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PROBLEMS REGARDING INPUT USE AND MARKETING STRUCTURE OF FARMS INVOLVED IN GREENHOUSE CULTIVATING IN HIGHLAND CONDITIONS: THE SAMPLE OF ANTALYA CITY'S ELMALI DISTRICT

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Abstract

The present study was aimed to determine the problems regarding the input use and marketing structure of the enterprises involved in greenhouse cultivating in Antalya, Elmalı District. Within this scope, the study was conducted in Gölova, Çukurelma, Salur, Eskisar, Zümrütova neighbourhood of Elmalı strict intensely involved in greenhouse cultivating in Antalya, Elmalı district sample. The data used in the study was obtained from 90 enterprises involved in greenhouse activities through the layered sampling Neyman method. The acquired data represents the 2015 production season. The farms involved in greenhouse cultivating in highland conditions in Antalya, Elmalı district was divided into 3 groups based on the size of greenhouse fields. According to the data obtained from the study, the share of enterprises' total gross value of production of greenhouse cultivating was calculated as 52.59 percent. Tomato comes first in the greenhouse cultivating in the research field. It was followed by cucumber. Additionally, a small amount of pepper and eggplant was cultivated. Farms market the products mostly to the commissioners and merchants. Some of the farms markets the products in İstanbul and Antalya markets which are away from the production site and this situation causes a significant marketing cost. The greenhouse cultivating provides an important income in the region and this growth trend is expected to continue. Informing producers about the input use, popularizing the producer union and ensuring the compliance with GAP were essential in the healthy development of the business.

Key words**:** *Elmalı, greenhouse, marketing problems, production, Turkey, vegetable*

INTRODUCTION

The greenhouse cultivating, which provides a higher productivity per unit area, enables the use of marginal small fields and requires a regular labour force throughout the year, covers greenhouse and production under high and low plastic tunnels. Greenhouses are the constructions which enable the production of cultivated plants during the periods unfavourable for cultivating in open field and provide the required growth conditions for vegetable production [24].

Turkey has a greater greenhouse potential compared to other Mediterranean countries. The reasons for this are; (i) there is a limited area for greenhouse in the Spain and France coasts, (ii) there is a limited area for greenhouse, since Italy and Greece coasts are rugged and mountainous, (iii) there are the need for heating in winter and cooling in hot seasons for long-term cultivating in such countries in African coast as Morocco, Algeria, Tunisia, Libya [3].

Turkey has shown great improvement with greenhouse farming year by year and the production area reached 663,621 hectares as of the year 2015. In the 95% of the greenhouse fields, vegetables are grown, the fruit in 4% and ornamental plants in 1%. Greenhouse agriculture has become widespread in the southern provinces of Turkey. Antalya comes first among these provinces. The economic value of crop production held in Antalya has reached $270,946,731. The amount of greenhouse vegetable and fruit production has become 3,192,788 tons. The number of enterprises involved in greenhouse cultivating is 17,368, the size of greenhouse field is 76,359.2 decare

[25].

Antalya province is composed of two sub-sectors, including certain coastal and highlands. There are large climatic differences between coastal and highland areas. The coastal areas are better suited for the cultivation of such subtropical plants as banana and citrus trees and greenhouse cultivating. The districts located in the coastal counties from west to east are; Kas, Kale (Demre), Finike, Kumluca, Kemer, Serik, Manavgat, Alanya and Gazipasa [2].

38.24% of greenhouse fields in Turkey is in Antalya. Antalya contains 82.77% of the glass greenhouse areas and 51.93% of the plastic greenhouse areas in Turkey [25]. Antalya has become the attraction point due to the fact that Antalya covers an essential part of the greenhouse fields in Turkey and makes a remarkable part of the fruit trade [25].

The greenhouse cultivating activities started with the subventions in 2001 in Elmalı and they have increased since then. While 36,600 tonnes were produced in 3,250 decare in 2009, the field and amount of production increased by 85% in 2013. According to the figures of Turkey Statistical Institute (TSI) for 2013, 67,530 tonnes of production were carried out in Elmali in 6,110 decare area. Tomato is mostly cultivated in greenhouse fields besides pepper and cucumber According to the 2013 data, tomato is cultivated in 5,200 decare, green pepper in 50 decare and long green pepper in 60 decare. 0.61% of greenhouse cultivating and 0.12% of tomato production in greenhouses are conducted in Antalya, Elmalı district. The presence of greenhouse cultivating in Elmalı district is increasing in amounts considerably every year.

