was 3222.4 ton of which 2039.1 ton was fresh fruit and 1183.3 ton was fresh vegetables. The fruit production of the members investigated consisted of 46.6% apricots, 28.8% apples, 20.1% peaches and 3.5% other fruits. The share of the vegetables in their horticultural production was 36.7% and tomatoes took the first place in this production as 67.9%. Melons and water melons followed tomatoes as 21.0% of the production and the rest was other vegetables as 11.0% (Graph.1).



Graph 1. Distribution of The Fruit and Vegetable Production and Shares of The Individual Fruits and Vegetables in This Distribution For Members Investigated.

The productivity of the surveyed cooperative members about apricot, peach and tomato production is given in Table 4. The productivity of an apricot tree of cooperative members (20.9 kg/tree) is more than Çanakkale (19.0 kg/tree). The apricot productions are biggest in Kepez village and the productivity in Kepez (23.5 kg/tree) is higher than average of Çanakkale. Also, in Yağcılar village the productivity of tomato (4624 kg/daa) is higher than

Çanakkale (4435 kg/daa).

Table 4. The Productivities of Some Species

Village of members	Apple (kg/tree)	Apricot (kg/tree)	Peach (kg/tree)	Tomato (kg/daa)
Kepez	145	23.5	36	1877
Yağcılar	98	14.2	36	4624
Kalabaklı	95	16.3	27	-
Taşlıtarla	-	40.0	12	-
General	134	20.9	34	3414
Avarage of Çanakkale (2002)	133	19.0	46	4435

92.3% of production was sold on the market; 7.7% was consumed by the farmers' families. 63% of members' fruit and vegetable production was fresh fruit and 61% of sales were fruit. The members marketed all the vegetables themselves and 42% of their fruits were marketed by the Cooperative (Table 5).

Table 5. The Amount of Produce Sold (ton) and Marketed Percentages (%)

Village	Apricot	Peach	Apple	Plum	Quince	Cherry	Others	Total Fruits	Vegetables
Kepez	653.3	240.7	397.5	23.8	13.0	4.5	-	1332.8	136.2
Yağcılar	86.0	53.9	65.0	3.0	-	-	18.1	226.1	620.0
Kalabaklı	101.0	74.2	32.0	6.0	-	0.6	-	213.8	401.0
Taşlıtarla	40.0	3.0	-	-	-	-	-	43.0	-
General	880.3	371.8	494.5	32.8	13.0	5.1	18.1	1815.7	1157.2
Sale/Prod.	92,73	90,79	81,27	98,94	84,69	98,08	100,00	89,04	97,80
Marketed by cooperative (%)								42,0	0,00

The status of the members investigated for the EUROPGAP certificate:

A plan of produce plantation of the members and their invoice and registration of the planting and seeding materials require assuring the traceability of the produce being certified. Only 5.4% of the members investigated declared that they had a plan of their fruit plantation. 47% of the saplings were acquired from governmental orchards, 42.4% from private sapling firms or markets, and 10.6% from the farmers' own areas. The saplings from governmental orchards were certificated. It was found that members did not keep the bills and certification documents if they had purchased them from partners. It was stated that the names of the saplings both from the private and public sector were generally correct but occasionally might be wrong. Summer vegetable seeds or seedling plants were bought from the private sector. Members investigated did not use a local seed or their own seed in tomato production that was 67.9% of the total vegetable production in the region. For winter vegetables, some members

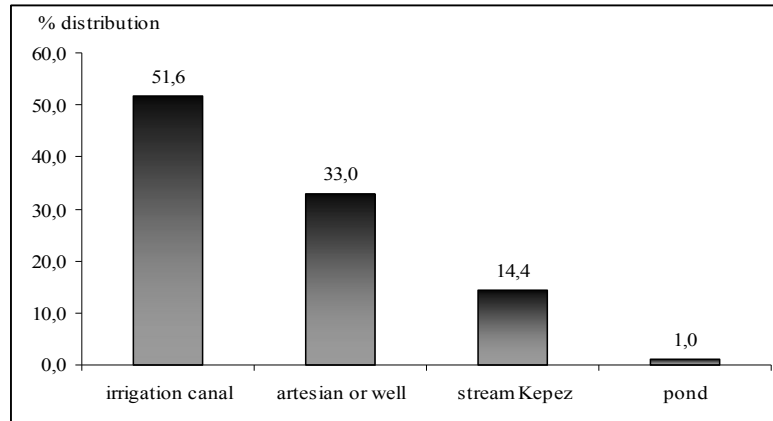
used their own seeds and also bought seeds from private firms or individuals. Eight members said that in the buying of seeds and seedlings, some winter vegetables and tomatoes were certificated. However, thirty- one members said that vegetable seeds and seedlings they purchased were not certificated. 80% of the investigated members declared that they did not have information about genetically modified organisms. Hence, they could' not give information required on the source of the materials used in the production of produce. According to the traceability rule of the certification any records and documents required were not available at the enterprises investigated.

