THE DEVELOPMENT OF PEANUT PRODUCTION IN TURKEY AND OSMANIYE

ABSTRACT

Peanuts are very important nutrition not only for human beings but also animals because of its rich content. Peanut plays a crucial role in the economy of Osmaniye province in Turkey. In 2012, peanuts were registered as a geographically indicated product of Osmaniye by the Turkish Patent and Trademark Office. This study examines current state of peanut production in Turkey and Osmaniye from 2004 to 2023. Over the past 20 years, peanut cultivation areas have expanded in Osmaniye, leading to increase in the share of peanut farming within cereals and other crops from about 7% in 2004 to approximately 12% in 2023. While Osmaniye held the largest share of peanut cultivation areas at 39% in 2004, this decreased to 25% by 2023. During this period, Adana emerged as a major peanut producing province, holding 45% of the cultivation share. The considerable expansion of peanut farming in Adana led to decline is Omaniye's position in producing rankings. Additionally, the number of provinces involved in peanut farming has increased, indicating a broader geographical distribution and diversification of peanut agriculture across the country. There is a need for an organization that can support producers with affordable input supplies, market access, dissemination of innovation, and storage solutions, fostering unity and collaboration within the sector. Expanding the range of peanut based products beyond snacks could open new market opportunities for producers, stabilize market prices, and held reduce income disparities.

Keywords: Peanut, production, Osmaniye, Turkey

1. INTRODUCTION

Peanuts, a valuable source of nutrition for both humans and animals due to their content of fats, proteins, carbohydrates, vitamins, and minerals (Aşık et al., 2018; Elinç and Erman, 2021; Arslan et al., 2022), hold a significant position among annual oil crops worldwide. Peanut, classified among oil seeds, is considered a functional food due to its content of bioactive compounds such as resveratrol and phytosterol, which have positive health effects, in addition to containing antioxidant vitamins and minerals (Özalp and Kürklü, 2020). Additionally, peanuts contribute greatly to both plant production and livestock farming by being part of crop rotation, efficiently utilizing soil nutrients, and leaving behind clean, semi-processed, nitrogen-rich soil for the following crop, as well as by providing animal feed through its pulp and green parts (Ucecam and Hayli, 2004; Topçu, 2009).

Belonging to the legume family, peanuts differ from other legumes by producing their fruits underground. Due to their high oil content, peanuts are classified among oilseed crops (Kadiroglu, 2023, Kadiroglu, 2023a). Depending on the variety, peanuts contain 44-56% oil, and this oil is superior to many other vegetable oils in terms of taste and resilience (DOĞAKA, 2015). In addition to their important role among oilseed crops, peanuts also serve as a crucial industrial input source due to the diversity of their applications (Bahsi et al., 2012). The use of peanut shells and peanut butter as raw materials in the food industry, and the inclusion of peanut oil or extracts in various processed products, further enhances their importance in the food sector (Topçu, 2009). The peanut shell, which remains after the seed is extracted from the fruit, is utilized in various industries; it is used in chipboard production, as a feed filler, in mushroom cultivation, as fuel, as a filler in the

production of artificial wood, in charcoal manufacturing, as roughage in cattle breeding, and as bedding material in poultry farming (DOGAKA, 2015). The use of peanut shells as a construction material offers the building industry a new, cost-effective material without raw material shortages. Addtionally, incorporating different binders can expand its application possibilities in various forms, potentially serving as a guide for the utilization of shells, stalks, and other agricultural waste from other crops (Çelik and Gürdal, 2005).