Elmalı and Korkuteli are two most important districts of Antalya in terms of agricultural fields and fruit production. The share of these two districts in apple and pear production is over 90%.The share in chemical drug use is 10% [17].

The present study was aimed to determine the problems regarding the input use and marketing structure of the enterprises involved in greenhouse cultivating in Antalya, Elmalı district.

MATERIALS AND METHODS

The main material of the research consists of the data obtained from the enterprises involved in greenhouse cultivating in Antalya, Elmalı district through questionnaire method. The secondary data related to the research were obtained from institutions and organizations including Provincial and District Food, Agriculture and Livestock Directorates, FAO and TSI. Additionally, we benefitted from the relevant researches conducted at national and international level. The acquired data represents the 2015 production term. The data used in the study was obtained from 90 enterprises involved in greenhouse activities through the layered sampling Neyman method. The primary data used in the study were acquired from the enterprises involved in greenhouse cultivating at highland conditions through face to face interviews and survey method.

The greenhouse cultivating at highland conditions was calculated for both enterprise size groups and average of the enterprises month by month. The data was interpreted by creating cross-tables between enterprise size groups (greenhouse field groups (I group 1-2.99 decare, II group 3.00-7.59 decare, III group 7.60 decare and over)) and socio-economic, technical variables of farms. The arithmetical average will not represent the research field average since the "Neyman method" used in the sample includes more samples from the layer with high variance. Therefore, a coefficient was obtained for each layer by proportioning the number of frequency per enterprise size group to the total number of frequency and the general average was calculated as value-based by multiplying the values calculated for each layer to the coefficient obtained for each layer in the evaluation of research data [8].

RESULTS AND DISCUSSIONS

The criteria of the study regarding the managers of the enterprises involved in greenhouse cultivating include age, education time, experience in the agricultural activity, experience in the greenhouse cultivating, and

their preferences of new information-technologies. The results of the study regarding managers' age, education, experience in the agricultural activity, household size, experience in the greenhouse cultivating were given at Table 1. The average age of the interviewed managers was 44 years. The age of managers was 42.1 years in I enterprise group, 43.8 in II enterprise group and 45.2 years in III enterprise group (Table 1). There was no significant statistical difference between the presence of enterprise greenhouse cultivating group and manager's age indicator (P>0.05; P= 0.957).

The education level of the managers was taken as years. Accordingly, the average education level of the enterprises was calculated as 7.7 years. The highest training time was at the III enterprise group (Table 1). There was no statistical relationship between enterprise size group and managers' education time (P>0.05; P= 0.540).

The experience time of managers in agricultural production activity was found to be 24.2 years. Regarding the enterprise size groups, the highest experience time in agricultural activity was at III enterprise group (25.7 years) and the lowest experience time was at I enterprise group (22.0 years) (Table 1). On the other hand, there was no statistical relationship between enterprise size groups and experience time in agricultural production (P>0.05; P= 0.998).

Table 1. Some characteristics of the farms

Greenhouse size groups	Age (years)	Education level (years)	Household size (years)	Experience in vegetable cultivating (years)	Experience in greenhouse cultivating (years)
I	42.13	6.83	5.04	22.00	6.50
II	43.79	7.21	5.13	23.88	6.88
III	45.19	8.50	5.33	25.74	7.81
Average	44.00	7.71	5.20	24.24	7.21
Weighted average	42.86	7.04	5.08	22.84	6.69

Source: Own calculation.

Yalçın and Boz [26] found out in their study conducted in Antalya, Kumluca district that the average age of the producers was 43 years, experience time was 13 years, size of greenhouse was 6.11 decare and the lend tenure was in the form of freehold land.

The findings of the study were similar to the findings regarding the average age [26], but the average experience time (7.2 years) was lower. Here, it is an important factor that the greenhouse cultivating started at highland conditions in 2000s.

The Gross Production Value (GPV) as one of the results of agricultural activity's economic outcome can be defined as the gross revenue of the whole activities or one of the activities (vegetable production, animal production, cattle farming) [12].

