



Research Article

Volume 1 - Issue 3: 66-69 / July 2018
(Cilt 1 - Sayı 3: 66-69 / Temmuz 2018)

AN INVESTIGATION OF FEASIBILITY OF ORGANIC PLANT PRODUCTION IN GÖKSUN DISTRICT OF KAHRAMANMARAŞ PROVINCE

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Submission: March 13, 2018; **Published:** July 01, 2018
(**Gönderi:** 13 Mart 2018; **Yayınlanma:** 01 Temmuz 2018)

Abstract

In this paper, agricultural areas of Göksun District in Kahramanmaras province were studied in terms of organic agriculture, which is a method of farming, where natural equilibrium is maintained, sustainability is ensured and new generations can be grown with healthy food, and opinions and suggestions regarding the organic plant production potential of the province based on the results obtained from the data of Ministry of Food, Agriculture, Livestock and TURKSTAT and on the scientific papers and on-site examinations regarding the subject were included and the feasibility was investigated. With the advantage of its fertile soils that have not been polluted yet, the region will become attractive to investors who will make organic production, hence the income level of the local farmer will increase. Due to these and similar reasons, it was concluded that the agricultural structure of the Göksun district is suitable for organic production.

Keywords: Organic, Organic farming, Organic plant production, Göksun, Fruit growing

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1. Introduction

In order to meet the growing nutritional needs with the rapid increase of the population in the world, there was an increase in the use of intensive input in the last century to increase unit area efficiency and run into environmental and soil pollution problems arising from the agricultural chemicals used. Previously, these problems were not taken into consideration because nature is thought to be able to renew itself; however, developed countries have been seeking solutions when the situation reached human health threatening

dimensions. In this context, organic agriculture has begun, which is an alternative agricultural system that protects the natural balance of the environment, ensures sustainability in efficiency and allows future generations to be fed on healthy foods. Along with the rapid increase in the demand for organic agricultural products in the world and Turkey, increases were also observed in the areas of organic farming as well as product diversity. Organic farming is carried out in approximately 50.9 million hectares of land and by 2.4 million producers in 179 countries around the world (Willer and Lernoud,

2018). Although Turkey, with its 69.967 organic agriculture producers, is the 33th country to have organic production areas in the world, only 0.8 % of its total agricultural land is organic agriculture. According to the Ninth Development Plan, this ratio is targeted to be 8% by 2020 (Demiryürek and Bozoğlu, 2007).

Due to its geographical and ecological conditions, Turkey is one of the rare countries where crops requiring different climate and soil types are grown together. The start of operations in organic agriculture in Turkey was not as a result of the demand of consumers in the developed countries for these products, instead, it has begun depending on the demands of consumers in the developed countries, and the main purpose was to improve Turkey's basic agricultural product exports and to enter new markets. Turkey's range of organic products has shown increases in both production and exports over the years (Ataseven and Güneş, 2008). In our country, in which conventional farming has been carried out in general, organic farming activities began with the demand of companies operating in Europe for organic agricultural products in Turkey (raisins, dried figs, dried apricots, nuts, legumes and cotton) in the 1980s and their efforts to promote these production techniques. Starting with 8 products in the middle of the 1980s, the organic production activity has risen to 213 products by 2013 and has become commercially important (Bilen et al, 2012). The aim of this research is to determine whether organic farming is suitable for the soil structure and climate characteristics of the Göksun district.

2. Material and Method

In this study, the organic plant production potential of Göksun district was revealed based on the data of Ministry of Food, Agriculture and Livestock and TURKSTAT and on the basis of various scientific articles related to the subject and the results obtained from the on-site examination of agricultural areas of the district.

3. Results

Located in the Eastern Mediterranean Region, Kahramanmaraş province is one of the rare regions of our country where different crops are grown together due to its different climate and soil characteristics. However, the climate of Göksun District is different from that of Kahramanmaraş Province. Due to the influence of the Taurus Mountains and the high altitude, there is no sea effect in the Göksun District. The district has a mountain climate, akin to the Mediterranean Sea, which is hot and dry in summer and cold and snowy in winter. In the district, the highest precipitation is in winter and spring, and the lowest in summer.