In the Cukurova region, peanuts are grown as both a primary crop and a second crop after wheat harvest. Due to their high yield potential, ease of marketing, and high income per unit area, peanuts are among the most advantageous crops for farmers in the Cukurova region (Bademci and Sertkaya, 2021). Osmaniye, due to its geographical location and climatic characteristics, is one of the provinces in Turkey where many agricultural products can be grown. Peanuts are one of the most important crops cultivated in Osmaniye, and they have become a symbol of the region. In 2012, peanuts were registered as a geographically indicated product of Osmaniye by the Turkish Patent and Trademark Office (DOGAKA, 2024). Geographical indications provide distinctive characteristics to local products, therebye increasing their added value, certifying their authenticity, and granting producers a competitive advantage, which in turn promotes the develeopment of local economies (Özsoy, 2015). As the second-largest peanut producing province in Turkey, Osmaniye serves as the most important center and market for peanut processing and marketing. Approximately, 84% of the peanuts produced in Turkey are marketed in Osmaniye and Adana province (TUIK, 2021) and 80% of the processed peanuts are handled in Osmaniye (Bahsi, et al., 2012). Therefore, peanuts are a significant source of employment for this province.

The purpose of this study is to examine Osmaniye's role in Turkey's peanut production and to analyze the changes in its production over the years.

2. MATERIAL AND METHODS

The primary material of the research consists of secondary data obtained from the Turkish Statistical Institute (TUIK) database. The values related to peanut production in Turkey and the province of Osmaniye (such as cultivation area, production and yield) have been analyzed and interpreted using tables. By calculating the changes in peanut production in Turkey and Osmaniye over the past 20 years, the current potential and significance of peanuts for Turkey have been assessed. In addition to being an important nutritional source for both humans and animals, peanuts are also a vital industrial input due to their diverse applications. The study presents the current status of peanut production in both Turkey and Osmaniye between 2004 and 2023.

3. THE DEVELOPMENT OF PEANUT PRODUCTION IN TURKEY

The insufficient development of peanut planting, harvesting, and threshing technology, and consequently its limited use in the oil industry, is the primary factor restricting production growth. The lack of sufficient mechanization increases the production costs of peanuts compared to other oilseed crops. For this reason, while peanuts are utlizied as an oil crop worldwide, in Turkey, they are consumed as a snack and similarly exported in snack form (Kızılaslan and Ağcadağ, 2013).

Peanuts are cultivated within the group of cereals and other plant-based crops. In Turkey, the cultivated area of cereals and other plant-based crops accounted for approximately 68% of the total agricultural land in 2004. This ratio increased to about 70% in 2023 (Table 1). Over the

20-year period from 2004 to 2023, the share of cereals and other plant-based crops in the total agricultural land increased by approximately 3%. In 2004, peanut cultivation areas accounted for 0,14% of the total area for grains and other plant products, while this rate increased to 0,27% in 2023. Within this group, the share of peanut cultivation areas within the cereals and other plant-based crops category has increased by around 90%. The expansion of cultivation areas has been significantly influenced by the availability of irrigation opportunities and presence of broad, flat alluvial lands (Üçeçam and Hayli, 2004; Baran and Andırman, 2022).

Table 1. Total agricultural land and peanut cultivation areas in Turkey

	2004	2023	Change (%)
Total agricultural area (decare)	265931780	239712313,9	-9,86
Cereals and Other Cultivated Crop Area (Decare)	179616500	167446350	-6,78
Share of Cereals and Other Crops in Total Agricultural Area (%)	67,54	69,85	3,42
Peanut Cultivation Area (Decare)	260000	460098	76,96
Share of peanuts in Cereals and Other Crops (%)	0,14	0,27	89,82

Source: TUIK, 2024
* It has been calculated using TUIK data.

Over the 20 years, peanut cultivation areas have been increased by approximately 77% (Table 2). In Turkey, peanut production, which was 80.000 tons in 2004, increased by approximately 131% over this 20-year period, reaching 185.137 tons in 2023. This rise in production is attributed not only to the expansion of cultivation areas but also to an increase in yield.

Table 2. Developments in peanut (in-shell) production in Turkey

	2004	2023	Change (%)
Cultivated area (decare)	260000	460098	76,96
Harvested area (decare)	260000	460097	76,96
Yield (kg/da)	308	402	30,52
Production (Tons)	80000	185137	131,42

Source: TUIK, 2024
* It has been calculated using TUIK data.