The average GPV of the enterprises was 84,932 TL. The highest GPV of the enterprise groups was found at the III enterprise group with 274,370 TL. It was 94,401TL in the II group and 64,879TL in the I. group. In the greenhouse size groups, the GPV obtained from greenhouse cultivating production was between 22,824-223,342 TL, it was between 1,640-7,666 TL in field vegetables, 12,429-30,015 TL in fruit, 5,146-11,646 TL in other vegetable cultivating and 863-11,302 TL in animal farming.

Considering the agricultural production design and the share of the greenhouse cultivating in GPV, the greenhouse cultivating has the highest share with 52.59% share. It was followed by fruit with 22.20%, other vegetables with 10.73%, field vegetables with 5.80% and animal farming with 8.67%. The agricultural production type which has the highest share in the enterprise size groups is greenhouse cultivating with 81.40% in III enterprise group, with 62.00% in II enterprise group and 35.18% in I enterprise group. As the shares of greenhouse cultivating constitute an important part, these enterprises can be called as specialized greenhouse cultivating enterprises.

80.01 percent of the 31.65 decare farm lands of the surveyed farms was owned land, %18.59 was the rented lands and %1.61 was land cultivated jointly. The share of the owned land changes between 61.42-94.47%, the share of the rented lands between 5.53-36.98% and the share of the jointly cultivated lands between 0.0-6.25% in the farm lands in accordance with the greenhouse size groups. Yet, jointly cultivated lands were not detected in the II. size groups. However, all of the greenhouse lands were owned lands in all size

groups.

The share of the irrigated land in the farm lands was 93.02% and non-irrigated land share was 6.98%. The share of the irrigated land in the enterprise lands was between 89.82-100.00% and non-irrigated land share was between 0.00-10.18% depending on the enterprise size groups. However, all of the greenhouse lands were irrigated lands in all size groups.

The number, area and share of the parcels in the total enterprise land were given at Table 2. Accordingly the number of average greenhouse cultivating parcels was 2.61 in the region and it was 1.77 in the studied farms. This value was highest in III enterprise size group with 2.45. The average field of greenhouse cultivating was 3.21 decare in the region and it was 7.99 decare in the studied farms. The greenhouse field was largest in III enterprise size group with 13.71 decare and it was narrowest in I enterprise size group with 1.92 decare. The average share of greenhouse field in the total agricultural field was 13.11% in the region and it was 25.24% in the studied farms. This value was highest in III enterprise size group with 32.87%. This share was 7.35% in the I greenhouse size group and 20.63% in the II greenhouse size group.

The results indicate that the surveyed enterprises were mostly focused on the greenhouse production. Tomato comes first in the greenhouse cultivating in the research field. The second most important production was from the cucumber. Additionally, a small amount of pepper and eggplant was cultivated in the region.

Table 2. The greenhouse presence of studied farms

Greenhouse size groups	The number of greenhouse parcels (piece)	Greenhouse field (decare)	The share of greenhouse field in total agricultural field (%)
I	1.08	1.92	7.35
II	1.25	4.04	20.63
III	2.45	13.71	32.87
Average	1.77	7.99	25.24
Weighted average	1.21	3.21	13.11

Source: Own calculation.

Karaman and Yılmaz [13] found out that the greenhouse field of the enterprises in Antalya was 2.19 decare.

78.89 percent of the interviewed farms started their greenhouse cultivating activities with loans. This value is 83.33% in I greenhouse size group, 58.33% in II greenhouse size group and 88.10% in III greenhouse size group (Table 3).

Regarding the occupation of the respondents it was observed that 61.9% are represented by employed/self-employed individuals, followed at a great distance by students, with a ratio of 27.3%. At the opposite pole there were people who have other professions, with a ratio of 9.3%, followed by the unemployed, with 1.6% (Table 3).

Table 3. The status of farms which started greenhouse cultivating activities with loans

Greenhouse size groups	Those starting with loans	Those starting without loans	Total
	N		
I	20	4	24
II	14	10	24
III	37	5	42
Total	71	19	90
	Ratio %		
I	83.33	16.67	100.00
II	58.33	41.67	100.00
III	88.10	11.90	100.00
Total	78.89	21.11	100.00

Source: Own calculation.

