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Researching Producers' Preferences in Mastic Gum Tree Cultivation: Identifying Motivating Factors

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Abstract: The study is to identify the motivating factors for producers in the Çeşme/İzmir district to increase mastic gum tree production, which is a significant activity there. The primary data for the study was collected through questionnaires conducted via face-to-face interviews with producers. Producers involved in mastic gum tree cultivation and those with potential for such cultivation were selected using non-probability sampling methods. Of 105 producers surveyed, 18 were engaged in mastic gum tree cultivation, while 87 were not. The research revealed that support for land use, initial financing, advisory services, and input were the preferred support mechanisms for gum farming farms. Similar support preferences were observed for farms without mastic gum tree cultivation, with consultancy, land use, and initial financing support topping the list. The decision to start mastic gum tree cultivation was mainly attributed to factors such as the longstanding cultural tradition of mastic gum tree cultivation in the region, the region's favorable climate and soil for production, and the mastic gum tree's low water requirements compared to other crops. Analysis of the recommendations and expectations of all producers and non-producers suggested that providing various forms of support, particularly training and land support for mastic gum tree production, could be the main motivating factors.

Keywords: Mastic gum tree, Çeşme/İzmir, Chios, Value-added

INTRODUCTION

The decision to invest in tree protection or tree planting depends on the economic benefits gained from growing gum trees compared to other crops. The potential returns from trees are influenced by the value of the services they provide, which is determined by economic and biophysical factors such as costs, output prices, growth, and yield functions. In theory, if market-based incentives work well, farmers would be encouraged to participate in financially and environmentally beneficial gum tree planting and conservation activities, reducing the need for substantial government investments in restocking. However, investing in planting or protecting perennial trees may limit flexibility in responding to changes in land tenure systems and price incentives (Pearce, 1988; Larson and Bromley, 1991; Barbier, 2000; Elmqvist, 2003).

When it comes to the potential for mastic gum tree production in Turkey, the Çeşme/İzmir region stands out due to its unique climatic and geographical characteristics. Despite some level of tree plantation and planting in the area, it falls well below the region's potential.

The mastic gum tree is a densely branched, evergreen maquis plant that can take the form of shrubs and trees. It can grow up to 2-3 meters in length, and sometimes up to 6 meters. The mastic tree, scientifically known as *Pistacia lentiscus L.*, is found all over the Mediterranean coast and is economically cultivated using only male individuals of the "chia" variety (Onay et al., 2016). When the bark is scratched from the trunk and branches of the tree, a gum-like resin, known as mastic, is produced. The plant secretes the mastic gum tree as a form of protection, and it accumulates in various sizes and shapes on the tree, known by names such as tear or drop gum (Sağlam, 2019). The mastic tree has economic value due to its resin, fruits, leaves, branches, and wood, and is also used in landscaping (Yaşar Keskin, 2013). Additionally, the mastic gum tree helps prevent soil erosion and can quickly regenerate

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even after forest fires (Yüzer, 2019). The gum is widely used in medicine, food, and chemistry (Kılıç, 2019).

There are various types of mastic gum trees, but the mastic-producing variety is only found in the Çeşme Peninsula of İzmir and the Greek island of Chios (Yüzer, 2019). These trees reach their peak mastic yield at around 40-50 years of age, but after 70 years, their mastic yield decreases (Figure 1) (Sağlam, 2019).

Figure 1. *Gum tree (Source: Çeşme District Directorate of Agriculture and Forestry, 2024)*

The geographical indication application dated 15.06.2020 and numbered C2020/132, made by the Çeşme District Directorate of Agriculture and Forestry to the Turkish Patent and Trademark Office under the name of Çeşme Damla Sakızı, was finalized in 2024. Çeşme Damla Sakızı was registered on 15.04.2024 to be protected as of 15.06.2020. It received Geographical Indication Registration Certificate No. 1569 and was published in the Official Geographical Indication and Traditional Product Name Bulletin No. 172 dated 02.05.2024 (Figure 2) (TÜRKPATENT, 2024; Çeşme District Directorate of Agriculture and Forestry, 2024). With this registration process, unfair competition will be prevented, the traditional and local characteristics of the product will be protected, and producers will be able to market their products in a value-added way. In this way, the competitiveness of Çeşme Drop Gum in both domestic and foreign markets will increase significantly.