According to data from TUIK (2024), peanut farming was carried out in 16 provinces in 2004. The provinces with the largest peanut cultivation areas where Osmaniye, Adana and Mersin (Figure 1). Osmaniye held the largest share of peanut cultivation areas in 2004, with approximately 39%, followed by Adana with about 29% and Mersin with a share of around 15%. By 2023, the number of provinces engaged in peanut farming had increased to 22. Adana's share of peanut cultivation areas rose to approximately 45%, while Osmaniye's share declined to around 25% (Figure 2). This shift is attributed to the fact that the increase in peanut cultivation areas in Osmaniye was smaller compared to the expansion in Adana. Over the 20-year period, the increase in peanut cultivation areas in Osmaniye was only 12%, whereas in Adana, this rate was approximately 180%. Mersin, which ranked third in peanut cultivation areas in 2004, saw a decline, dropping to eight place. In contrast, peanut farming, which did not exist in Sırnak in 2004, began in 2009 on 100 decares of land and by 2023, Sırnak ranked third in terms of cultivation areas, with a share of approximately 15%.

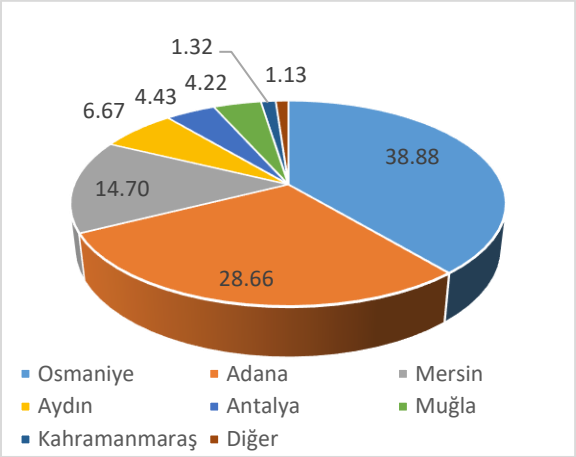

Figure 1. Distribution of peanut cultivation areas by province (2004)

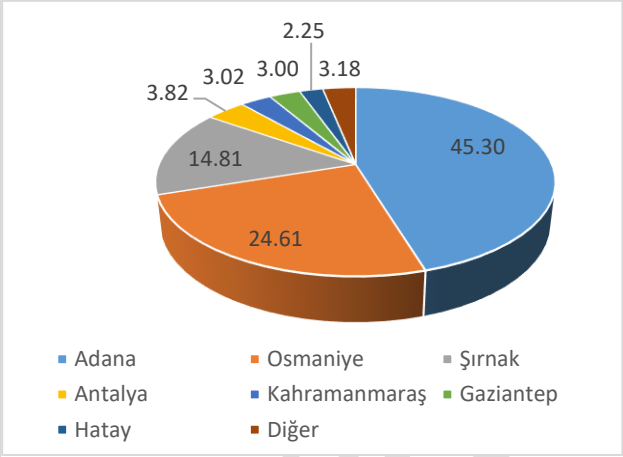

Figure 2. Distribution of peanut cultivation areas by province (2023)

* It has been calculated using TUIK data.

When examining the share of provinces in Turkey's total peanut production, Osmaniye ranked first in 2004 with approximately 41%, followed by Adana with 34% (Figure 3). By 2023, considering the significant increase in cultivation areas, Adana accounted for 48% of total peanut production (Figure 4). Osmaniye, with a share of around 24%, dropped to second place in terms of production amount. In 2004, while Osmaniye and Adana were followed by Mersin and Aydın, by 2023, considering the reductions in cultivated areas in these provinces, they have fallen behind in terms of production. In 2023, Sırnak ranked third with a 13% share and Antalya ranked fourth with approximately 4% share.