Farms used 47.04 kg N, 25.94 kg P and 32.42 kg K was used as pure substance per decare in greenhouse cultivating. N was mostly used in III greenhouse size group with 51.20 kg per decare, P in III group with 32.42 kg per decare and K in III group in 39.22 kg per decare (Table 4).

Engindeniz et al [6] found out in their study conducted in Antalya, Mersin, Muğla and İzmir province that the average N usage was 68.71, K was 58.69 and P was 57.99 per decare in winter season. As can be seen from the findings, the nitrogen, potassium and phosphorus levels were lower than Engindeniz et al [6] findings. The main reasons for this were different production areas and production period.

Selçuk Işıkhan [23] investigated the nutritional status of tomato greenhouses in Elmalı district of Antalya, soil samples from two different depths, 0-20 and 20-40 cm, and

leaf were taken from 30 tomato greenhouses. She found that most of the soils had texture of clay loam, loam and sandy loam; slightly alkaline and low in organic matter; while no salinity problem was recorded and soil total N, exchangeable Ca and Mg status were generally adequate; exchangeable K low, medium and high however, plant available P, status were found to be highly good enough. She determined that P, K and Mg contents were insufficient and the greenhouse soils had high pH and lime content that could affect some problem with regards to plant nutrition. She recommended that it specifically should be paid attention to applications of P, K and Mg of which are commonly established deficiencies and have importance in terms of plant growth and fruit quality.

Table 4. The plant nutrient applications in farms

	Greenhouse size groups			Average	Weighted average
	I	II	III		
	The average use amount of farms (kg per farm)				
N	85.01	191.45	702.13	401.38	151.01
P	34.44	119.14	444.64	248.45	83.28
K	46.65	145.19	537.82	302.14	104.10
	The use amount per unit area (kg per decare)				
N	44.35	47.37	51.20	50.24	47.04
P	17.97	29.48	32.42	31.10	25.94
K	24.34	35.92	39.22	37.82	32.42

1 decare equal 0.1 hectare
Source: Own calculation.

In research on vegetable cultivation in greenhouses farms specifications, vegetables varieties, seedling, soil and environmental characteristics, region and climate characteristics, the technical and structural characteristics of the greenhouse, production periods and techniques, cultural and maintenance procedures were found to be effective in determining the level of input use [4][15][31][28][29][30][20][18][16][14][13][6].

The knowledge of farmers, recommendations of dealers and companies were highly important and written tariffs on the packaging and recommendations of Technical staff of Agriculture Provincial / District Directorates were important in the fertilizer dose adjustment of the interviewed farms.

Considering the status of enterprises which conduct soil analysis, only 52.22 percent of the farmers conducted soil analysis. These ratios were 59.52% and 58.33% in III and II greenhouse size groups, respectively. It was 33.33% in the I greenhouse size group. Also 11.11 percent of the farmers conduct leaf analysis. This ratio was high in III greenhouse size group (19.05%).

Considering the pesticide use of the farms, the fungicide and insecticide use were widely used by the farmers. 2,224.1 g fungicide, 281.3 g insecticide, 153.2 g acaricide and 30.3 g herbicide were used per unit area.

86.67% of the interviewed farms owns spraying schedule. 56.67% of the farms consider themselves as moderate informed regarding the agricultural protection. 65.56% of the farms take protective measures during spraying.

The recommendations of dealers and companies and knowledge of farmers were highly important and written tariffs on the packaging and recommendations of Technical staff of Agriculture Provincial/District Directorates were important in the chemical pesticide dose adjustment of the interviewed farms. Accordingly, the pesticide dose adjustment was determined in line with these recommendations.