Members stated they had problems with insecticides and chemical fertilizer usage, which forms 51% of the critical control points to be adapted in GAP certification. Only one member regularly determined, on an annual basis, the type and quantity of fertilizer to be used according to the soil analysis. Although thirty of the cooperative associates (52.5%) had a soil analysis made; the average interval between the analyses was 7.5 years. The number of members who had a leaf analysis done was nine (16.1%) (Table 6).

Table 6. The Status of Soil Analyses and Frequency Soil Analyses.

Village	members having soil analyses	% of members having soil analyses	Time gap after the last soil analyses in years	
			Average period	Min. period-max. period
Kepez	17	51,52	6,24	1 year – 30 year
Yağcılar	4	36,36	5,75	3 year – 10 year
Kalabaklı	9	64,29	9,56	2 year – 20 year
Taşlıtarla	1	100,00	16,0	16 year – 16 year
General	31	52,54	7,45	1 year– 30 year

The origin of the irrigation water differs according to the location of fruit plots. In terms of the plots, 51.6% of members obtained water from an irrigation canal, 33% from an artesian well or normal well, 14% from a stream passing through Kepez, and one plot from a pond. Only 5.1% of the members investigated had their water from the artesian wells been analysed (Graph 2). Water was not analyzed, including the irrigation canal water. In fruit orchards the main irrigation technique was surface irrigation. At new plantations, the drip irrigation system was used.



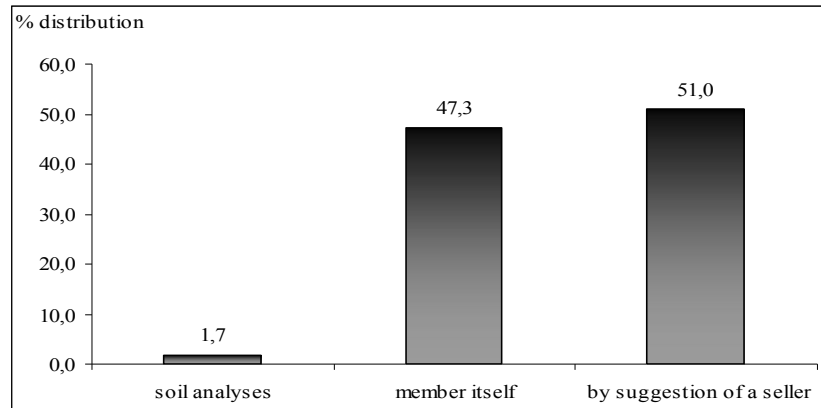
Graph 2. Distribution of Water Sources For Plots (%)

Half of the vegetable gardens were irrigated with surface irrigation, the other half with drip irrigation. 28.6% of the members used manure in their orchards. The members used a total of 81,343 kg chemical fertilizer and 1117.5 kg leaf fertilizer. The usage of fertilizer on average was 57.6 kg granules and 0.791 kg leaf fertilizer (Table 7).

Table 7. Usage of Fertilizers in kg.