In the western parts of the Göksun District, where there is a lot of annual rainfall on the high mountain slopes facing the Mediterranean Sea (1500-2000 mm), the

effect of the Black Sea climate is also seen. There is not much summer drought around here. The annual average temperature of the district is 9°C. The height of the district from the sea is 1350 m, and the district and its surroundings are generally composed of areas with very low sloping. Total agricultural area of Göksun district is 448.202 decares, products such as sugar beet, confectionery sunflower, haricot bean, wheat, barley, clover, vetch, maize (silage) which are field crops and apple, cherry, strawberry, tomato, onion (dry), cabbage (white), which are among garden plants, are grown in accordance with the irrigated agriculture in the district (Anonymous, 2018a). According to the (Anonymous, 2018b), the majority of the county population declared as 51.515 is dealing with agriculture and animal husbandry. According to the census of 2016, the population of the central district is 20.169 and the population of the rural neighborhood is 31.345. As can be understood from these data, the Göksun district is a district that generally conforms to the definition of rural area. Because of its location which is in the transitional zone between the Central Anatolian Region and the Mediterranean Region, the development potential of the rural area is quite high. Keeping the rural population in place by developing a rural concept and increasing its attractiveness will also be important for organic farming (Anonymous, 2018a).

The province has an area of 30.984 decares for apple growing in 450.000 decares of agricultural land. The annual amount of apple production in the province is 44,028.25 thousand tons (Anonymous, 2018a). As can be understood from this figure, the apple has an important place in the economy of the Göksun district. The apple types which are grown in Göksun district Starking (6.311 da), Starkrimson (11.600 da), Golden (2.650 da), Fuji (370 da), Amasya (1.220 da), Granny Smith (623 da), Red Chief (5.320 da), Braeburn (460 da) and other (2.450 da) (Anonymous, 2018a) highly meet the quality criteria required for especially in foreign and domestic markets (color, shape, aroma). In recent years, however, because people consume apples due to the importance they bear for health, consumers prefer organic apples more, especially because of the high amount of chemical drugs and fertilizers used in conventional apple cultivation. With this situation becoming even more important and starting to come to the forefront, it is predicted that the future demand for organic apples will increase rapidly. When compared to the Mediterranean region, in particular, since the risk of plant diseases and pests caused by the climatic and soil characteristics of the district is less, it is also convenient to grow the cultivated apples organically in Göksun, which proceeds in the direction of becoming a brand in terms of apple growing.

In recent years, however, last-season cultivation of strawberry, becoming the product sought in the markets, has become popular in Göksun. Despite the fact that the

production is started later, rapid development has been achieved and 800-2.200 kg yield and 1.050 tonnes production were obtained from the plant cultivated in a total of 700 da area (Anonymous 2018a). In addition to government grants and technical support, the fact that Göksun farmers comply with the innovations contributes to the growth of the number of modern fruit gardens to increase day by day.

In the district, field crops are cultivated in an area of 404.971 decares, and agricultural products are cultivated such as mainly sugar beet (5.600 da), confectionery sunflower (4.500 da), haricot bean (1.800 da), wheat (209.858 da), barley (50.700 da) (Anonymous, 2018a). In organic farming, it is important to decide on which field organic field crops will be cultivated and to form an appropriate production pattern. In the production pattern to be decided, it is also important to determine the alternate plants. Determination of alternate plants is important for ensuring the sustainability of soil fertility, which is important for organic farming, although organic field crops alone are not sufficient for growing. Due to the fact that the summer season is short and dry, and that the number of frosty days in winter is high and the late winter frosts and early autumn frosts are occasionally observed, the agricultural product variety being cultivated is limited. To turn this restrictive effect of climate, which appears to be a disadvantage, into an advantage and to contribute to the district economy, it would be useful to go towards the existing products to be produced organically. Therefore, the importance of the application of this mode of production has been revealed. Because the producers of Göksun district, who carry out conventional production for the market, have suffered a loss of income, whereas they are able to generate more revenue in the organic product market and such a mode of production is extremely well suited to the agricultural potential of the district. On the other hand, the fact that the product range grown in the province is few may lead to easier adaptation to and knowledge concentration of organic farming by producers.