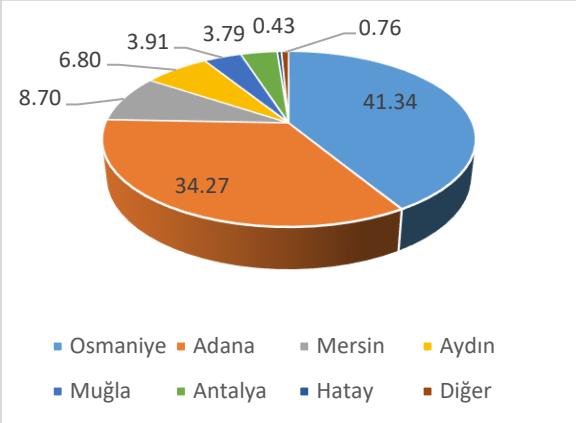

Figure 3. Distribution of peanut production by provinces (2004)

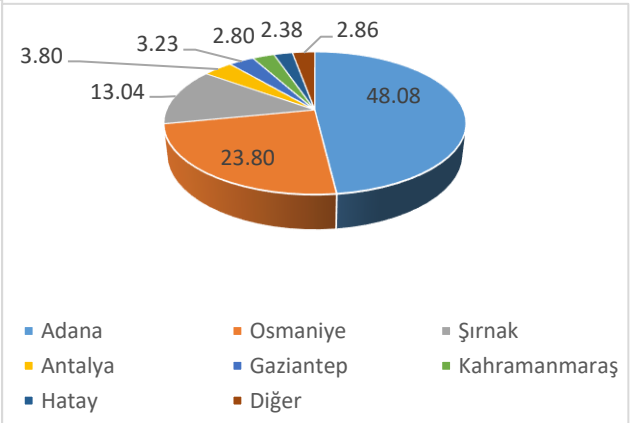

Figure 4. Distribution of peanut production by provinces (2023)

* It has been calculated using TUIK data.

4. DEVELOPMENTS IN PEANUT PRODUCTION IN OSMANIYE

The agricultural sector forms one of the main livelihoods for the province of Osmaniye. Peanut farming is among the most widely produced agricultural products in the region. Table 3 presents the total agricultural land and peanut cultivation areas in Osmaniye. In 2004, Osmaniye had 1,561,810 decares of agricultural land, but by 2023, this figure had decreased to 1,266,040 decares. The expansion of urban areas and the establishment of various industrial facilities on agricultural land are among the primary reasons for this decline. The reduction in total agricultural land has led to a decrease in the cultivation areas for certain crops. In Osmaniye, while cereals and other crops were grown on 1,447,130 decares in 2004, this area had decreased to 966,150 decares by 2023. In 2004, cereals and other crops accounted for approximately 93% of the total agricultural land in Osmaniye, but this ratio dropped to around 76% in 2023. Despite the increase in peanut cultivation areas over this 20-year period, the share of peanut cultivation within cereals and other crops increased from about 7% in 2004 to approximately 12% in 2023.

Table 3. Total agricultural land and peanut cultivation areas in Osmaniye

	2004	2023	Change (%)
Total agricultural area (decare)	1561810	1266040	-18,94
Cereals and Other Cultivated Crop Area (Decare)	1447130	966150	-33,24
Share of Cereals and Other Crops in Total Agricultural Area (%)	92,66	76,31	-17,64
Peanut Cultivation Area (Decare)	101080	113238	12,03
Share of peanuts in Cereals and Other Crops (%)	6,98	11,72	67,80

Source: TUIK, 2024

* It has been calculated using TUIK data.

The developments in peanut production in Osmaniye are presented in Table 4. Over the 20-year period from 2004 to 2023, peanut cultivation areas in Osmaniye increased by approximately 12%. The production volume rose from 33,073 tons in 2004 to 44,060 tons in 2023, representing an increase of about 33%. This rise in production amount can be attributed not only to the expansion of cultivation areas but also to improvements in yield. Peanut yield in Osmaniye increased by approximately 19% during this period.

Late planting of peanuts can delay harvest time, therebye increasing the likelihood of favorable weather conditions at harvest. Timely planting minimizes the impact of adverse weather at harvest, ensuring confditions that align with desired storage moisture levels (Yolcu et al., 2023). Aflatoxin formation, which occurs during harvest, wilting, drying, and storage due to fruit decay, growth of pathogenic fungi, and creation of favorable conditions, poses significant issues, particularly in peanut consumption as a snack and in animal feed. Currently, there are substantial problems with peanut drying, pre-storage, and storage stages in the region, and without preventive measures, these issues are expected to escalate in the future (Lavkor ve Biçici, 2015).