Özden (2019) conducted an economic analysis of mastic gum tree cultivation projects in Izmir, using methods including Net Present Value (NPV), Internal Rate of Return (IRR), and Discounted Payback Period. The study focused on the Çeşme, Urla, and Karaburun regions as potential project sites. The findings indicated that mastic gum tree cultivation projects are not economically viable due to the

excessively high cost of land rent in the region, which would require the project's returns to surpass the cost of land rent.

Figure 2 *Çeşme Damla Sakızı logo and the emblem of the appellation of origin*

Χριστάκης (2020) conducted a study on the cultivation of mastic gum trees and the use of mastic in the Mastic villages in the south of Chios, focusing on its contribution to agrotourism. The study included separate surveys with 75 individuals working to promote mastic in the island's institutions and 155 mastic gum tree producers. The surveys analyzed the willingness of the producers to demonstrate mastic production techniques to tourists on their private property, as well as the challenges of agrotourism in the Mastic region and proposed solutions. The research emphasized the need to create a sustainable plan for Chios' development and offered policy recommendations to empower mastic producers. Παμπάλου (2020) examined the economic advantages of Chios mastic for local development. The study highlighted the stability of the product in the global market and emphasized the need for innovations in cultivation, risk management training for producers, and the provision of incentives such as tax relief and insurance. The Chios Mastic Growers' Association suggested utilizing technology to access new markets, improving administrative mechanisms, and auditing the production, processing, and distribution process of mastic as part of strategic planning. It was emphasized that the development of new jobs and opportunities will sustain Chios and the North Aegean Region, benefiting other sectors of the economy as well. This study was carried out in the Çeşme/İzmir district, which is the most important natural distribution area of mastic tree production in Turkey. The main objective of the study is to reveal the factors that motivate producers' preference for mastic gum tree production.

A review of the literature reveals a multitude of publications on mastic gum tree cultivation, mastic product content analysis, and mastic usage areas. However, there is a paucity of studies on the economics and marketing of mastic gum tree production. As no study on the subject has been identified in the literature, it is anticipated that this study will contribute to the existing body of knowledge on mastic gum tree production by providing insights from a new perspective.

MATERIALS and METHODS

The research collected data from questionnaires administered through face-to-face interviews with the producers. The research collected data from questionnaires through face-to-face interviews with the producers in the Çeşme (Figure 3). The survey studies used non-probability-based sampling methods to select producers, considering the researcher's knowledge of the agricultural production potential and possibilities of the region. Special attention was given to producers who grow mastic trees and those with high potential to grow mastic trees. Although there is no specific data on the number of mastic tree

producers, 18 producers who grow mastic trees were identified in Çeşme/İzmir district during preliminary field studies, and the remaining 87 producers were considered to have high potential to grow mastic trees, even if they do not currently grow them. Due to the difficulty in identifying the 18 mastic tree producers and the lack of data, the producers were identified through observations and field determinations. A total of 105 producers were surveyed. Since the number of gum tree growers and non-growers is not balanced, evaluations were made based on two separate groups to account for the differences in detailed analyses between the two groups.

Figure 3 *Location of Çeşme district in Izmir and Türkiye*

The questionnaire forms used a 5-point Likert scale, along with open-ended questions and yes/no options. The Likert-type questions were independent of each other and did not aim at a general inference. Analysis of the data involved simple descriptive statistics such as frequency, mean, and percentage ratios.

RESULTS and DISCUSSION

Precise characteristics of producers are defined below (Table 1). Out of the 18 gum tree growers, only one is female and the remaining 17 are male. In the non-gum tree growing group, there were 72 male and 15 female producers.