Table 5. The factors influencing the selection of varieties in farms

Factors	Greenhouse size groups			Average	Weighted average
	I	II	III		
Farmer	4.21	4.38	4.55	4.41	4.33
Opportunities	3.92	3.79	4.17	4.00	3.89
Company's suggestions	3.88	3.58	4.10	3.90	3.82
The commissioner's suggestions	3.63	3.46	3.60	3.57	3.60
Purchaser's demand	3.58	3.33	4.00	3.71	3.51
The price of this vegetable in the previous year	3.33	3.54	3.57	3.50	3.42
The deal with the marketing company	3.13	3.17	3.74	3.42	3.17
Recommendations of Agriculture Provincial / District staff	3.13	3.08	3.10	3.10	3.14
Consultant's suggestions	3.17	3.04	3.21	3.16	3.16

Source: Own calculation.
SCALE; Barely important(1)….. Very Important(5)

The factors influencing the selection of varieties in greenhouse cultivating were given at Table 5. The factors influencing the selection of varieties were evaluated

according to the 5-point Likert scale.
Considering the general average of the farms; the recommendations of the manager, opportunities, company, commissioner and purchaser come to the forefront.
Today, bumblebees are used effectively in the transportation of pollen in greenhouse cultivating. The mass production of bombus terrestris is conducted under controlled conditions and it is marketed to the world by Netherlands, Israel and Belgium [27]. The usage possibilities of bumblebees in greenhouse was increased in Turkey due to Turkey's being an important greenhouse country and it was started to be used in 1997-98 production season simultaneously with other countries after two-years long demonstration activities [10].
In an experimental study regarding tomato cultivating in greenhouse, the amount of marketable fruit was found to be higher in pollination made with bumblebees compared to the application of plant growth regulators [11]. Considering the quality specifications of tomato including size, weight and number of seeds, a better quality product was obtained with pollination made with bumblebees compared to the plant growth regulator [11]. Altın [1] informs that bumblebees' application increased productivity by 11.22% compared to the plant growth regulator.
83.33% of the farms use bumblebees in greenhouse cultivating. This value was 87.50% in I greenhouse size group, 66.67% in II greenhouse size group and 90.48% in III greenhouse size group (Table 6). Karaman and Yılmaz [13] expressed in their study regarding the greenhouse cultivating in the center of Antalya that the use of bumblebees was more common in the enterprises owning big greenhouses.
The opinions of enterprises regarding the greenhouse production for the next production season were given at Table 7. While 91.11% of the farms consider increasing greenhouse production, 8.89% does not consider. This value was 91.67% in the I and II greenhouse size groups and 90.48% in the III greenhouse size group. This situation indicates that the profit obtained from greenhouse cultivating is high.

Table 6. Use of bumblebees in farms

Greenhouse size groups	Farms which does not use bumblebees		Farms using bumblebees		Total	
	N	Ratio %	N	Ratio %	N	Ratio %
I	3	12.50	21	87.50	24	100.00
II	8	33.33	16	66.67	24	100.00
III	4	9.52	38	90.48	42	100.00
Total	15	16.67	75	83.33	90	100.00

Source: Own calculation.

Table 7. The opinions of farms regarding the greenhouse production for the next production

Greenhouse size groups	Those not considering increasing the greenhouse area		Those considering increasing the greenhouse area		Total	
	N	Ratio %	N	Ratio %	N	Ratio %
I	22	91.67	2	8.33	24	100.00
II	22	91.67	2	8.33	24	100.00
III	38	90.48	4	9.52	42	100.00
Total	82	91.11	8	8.89	90	100.00

Source: Own calculation.

Fresh vegetables distort in a short time. The storage opportunities are limited compared to other agricultural products. Therefore, the products are required to be marketed and presented to the consumer immediately after the harvest. To increase the products obtained from greenhouse cultivating and to benefit from this increase depend on the improvement of marketing activities. The marketing is defined in the broadest sense as a science that examines the conditions of supply, demand, price and cost at different times and places in the stage of transporting the goods and services to the consumer [9].
The transportation channel of the products obtained from the greenhouse cultivating in the region covers the way and contractors followed by the product from producer to the consumer, as given at Figure 1. There are four wholesales market named Eskisar, Zümrütova, Salur and Elmalı operating in the region during summer months.
The main marketing channels in the sale of products consist of commissioners and merchants. Direct marketing (presentation to the producer) exists at very low rates. Some of the enterprises can market the products to the markets far away from the region (i.e metropolitan markets like İstanbul market). This situation causes a significant marketing cost.