One of the problems of the agricultural sector in the province is that the distribution of land is in the form of small parcels. Especially in fruit growing, the size of the garden is an important factor in terms of the production economy. This poses a major problem in the production mode, which has high initial costs just as organic agriculture, as well as being a negative factor in income and yield. However, in case of the organic farming transition is successful, then this scattered structure can become an advantage in the medium to long term. The high cost of labor is one of the most fundamental cost items of organic production. When the organic producer structure in the world is examined, it is observed that it is composed of family type enterprises in general (Leu, 2004). The structure of the producers of Göksun district

also conforms to the type of organic producers, which is advantageous in terms of labor costs. Several studies have shown that labor costs in organic agriculture increase by between 10 and 50% (Tanrıvermiş et al, 2004). Furthermore, when it is taken into account that the family workforce is already mostly used in the production in small lands in Göksun, it can be understood that the workforce may not be an important obstacle during the first transition period of organic agriculture.

The biggest problem of Göksun's agriculture is low efficiency, scattered land structure, and accordingly low income level (Çağlar et al, 2008). At this point, organic production is emerging as an alternative method of production. The main reason for being an alternative is that organic product prices create higher market price compared to the conventional products. In the retail sector, the sales prices of organic products are generally above the sales prices of conventional products. The main the reason for this difference is that organic products can be included in featured product category (Yolcu, 2013).

It is necessary for producers to carry out cultural operations regularly in organic farming as well as in conventional farming. Especially, it is recommended to use organic fertilizers against the low yields they may encounter. Organic fertilizer needs of producers who want to carry out organic farming in Göksun can be supplied with gytija which is a low-calorie, not fully carbonized material obtained from the thermal power plant area in Afşin-Elbistan and quite inexpensive and is not used in the power plant. Gytija is a natural organic material with high carbon and humic acids, which has not reached the coal level.

Because of the presence of plant nutrients, low toxic element content, high humic and fulvic acid content, a large part of the researches carried out so far in our country focuses especially on the potential use of gytija as fertilizer. Efforts are being made to assess the effects of plant yield, fertilizer value, organic matter content and humin substance content (Anonymous, 2016). The place of nitrogen in plant nutrition is very important. In organic farming, synthetically produced and relatively inexpensive nitrogenous fertilizers have no place, instead, natural nitrogen sources are used which are more difficult to supply and more expensive, which increases the cultivation costs of organic products. In this context, the nearby gytija resources in the immediate vicinity provide a great advantage for the assessment of organic agricultural potential in the Göksun district.

4. Discussion

The importance of organic agriculture in the world and in our country has been understood better day by day.

Given the fact that the demand for organic products increases with each passing day, it is possible to say that the number of people employed in organic farming will increase steadily. In this case, the Göksun district of Kahramanmaraş is very advantageous in terms of production and investment in organic agriculture. Since investments in organic farming in the district will increase the number of people employed in the sector, it is obvious that the province will contribute to the economy. The creation of a brand by organically cultivating the income-generating crops such as apples, which are cultivated in the district, is important in terms of acquiring competitive advantage in the market.

The creation of a brand by making organic farming of income-generating products such as apples, which are cultivated in the district, is important in terms of acquiring competitive advantage in the market. Thanks to the beginning of organic farming activities in the district, which is considered to have the advantage of different ecological conditions and not yet polluted fertile lands over many regions, it is inevitable to attract many investors to the province and be brought to the place it deserves in terms of agriculture. Organic production, which can generate more income than conventional agriculture, is likely to affect employment and income of the district in a positive way. As of 2018, there is no producer in the district conducting organic production. Wheat, barley, potato, chickpeas, beans and sunflower are the first crops to be considered for organic farming in the areas where intensive farming is not practiced in the district. While planning the use of agricultural land in the district, it will be useful to identify areas where organic farming will be performed. In this regard, the presence of the Organic Agriculture Program at Göksun Vocational High School, which is affiliated to the Kahramanmaraş Sütçü Imam University that will inform the farmers in scientific and technical terms, and the existence of the institutions that will carry out agricultural training activities such as the Directorate of District Food and Livestock will be an important advantage.

As a result of this study aiming to raise awareness of the

economy of the district and the producers to make more contributions to their budget by obtaining more income from the crops, while at the same time contributing to the district's economy, it is obvious that the agricultural infrastructure of the Göksun district is suitable for organic plant production and organic agriculture is an important opportunity for the district.

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