It was noted that producers in the 41-60 and 61 and over age groups were predominant in both categories. The fact that around half of the producers in both groups have higher education is significant for the rapid adoption of innovations and the promotion of mastic gum tree cultivation. Approximately 76-77% of producers in both groups were married. While the number of family members in mastic gum tree-growing farms was balanced across all groups, those with 3-4 family members (60.92%) were more prevalent in mastic gum tree-growing farms. This may indicate an increase in individuals supporting agricultural production. Similar results were also reported by Ho et al. (2012), Kebede (2021), and Tesfaw et al. (2022).

It shows key characteristics related to agricultural production activities in agricultural holdings (Table 2). It indicates that agricultural holdings with 1-2 family members engaged in agriculture are common in both groups.

Table 1. *Personal characteristics of the producers and the households*

Characteristics	Gum tree growers (n=18) (%)	Non-gum tree growers (n=87) (%)
Age groups		
15-25	0 (0.00)	1 (1.15)
26-40	2 (11.11)	18 (20.69)
41-60	8 (44.44)	42 (48.28)
61 and above	8 (44.44)	26 (29.89)
Education status		
Primary education	4 (22.22)	23 (26.44)
Secondary education and high school	5 (27.78)	24 (27.59)
Higher education	9 (50.00)	40 (45.98)
Marital status		
Married	13 (72.22)	67 (77.01)
Single	5 (27.78)	20 (22.99)
Number of family members		
1-2	5 (27.78)	23 (26.44)
3-4	6 (33.33)	53 (60.92)
5-6	5 (27.78)	10 (11.49)
7 and above	2 (11.11)	1 (1.15)

Table 2. *Producer and household characteristics related to agricultural production activities*

Characteristics	Gum tree growers (n=18) (%)	Non-gum tree growers (n=87) (%)
Number of family members involved in agriculture		
1-2	11 (61.11)	74 (85.06)
3-4	5 (27.78)	12 (13.79)
5-6	1 (5.56)	1 (1.15)
7 and above	1 (5.56)	0 (0.00)
Reason for initiating agricultural production		
Family members being farmers	15 (83.32)	45 (51.72)
Choosing a profession	1 (5.56)	10 (11.49)
Forced due to unemployment	0 (0.00)	3 (3.45)
Agricultural support incentive	1 (5.56)	4 (4.60)
Hobby	1 (5.56)	25 (28.74)
Years of farming experience		
1-9	4 (22.22)	39 (44.83)
10-19	2 (11.11)	9 (10.34)
20-29	2 (11.11)	6 (6.90)
30-39	2 (11.11)	7 (8.05)
40 and above	8 (44.45)	26 (29.88)
The happiness of the producer in being involved in agriculture		
Not happy at all	0 (0.00)	1 (1.15)
Not happy	1 (5.56)	4 (4.60)
Undecided	1 (5.56)	11 (12.64)
Happy	3 (16.67)	22 (25.29)
Very happy	13 (72.21)	49 (56.32)

While there are relatively more farms with 3-4 family members, the decrease in the number of individuals engaged in agriculture per household suggests a declining trend. Notably, 83.32% of mastic gum tree-growing producers and 51.72% of non-gum-tree-growing producers cited "family as farmers" as the reason for starting agricultural production. Additionally, 28.74% of non-gum-tree-growing producers stated it was for hobby purposes. Most gum tree producers have farming experience of 40 years and over (44.45%) and 1-9 years (22.22%), while non-gum tree producers mostly have 1-9 years of farming experience (44.83%) and 40 years and over (29.88%). The data indicates that gum tree producers are typically older, with 83.32% citing "family being a farmer" as the reason for starting farming, aligning with their older age. Interestingly, 44.83% of those with 1-9 years of farming experience and 28.74% of hobbyist farmers are also prevalent, suggesting that agricultural activities are pursued alongside non-agricultural activities. Overall, producers in both groups appear content with engaging in agriculture, with mastic gum tree producers reporting higher satisfaction levels. These findings are in line with previous studies such as Asneke (2002), Abebaw and Dea (2016), Addis et al. (2016), Derbe et al. (2018), and Alemayehu and Melka (2022).