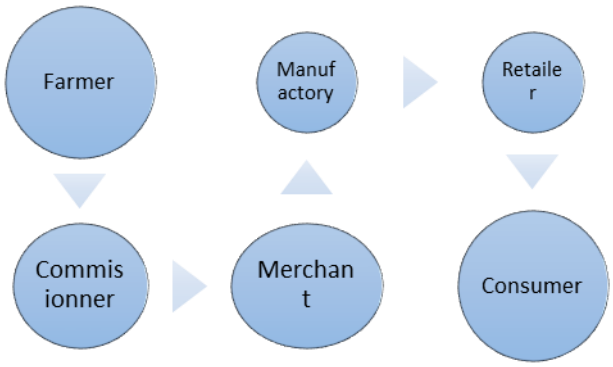

Fig. 1. The marketing channel of greenhouse production in the region
Source: Own calculation.

As a result of the developments and changes in international arena, the demand of consumers for quality and safe food which provides the sustainability of the environment shaped the agricultural supply. This re-modelling influenced the international agricultural commerce and made it obligatory to take measures in order to ensure the confidence for the purchase of the product [7]. The first of the Sanitary and Physanitary Measure (SPS) is The Hazard Analysis and Critical Control Point and the other one is Good Agricultural Practices (GAP) applied in fresh fruit and vegetable production [22]. The documents regarding the phytosanitary are requested besides the request of supermarkets for GAP certificates in accordance with the World Trade Organization's Sanitary and Phytosanitary Measures Agreement regarding the fresh fruit and vegetable export. These certificates can be seen as a kind of non-tariff barriers, they have become one of the most important elements in the penetration to the market of the target country [21].
Good Agricultural Practices is defined as ensuring the food safety by taking agricultural production control under control without damaging the environment, people and animals. The practices are socially applicable and economically profitable and productive. Good agricultural practices are important for the producers as they are preferred in domestic and foreign market, provide producers' being in the front compared to the other producers under equal competition conditions and maintain decrease in the production costs and increase in profitability. Considering the GAP certificate ownership of the interviewed farm's size groups, most of the enterprises did not have this certificate. Only two enterprises within the III greenhouse size group had this certificate and the ration within all enterprises was 4.76% (Table 8). Obtaining this type of certificates causes an additional cost to the producers and this situation makes obtaining harder. Özkaçar and Ören [19] inform in their study conducted in Antalya that producers did not believe that production with GLOBALGAP certificate could be popularized in Turkey and they believed that the practices did not contribute and provide a favourable income to the farmer.

Table 8. Status regarding the GAP certificate ownership

Greenhouse size groups	Those with the GAP certificate		Those without the GAP certificate		Total	
	N	Ratio %	N	Ratio %	N	Ratio %
I	0	0.00	24	100.00	24	100.00
II	0	0.00	24	100.00	24	100.00
III	2	4.76	40	95.24	42	100.00
Total	2	2.22	88	97.78	90	100.00

Source: Own calculation.

Table 9. Membership status of farms to the producer unions

Greenhouse size groups	Member of the producer union		Not a member of the producer union		Total	
	N	Ratio %	N	Ratio %	N	Ratio %
I	21	87.50	3	12.50	24	100.00
II	21	87.50	3	12.50	24	100.00
III	36	85.71	6	14.29	42	100.00
Total	78	86.67	12	13.33	90	100.00

Source: Own calculation.

Considering the membership to the producer unions according to the greenhouse size groups, the majority of enterprises had membership to the unions and 78 farms or 86.67% of the farms had membership to one of the unions (Table 9).
Considering the knowledge level of enterprises about greenhouse products' marketing; 64 farms or 71% of the farms have moderate knowledge about greenhouse products' marketing, 18 farms or 20% of the farms have a high level of knowledge and 3 farms or 3% of the farms have extremely high

knowledge. Regarding the farms with moderate knowledge, I greenhouse size group (19 farms with 79%) come to the fore.

According to the study results, the main marketing problems were given below.

- ✓ Determination of quality and price by the commissioner,
- ✓ Instability of product prices,
- ✓ Unbalanced supply and demand,
- ✓ Commissioners' paying late to the producer
- ✓ Producers' need to take the products to other regions due to the lack of market in the wholesale markets in the region,
- ✓ Producers' need to receive advance from the commissioner due to the absence of sufficient financing,
- ✓ The high level of deduction by the commissioner.