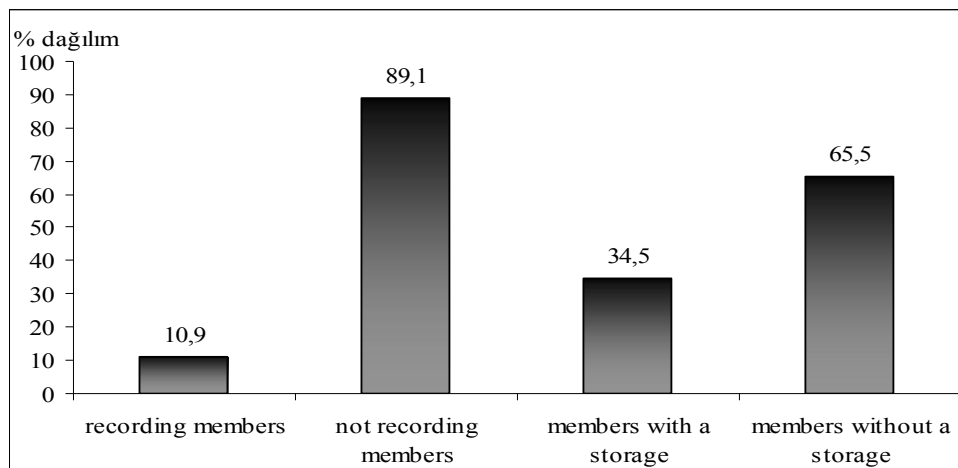
Village	Manure		Chemical fertilizer		Leaf fertilizer	
	Total (kg)	Average (kg/daa)	Total (kg)	Average (kg/daa)	Total (kg)	Average (kg/daa)
Kepez	77500	96,74	55333	69,07	861,5	1,075
Yağcılar	32000	9,98	9980	31,41	109,0	0,343
Kalabaklı	28000	99,29	15680	55,60	141,0	0,500
Taşlıtarla	-	-	350	29,17	6,0	0,500
General	137500	97,32	81343	57,58	1117,5	0,791

It is estimated that the usage of leaf fertilizer was very intensive and the quantity of the fertilizer was determined by the sellers. Some members stated that in using leaf fertilizer, burnt leaves appeared and they complained that they could not find anybody to get information about the problem. 47.3% of the members decided themselves the quantity and time of chemical fertilizer usage (Graph 3).



Graph 3. Methods of Determination Types, Timings and Amounts of Fertilizers.

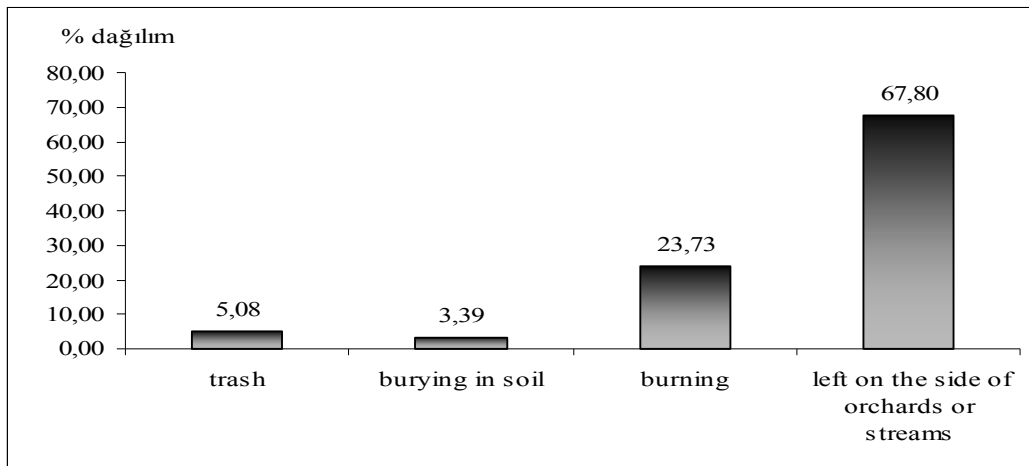
10.9% of members pointed out that they kept information about their fertilizer usage, but motivation was mostly for payment requirements. The proportion who had fertilizer depots was 34.5%. The others (65.5%) informed us that they bought as much fertilizer as they would use and storage was not needed (Graph 4). It is determined that 98.3% of the members investigated did not decide the type, amount and usage period of the fertilizers according to yearly soil analyses and the type of produce. They also did the maintenance and adjustment of the tools for fertilizers themselves. These results are in agreement with the findings of Er and Birinci (2006).



Graph 4. Status of Members on Recording and Storing Information of Fertilizers.