The characteristics of agricultural farms within the producer groups were also assessed, as shown in Table 3. In both groups, most farms had land holdings ranging from 1 to 50 decares, indicating that these farms are mostly small to medium-sized. This finding is consistent with Χριστάκης (2020) who observed similar trends in Chios.

Table 3. *Key characteristics of the farms*

Characteristics	Gum tree growers (n=18) (%)	Non-gum tree growers (n=87) (%)
Land size (da)		
1-50	13 (72.22)	78 (89.65)
51-100	2 (11.11)	6 (6.90)
101-500	2 (11.11)	2 (2.30)
501 and above	1 (5.56)	1 (1.15)
Land management status* (n)		
Owner	14	62
Sharecropper	3	6
Tenant	6	26
Authorization to use Treasury land	6	16
Land size (da)**		
Owner	20.08 (24.43)	12.83 (36.90)
Sharecropper	5.57 (6.78)	1.33 (3.83)
Tenant	12.72 (15.48)	3.51 (10.09)
Treasury land	43.81 (53.31)	17.10 (49.18)
Total land size	82.18 (100.00)	34.77 (100.00)

*A producer has the option to select multiple choices.
**The average values are calculated.

The land cultivated by producers in both groups was primarily owned land, followed by land operated by tenants and sharecroppers. On average, the total land size of gum-growing farms was 82.18 decares, compared to 34.77 decares for non-gum-tree-growing farms. Similar results were reported by Getahun (2002), Asneke (2002), Negash (2002), Addis et al. (2016), and Derbe et al. (2018) in different countries. Interestingly, in both groups of farms, approximately 50% of the total farmland was treasury land. It can be argued that for farms involved in mastic gum tree cultivation, treasury land could be a viable option for establishing and expanding gum tree plantations. This category was followed by land owned by the enterprise, tenant-operated land, and sharecropper-operated land.

During this phase of the study, we aimed to identify the potential challenges and motivating factors for mastic gum tree cultivation among producers. We started by identifying the possible constraints for producers who have the potential to cultivate mastic but currently do not (Table 4). Upon analyzing all the statements, it was found that around half of the producers did not consider them effective for mastic gum tree cultivation. Moreover, the most significant constraints anticipated by the producers were insufficient availability of land, as well as labor issues, lack of financing for establishment, and marketing challenges.

Both groups of producers were assessed on their views regarding the government's support for mastic gum tree cultivation. Almost all producers stated that government assistance to interested entrepreneurs would be a significant motivator for establishing new gum tree plantations and for improving and developing existing ones. Studies by Abebaw and Melka (2016), Derbe et al. (2018), Alemayehu and Melka (2022), and Tesfaw et al. (2022) also support these findings.

Table 4. *Potential obstacles to cultivating gum tree for non-gum-tree farming producer groups*

Statements	Not at all effective (n) (%)	Not effective (n) (%)	Undecided (n) (%)	Effective (n) (%)	Very effective (n) (%)
I lack sufficient funding for a mastic gum tree orchard.	43 (49.43)	8 (9.20)	3 (3.45)	14 (16.09)	19 (21.83)
I need to learn more about mastic gum tree farming.	39 (44.83)	7 (8.05)	11 (12.64)	13 (14.94)	17 (19.54)
I don't have enough land to grow mastic gum trees.	32 (36.78)	7 (8.05)	6 (6.90)	11 (12.64)	31 (35.63)
It can be challenging to acquire mastic gum tree saplings.	43 (49.43)	8 (9.20)	12 (13.79)	13 (14.94)	11 (12.64)
I am unsure about marketing eucalyptus tree products.	43 (49.43)	5 (5.75)	8 (9.20)	13 (14.94)	18 (20.68)
The mastic gum tree takes quite a long time to provide an economic return	39 (44.83)	5 (5.75)	8 (9.20)	16 (18.39)	19 (21.83)
It is challenging to find workers to harvest mastic.	36 (41.38)	3 (3.45)	11 (12.64)	16 (18.39)	21 (24.14)

It was attempted to assess the potential state support policies for gum agriculture from the producers' perspective (Table 5 and Table 6). Land use support, initial financing support, advisory support, and input support were considered preferable to other possible support instruments as possible support policy instruments for producers in rubber-growing farms. Area income support and credit support were the least preferred support instruments.