Table 4. Developments in peanut (in Shell) production in Osmaniye

	2004	2023	Change (%)
Cultivated area (decare)	101080	113238	12,03
Harvested area (decare)	101080	113238	12,03
Yield (kg/decare)	327	389	18,96

Production (Tons)	33073	44060	33,22

Source: TUIK, 2024

* It has been calculated using TUIK data.

The embrace of peanuts as a cultural asset by the people of Osmaniye, along with its inclusion under geographical indication protection, has paved the way for the product to become a recognized brand – an important marker of success. With its achievements and development in this sector, Osmaniye has become a pivotal center, influencing the entire peanut market in Turkey (Şahin, 2014).

5. RESULTS AND RECOMMENDATIONS

Peanut cultivation in Turkey has shown significant development between 2004 and 2023. The share of peanut cultivation areas within the cereals and other crops group increased from 0,14% to 0,27%, marking an approximate 90% growth. This indicates the growing importance of peanuts within the total agricultural land. Peanut production across Turkey, which stood at 80.000 tons in 2004, reached 185.137 tons in 2023. This increase was supported not only by the expansion of cultivation areas but also by improvements in yield. The observed changes in cultivation areas reflect the dynamics of peanut farming in different provinces. In 2004, Osmaniye held the largest share of peanut cultivation areas with 39%, but this figure dropped to 25% by 2023. Meanwhile, Adana came to the forefront with a 45% share. The substantial increase in peanut cultivation areas in Adana caused a decline in Osmaniye's ranking in production. Additionally, there has been an increase in the number of provinces engaged in peanut farming, demonstrating a wider geographical spread and diversification of peanut agriculture across the country.

Mechanization in peanut production over the past two decades, along with notable increases in fertilizer costs due to the privatization of fertilizer factories and rising exchange rates, have shaped labor processes and influenced the relationships between farmers and merchants-processors. Additionally, the demands from wholesalers and retailers - particularly regarding the choice of seed varieties – affect peanut production. Together, these factors significantly impact farmers' income (Özalp and Ören, 2024).

These positive developments in peanut farming are evident through both the increase in production volume and the expansion of cultivation areas. However, the reduction in agricultural lands at the national level and particularly in Osmaniye raises concerns about agricultural sustainability. Policies aimed at protecting agricultural lands should be developed. Furthermore, due to lack of any organization within the sector, the market structure is quite poor, leading to highly unstable prices as enterprises cannot act collectively, which results in unfair competition. The lack of engagement in organizational activities among producers appears to force them into a one-dimensional marketing system, primarily relying on intermediaries for sales (Kızılaslan ve Ağcadağ, 2013). There is a need for an organization that can provide support to producers on issues such as the supply of cheap inputs, market access, innovation dissemination, and storage, thereby contributing to unity and cooperation within the sector. It is essential to cultivate the perception in Turkey that geographical indications can serve as an effective marketing tool for introducing local products to global markets (Özsoy, 2015). Although peanuts can serve as raw materials for a wide variety of products, in Turkey, they are predominantly processed and consumed as snacks. Despite the increasing production of products like peanut butter and confectionery in recent years, the production of peanut oil,

which is particularly rich in nutrients, is not carried out in the country due to the high production costs. Although Turkey's oil deficit, the challenges in utilizing peanuts for oil extraction remain unresolved, leading to the consumption of peanuts largely as a snack, as is the case in many parts of the world (Parlakay ve Alemdar, 2011). Given the high heat tolerance and superior nutritional profile of peanut oil, it should be integrated into Turkey's oil industry (Yılmaz et al, 2022). The expansion of alternative uses for peanuts beyond snacks could create new market opportunities for peanut producers, reducing price instability in the market and eliminating income disparities.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AJ technologies such as large language models (chatgpt, copilot, etc) and text-to-image generators have been used during writing or editing of manuscripts.

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