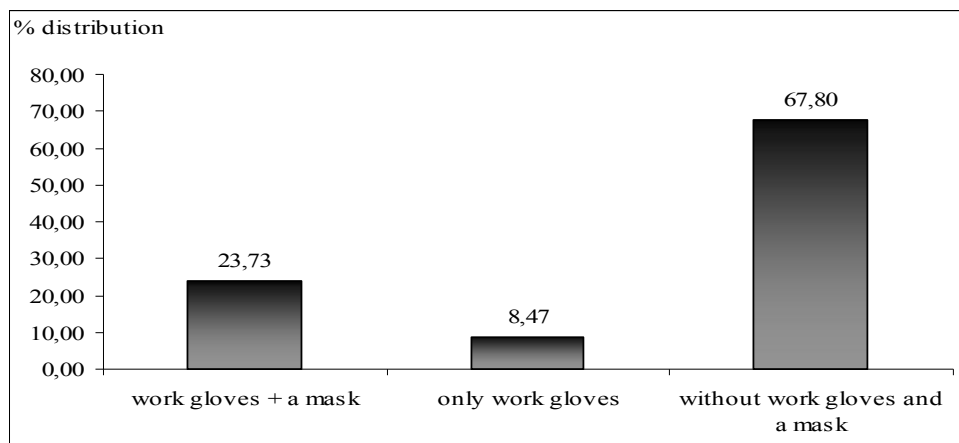
The members investigated applied the leaf fertilizers to produce using a disinfection pump and some of them prepared a mixture of fertilizers and insecticides for this application. Members in Kepez decided when to spray insecticides in their fruit orchards by looking at the warning tables issued by the Provincial Agricultural Directorate. Members in other villages

decided based on observing their own and neighbors' orchards. The decision on the type and quantity of insecticide to use was taken in keeping with the advice of the company selling it. The most important practice was the blending of insecticides and fertilizers. 90% of members prepared the insecticides in their garden or near a stream, canal, or well. Empty insecticide boxes were thrown to the side of the garden or stream by 67.8% of members, only three members (5.1%) threw the empty boxes into the rubbish box at home, two (3.4%) buried them, and 23.6% burned the boxes (Graph 5).



Graph 5. Disposition Techniques of Used Insecticide Boxes (%)

Members declared that they paid attention to the final usage date of the insecticide and the required waiting period between usage and harvest. The insecticide spraying was carried out by turbo tools and tractor.



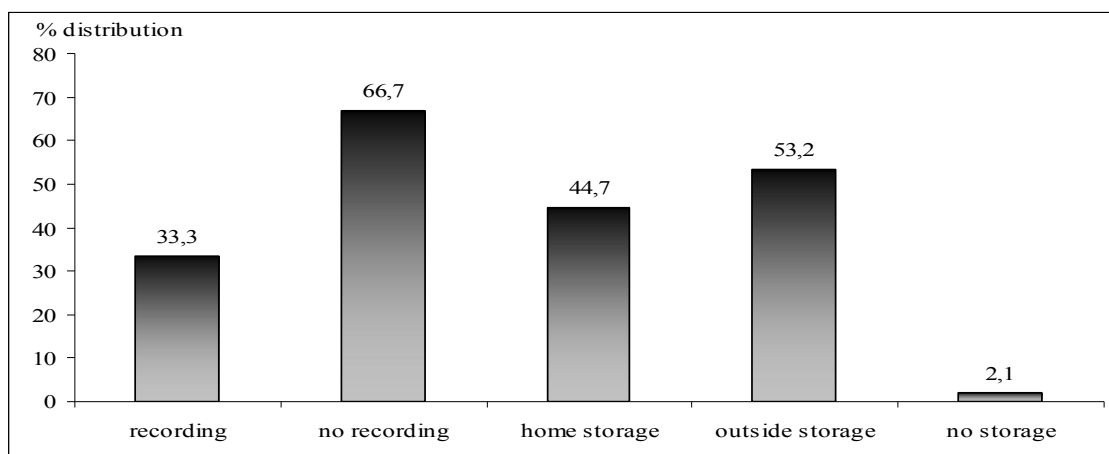
Graph 6. Status of Use of A Mask and Work Gloves During Spraying (%).

Members maintained and adjusted the insecticide tools and did the spraying themselves. In the preparation and application of insecticides, 23.7% of the members used both a mask and work gloves, 8.5% of them only used work gloves and majority of them (67.8%) did not use both a mask and work gloves (Graph 6). Insecticide spraying was carried out the most on apples and peaches (10-13 times), apricots 4-5 times, and plums 2-3 times (Table 8).