Table 5. *Possible government support policy instruments for mastic gum tree farming*

Statements	Not at all effective (n) (%)	Not effective (n) (%)	Undecided (n) (%)	Effective (n) (%)	Very effective (n) (%)
Land use support	1 (5.56)	0 (0.00)	0 (0.00)	5 (27.78)	12 (66.67)
Area-based income support	1 (5.56)	3 (16.67)	1 (5.56)	6 (33.33)	7 (38.89)
Price support	5 (27.78)	1 (5.56)	1 (5.56)	3 (16.67)	8 (44.44)
Input (seedlings, diesel, fertilizer, etc.) support	1 (5.56)	1 (5.56)	0 (0.00)	7 (38.89)	9 (50.00)
Credit support	3 (16.67)	3 (16.67)	0 (0.00)	5 (27.78)	7 (38.89)
Support premium (per tree)	1 (5.56)	1 (5.56)	2 (11.11)	6 (33.33)	8 (44.44)
Start-up financing support	2 (11.11)	1 (5.56)	1 (5.56)	2 (11.11)	12 (66.67)
Advisory support	1 (5.56)	1 (5.56)	0 (0.00)	7 (38.89)	9 (50.00)

Table 6. *Possible government support policy instruments for non-gum tree farming*

Statements	Not at all effective (n) (%)	Not effective (n) (%)	Undecided (n) (%)	Effective (n) (%)	Very effective (n) (%)
Land use support	17 (19.54)	3 (3.45)	4 (4.60)	23 (26.44)	40 (45.98)
Area-based income support	18 (20.69)	4 (4.60)	13 (14.94)	27 (31.03)	25 (28.74)
Price support	24 (27.59)	3 (3.45)	7 (8.05)	27 (31.03)	26 (29.89)
Input (seedlings, diesel, fertilizer, etc.) support	20 (22.99)	0 (0.00)	4 (4.60)	28 (32.18)	35 (40.23)
Credit support	25 (28.74)	11(12.64)	10 (11.49)	20 (22.99)	21 (24.14)
Support premium (per tree)	20 (22.99)	1 (1.15)	5 (5.75)	28 (32.18)	33 (37.93)
Start-up financing support	18 (20.69)	2 (2.30)	4 (4.60)	24 (27.59)	39 (44.83)
Advisory support	17 (19.54)	0 (0.00)	5 (5.75)	20 (22.99)	45 (51.72)

It was found that extension support, land use support, and start-up financing support were the most important support policy instruments envisaged for non-gum tree farms. These data support the

level of knowledge of the producers of non-gum farms about mastic gum tree production and the level of small and medium-sized farms. These possible support policy instruments were followed by input support and support premium per tree. Credit support is the last preferred support instrument, as in the case of mastic producers.

Most of the 18 producers who cultivated gum trees had between 1-9 years of gum tree experience. Similar findings were obtained by Asneke (2002), Getahun (2002), Derbe et al. (2018), and Kebede (2021), indicating that the efforts to ensure sustainability in gum tree cultivation in Çeşme/İzmir have yielded positive results. These results are considered important in revealing the positive outcomes of the efforts made in gum cultivation.

The reasons for producers to start mastic gum tree cultivation were also analyzed in the farms growing mastic trees (Table 7).