Aktaş Çimen [2] listed the marketing problems of the greenhouse producers as determination of quality and price by the commissioner, fact that producer cannot market the products directly to the merchant, merchants' acting together with the commissioner, extreme decline of prices in the seasons that product is abundant and unbalanced relationship between supply and demand. Daka et al, [5] stated in their study in Muğla that producers needed to be informed about the marketing standards of foreign markets, the number of packing plants was insufficient in the region and the export of the products could only be achieved by producer unions.

CONCLUSIONS

As a result of the study which investigated the problems regarding the technical structure and marketing of the greenhouse cultivating farms, it was found out that the farms lacked the technical knowledge regarding especially the input use. Today, the greenhouse cultivating, which started in the region in 2000s, has continued to popularize. As the enterprise is profitable in the region, the area of greenhouse cultivating is expected to increase. The following recommendations were provided in order for the betterment of the greenhouse cultivating in the region.

- Farms in the region need to form producer union or cooperative in order for the union of forces,
- The number of wholesale markets need to be increased,
- The quality and safety of the products need to be increased by increasing the number of farmers owning GAP certificates,
- The price stability need to be ensured by encouraging the contract production,
- The producers need to be educated on the technical knowledge.

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REFERENCES

[1]Altın, Ö., 1997, Investigations on the effects of Bombus terrestris on yield and quality of tomato grown (in Turkish), MSc Thesis, Ege University, 69p., İzmir.

[2]Aktaş Çimen., Z., 2001, The marketing problems of undercover producers in Kumluca district of Antalya (in Turkish), Akdeniz University Faculty of Economics & Administrative Sciences Faculty Journal Vol.1(2001):1-14

[3]Anonymous, 2016, Dünyada ve Türkiye'de seracılık, Türkiye Tohumcular Birliği (TÜRKTOB) web page, http://www.turktob.org.tr/tr/dunyada-ve-turkiyede-seracilik/8475, accessed date 01.01.2016.

[4]Aytaç, Ş.A., 1990, Physical inputs requirement and the functional analysis of the production in major crops under greenhouses cultivation in central district of Antalya province (in Turkish), MSc. Thesis, Ankara University, 137p., Ankara.

[5]Daka., K, Gül., A, Engindeniz, S, 2012, Production and marketing of tomatoes oriented to export in greenhouses in Muğla (in Turkish), Ege Üniversitesi Ziraat Fakültesi Dergisi, Vol.49(2):175-185.

[6]Engindeniz., S, Yılmaz., İ, Durmuşoğlu.,E, Yağmur., B, Eltez., R, Demirtaş., B, Engindeniz., D, Tatarhan., A, 2010, Comparative Input Analysis of Greenhouse Vegetables (in Turkish), Ekoloji, Vol.19(74):122-130.

[7]Gözen, H, 2010, Good agricultural practices in greenhouse production of Magusta: Case study in Cyprus (in Turkish), MSc. Thesis, Namık Kemal University, 106p., Tekirdağ.