Table 8. Number of Spraying of Produce

Species of Fruit	Number of spraying	
	Average	Minimum-Maximum
Apricot	4,25	2 – 6
Apple	9,08	4 – 13
Peach	5,78	2–12
Plum	3,46	2–6
Tomato	4,33	2–7

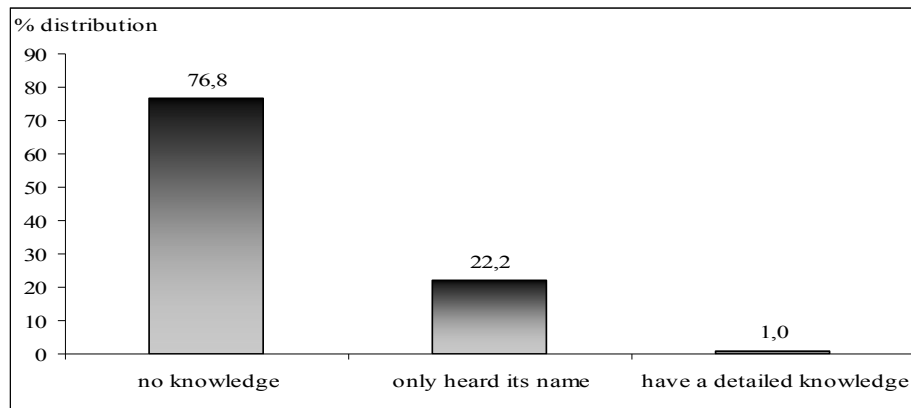
The number of members who kept a record on insecticide use was more than the number of members who kept information on fertilizers (33.3%). 97.9 % of members kept unused insecticides in a separate locker, but 44,7% kept them in a locker at home while others used a storage box in a place other than at home (Graph 7). The findings of spraying applications of members investigated showed the similarities with the findings of Er and Birinci (2006) and Karagölge at al. (2004).



Graph 7. Recording and Storing Info of Spraying

It was determined that 76.8% of members in the study did not know what a GAP Certificate was and had never heard of it (Graph.8). A correlation analysis shows that the members investigated a relation between was not found between the member's having no idea about the GAP Certificate and the age of member ($r = 0,231$). Also, no relationship between

lack of knowledge about the certificate and the member's years of schooling was found ($r = -0,022$). The main reasons why the members investigated had no knowledge on the GAP Certificate were: i) was marketing their produce in the country and at local markets and ii) no questioning on the requirement of the GAP Certificate by the buyers except big supermarkets.



Grafik 8. Knowledge Level of Members Investigated on GAP Certificate.

However, in the last question of the questionnaire, the farmers realized that to have a GAP Certificate was not very difficult, and they declared that they would support the cooperative and wanted to obtain the GAP Certificate.

Results and Recommendations

The area investigated in the research is agricultural fields where fresh fruit and vegetable production is common. However, a large part of the investigated agricultural area is located in an urban settlement area. Soil, irrigation water and other water sources which are used to clean winter vegetables are being polluted by urban pollutants as well as by agricultural inputs used heavily and unconsciously.

In this study it is determined that 99% of the members of the cooperative had no knowledge on the GAP Certificate which was investigated possibilities to obtain one by them. Because of this reason a priority should be given a training on the GAP Certificate and members must give up old application habits. All members of the cooperative are literate and most of them (78%) have income from sources other than agricultural. 52.2% of this income are their worker's or blue-collar's pension. They decide on the type, amount and timing of fertilizers and insecticides according to their income level and suggestions from the sellers of these materials. Soil, leaf and water analyses were not given required importance for better production. Performing spraying without wearing a mask and working gloves causes health

hazards to the members of the cooperative and throwing the spray boxes and unused spray to the sides of the orchards and streams causes environmental pollution in that region of the country.

The cooperative accepts that the GAP Certificate is necessary and beneficial for its members, for consumers and environment but the administration body of the cooperative decides that no attempts will be done to obtain a GAP Certification before the completion of the cold storage investment in the region. However, according to the findings of this study although the members of the cooperative have no knowledge on how to obtain a GAP Certificate they support the administrative body of the cooperative on this and they want to obtain this certificate. In conclusion the administrative body of the cooperative;

- Must start a program on obtaining GAP Certificate as soon as possible and provide a training program to the members of cooperative.
- Must reorganize the cooperative including a certification department and technical personnel required must be hired.
- Cooperates with government institutions to ensure periodical analyses of water sources in the region.
- Ensures the members of the cooperative get the yearly soil and leaf analyses performed and ensures members apply their fertilizing program according to the outcome of these analyses.
- Ensures the members to be trained with a certificate for the use, maintenance and calibration of the fertilizing and spraying tools.
- Must inform its members sooner than later for the amount and timing of spraying and other issues.

If the administration body of the cooperative starts a training program for the certification the relationship between the members and cooperative is restored and also the declining memberships might start to increase again. Furthermore, If the administrative body of the cooperative will continue its investment on the cold storage and also invests on the certification program at the same time after the completion of both investment the EUROPGAP Certified produce will be marketed with a higher confidence and higher prices by the members.

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