Table 7. *Reasons for initiating mastic gum tree cultivation in the farms*

Statements	Not at all effective (n) (%)	Not effective (n) (%)	Undecided (n) (%)	Effective (n) (%)	Very effective (n) (%)
Gum tree products generate higher income compared to other products	7 (38.89)	1 (5.56)	0 (0.00)	4 (22.22)	6 (33.33)
The region where I live only a small number of producers engaged in mastic cultivation	6 (33.33)	1 (5.56)	1 (5.56)	4 (22.22)	6 (33.33)
In our region, there is a long-standing tradition of gum tree production	2 (11.11)	0 (0.00)	0 (0.00)	5 (27.78)	11 (61.11)
The mastic gum tree cultivation has been a family tradition for generations	8 (44.44)	1 (5.56)	3 (16.67)	3 (16.67)	3 (16.67)
Committed to continuing to care for the family-owned gummy bears	9 (50.00)	3 (16.67)	1 (5.56)	1 (5.56)	4 (22.22)
As the climate and soil structure in the region where I live is suitable for chewing gum tree production, it is one of the best alternative occupations	3 (16.67)	0 (0.00)	2 (11.11)	3 (16.67)	10 (55.56)
To be in a region where we have no issues with marketing rubber tree products	7 (38.89)	1 (5.56)	1 (5.56)	5 (27.78)	4 (22.22)
Compared to other agricultural products, rubber trees require little water	4 (22.22)	2 (11.11)	2 (11.11)	3 (16.67)	7 (38.89)

Generally, factors such as the long-standing cultural significance of mastic gum tree cultivation in the region, the suitability of the climate and soil structure, and the low water requirement of mastic gum trees compared to other agricultural products have emerged as the most important motivations for

producers to cultivate mastic gum tree. In studies conducted by Pearce (1988), Barbier (2000), Elmqvist (2003), and Rahim et al. (2007), the main factors motivating producers for mastic gum tree cultivation were analyzed, and it was found that the variables determined were mostly similar. The analysis revealed that gum tree producers did not start production due to it being a family occupation or due to an obligation to continue the maintenance of the family's gums.

In the farms growing mastic trees, most producers are found to be content with mastic farming, and the reasons for continuing mastic gum tree cultivation are also examined below (Table 8).

Table 8. *Reasons for the continuation of the cultivation of mastic gum trees in the farms*

Statements	**Not at all effective (n) (%)**	**Not effective (n) (%)**	**Undecided (n) (%)**	**Effective (n) (%)**	**Very effective (n) (%)**
I started gum tree farming voluntarily to provide income for my family	6 (33.33)	4 (22.22)	1 (5.56)	4 (22.22)	4 (22.22)
I enjoy gum tree farming and start doing it to earn extra income after I retired	6 (33.33)	5 (27.78)	2 (11.11)	3 (16.67)	3 (16.67)
I enjoy growing gum trees and use them as an additional source of income alongside my non-agricultural job	7 (38.89)	5 (27.78)	2 (11.11)	1 (5.56)	1 (5.56)
It is a job I do in addition to my other agricultural activities.	0 (0.00)	4 (22.22)	3 (16.67)	6 (33.33)	6 (33.33)
I do it out of necessity to continue caring for my family's gummies	6 (33.33)	4 (22.22)	5 (27.78)	3 (16.67)	3 (16.67)
I enjoy collecting chewing gum trees as a hobby.	6 (33.33)	3 (16.67)	2 (11.11)	4 (22.22)	4 (22.22)
I do it to consume it within our family	6 (33.33)	4 (22.22)	2 (11.11)	1 (5.56)	1 (5.56)
My income from selling mastic products is substantial.	9 (50.00)	3 (16.67)	2 (11.11)	2 (11.11)	2 (11.11)

The primary reasons producers continue gum tree cultivation are that it is carried out alongside other agricultural activities and that enjoying it as a hobby. They also started mastic gum tree cultivation voluntarily as a source of income to support their families. However, the least effective reason for continuing cultivation, according to research participants, is the high income from mastic products. Currently, mastic gum tree producers have not achieved their desired income level from the cultivation. In the gum tree cultivation industry, efforts were made to identify the current issues faced by the producers (Table 9).