[8]Gül, M., 1998, Production cost and producer

problems of maize in irrigated areas of Yüreğir province (in Turkish), MSc Thesis, Çukurova University, 105p., Adana.
[9]Güneş., T. 1996, Agricultural marketing (in Turkish), Ankara University Faculty of Agriculture Publications, Ankara.
[10]Gürel, F., Gencer, H.V., Efendi, Y., Talay, R., 1998, Evaluation of Bombus terrestris performance used in greenhouses in Antalya and its provinces (in Turkish), Derim Dergisi, Vol.15(4):150-161.
[11]Gürel, F., Efendi, Y., Talay, R., Balcıoğlu, M.S., 1999, The effects of the use bumblebees (Bombus terrestris) of tomatoes fruit yield and quality in the greenhouse (in Turkish), GAP I. Tarım Kongresi, 1203-1211 p., Şanlıurfa.
[12]İnan, İ.H., 1998, Agricultural economy and management (in Turkish), Trakya University, Faculty of Agriculture publication number. 2-43, Tekirdağ.
[13]Karaman, S., Yılmaz, İ., 2006, The effects of using bumble bees for pollination on inputs and profitability in glasshouse tomatoes production (in Turkish), Anadolu, J. of AARI, Vol.16(2): 90-109.
[14]Mansuroğlu, G.S., Sermenli, T., Kara, M., 2005, Hormone usage status in greenhouse vegetable production of Hatay province (in Turkish), Journal of Mustafa Kemal University Agriculture Faculty, Vol.10(1-2):15-30.
[15]Oğuz, C., Arısoy, H., 2002, Estimation of produce costs and functional analysis of tomato production in the enterprises producing yield in protected cultivation in Konya (in Turkish), Journal of Selçuk University Agriculture Faculty, Vol.16(30):43-48.
[16]Orman, Ş., Kaplan, M., 2004, Determination of nutritional status of tomato plant grown in greenhouses in the Kumluca and Finike region (in Turkish), Journal of Akdeniz University Agriculture Faculty, Vol.17(1):19-29.
[17]Özçatalbaş, O, Sözer, İ., 2002, Evaluation of activities of the private firms providing agricultural inputs with respect to extension in Elmalı and Korkuteli counties of Antalya province (in Turkish), Journal of Akdeniz University Agriculture Faculty, Vol.15(2):89-100.
[18]Özkan, B., Akçaöz, H.V., Karaman, S., Taşçoğlu, Y., 2002, An economic assessment of pesticide use in greenhouse vegetable production in Antalya province (in Turkish), Bahçe Dergisi Vol.31(1-2):9-16.
[19]Özkaçar, K., Ören, N., 2011, GLOBALGAP practices in agriculture and evaluation of these practices for Turkish agriculture and export of agricultural products (in Turkish), Çukurova Üniversitesi Fen ve Mühendislik Bilimleri Dergisi, Vol.26(2):19-28.
[20]Saraçoğlu, A., 1997, Investigations on the effects of different nitrogen and potassium nutrition rates on plant growth, yield and fruit quality of cucumbers grown by soilless culture (in Turkish). MSc Thesis, Ege University, 51p., İzmir.
[21]Sayın, C., Taşcıoğlu, Y., Mencet, N., 2004, EU's EUREPGAP implementation and potential impact on our exports of fresh fruits and vegetables (in Turkish), Türkiye VI. Tarım Ekonomisi Kongresi, 37-43p., 16-18 Eylül, Tokat.
[22]Sayın, C., Mencet, N., 2009, Good agricultural practices and their effects on the fruit and vegetable trade (in Turkish). Standart Dergisi, Vol.48(565):56-61.
[23]Selçuk Işıkhan, H.T., 2014, Determination of nutritional status of tomato (Solanum lycopersicum L.) plants grown in springs greenhouses in Elmali region(in Turkish), MSc. Thesis, Antalya University, 70p., Antalya.
[24]Sevgican, A., Gül, A.,Tüzel, Y., Eltez, R., 2000, Greenhouse cultivation in Turkey (in Turkish), Ege University, Faculty of Agriculture, İzmir.
[25]TUİK, 2016, TUİK (Turkish Statistical Institute) Statistical Data, (web page: http://www.tuik.org.tr, accessed on (29.01.2016).
[26]Yalçın, M., Boz, İ., 2007, Information sources of greenhouse growers in Kumluca district (in Turkish), Bahçe, Vol.36 (1-2): 1 – 10.
[27]Yeninar, H., 1997, Studies on bumblebee (Bombus terrestris) rearing (in Turkish), PhD Thesis, Çukurova University, 65p., Adana.
[28]Yılmaz, İ., 1994, Greenhouse vegetable production economics in Antalya province (in Turkish), PhD Thesis, Çukurova University, 156p., Adana.
[29]Yılmaz, İ., 1996, Inputs usage and production costs of tomatoes, peppers and eggplants growing in glass and plastic greenhouse in Antalya province (in Turkish), Journal of Çukurova University Agriculture Faculty, Vol.11: 155-164.
[30]Yılmaz, İ., 1997, Inputs usage and production costs of cucumbers, beans and squash growing in glass and plastic greenhouse in Antalya province (in Turkish), Journal of Çukurova University Agriculture Faculty, Vol.12: 19-26.
[31]Yılmaz, İ., Özkan, B., Güler, F., Karaman, S., 2002, The use of bumble bee in greenhouse vegetable production and bumble bee marketing in Turkey, Journal of Agricultural Research, Tanta University, Vol.28, Special Issue: 524-534.