The problems highlighted by the producers are summarized below. High land charges for rubber cultivation, high land rents, high labor and seedling costs, high material costs, and insufficient credit for rubber cultivation were the first statements.

Table 9. *The current challenges faced by mastic gum tree producers in their farms*

Statements	Not at all effective (n) (%)	Not effective (n) (%)	Undecided (n) (%)	Effective (n) (%)	Very effective (n) (%)
The high cost of land for cultivating gum tree	0 (0.00)	1 (5.56)	2 (11.11)	4 (22.22)	11 (61.11)
High rents for growing gum tree	0 (0.00)	1 (5.56)	3 (16.67)	4 (22.22)	10 (55.56)
The high costs of labor for cultivating gum tree	2 (11.11)	2 (11.11)	3 (16.67)	3 (16.67)	8 (44.44)
The cost of gum tree saplings is quite high	2 (11.11)	2 (11.11)	5 (27.78)	1 (5.56)	8 (44.44)
The high costs of materials for cultivating gum tree	4 (22.22)	3 (16.67)	4 (22.22)	0 (0.00)	7 (38.89)
Being unaware of new information and technologies related to gum tree cultivation	2 (11.11)	1 (5.56)	3 (16.67)	7 (38.89)	5 (27.78)
There are not enough marketing channels for products made from the mastic gum tree	5 (27.78)	1 (5.56)	2 (11.11)	6 (33.33)	4 (22.22)
Inadequate credits for gum tree cultivation	5 (27.78)	0 (0.00)	2 (11.11)	4 (22.22)	7 (38.89)
Failure to create value-added products from mastic products	4 (22.22)	1 (5.56)	5 (27.78)	2 (11.11)	6 (33.33)
Failure to create a brand for the national and international promotion of mastic products	2 (11.11)	2 (11.11)	2 (11.11)	6 (33.33)	6 (33.33)

CONCLUSION

The economic importance of the mastic gum tree is based on mastic resin. Today, mastic resin is only commercially produced on the Greek island of Chios, and the resin produced is exported either raw or processed to be used as an additive in various products, contributing millions of dollars to the national economy. The efforts for the protection, development, and reproduction of the mastic gum tree, which have gained momentum in our country since 2005, have started to show results since 2022 and there has been an almost 50% decrease in mastic imports and a relative increase in our exports, which were insignificant.

It can be said that Chios, which is currently in a monopoly position, is facing problems such as ensuring the sustainability of mastic gum tree cultivation, due to many reasons such as the decrease in the number of producers and the gradual increase in the average age. This event shows that market

conditions could change in our country's favor in the coming years. Although the age of those involved in mastic gum tree cultivation in Çeşme/İzmir is concentrated above 40 years indicating the same danger, it is considered promising that almost half of the producer group is considering mastic cultivation soon. The fact that both groups, mastic gum tree growers and non-growers, belong to the higher income group, earn more than half of their income from non-agricultural activities, and plan new investments in the agricultural sector is considered an important result and facilitator in determining the policy for further increasing mastic plantations in Çeşme/İzmir district. Most producers of both groups in Çeşme/İzmir believe there is potential for mastic in their region, recognize the importance of mastic cultivation, and find it profitable and very profitable. Mastic gum tree producers are mostly happy to produce farming, and many have better knowledge. However, producers who do not grow mastic gum trees do not have sufficient knowledge about mastic production. The most important sources of information for both groups are other producers. The most important expectation and recommendation for the producers is provisioning training on mastic production. This result shows that informative training and development activities for producers can be useful in developing mastic gum tree cultivation.

Finally, for the mastic gum tree, which has many uses worldwide, to find the value it deserves in our country, it is recommended that the economic value of the public and local governments in recent years be transferred to the people of the region, the presence of mastic gum tree in the province should be statistically defined with appropriate planning and production methods, and it is recommended that it will be important to take measures to ensure the continuity of production.

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AUTHOR CONTRIBUTIONS

The authors contributed equally to this study.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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