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From local hives to global markets: Prioritising export markets for Türkiye's natural honey with Integrated LODECI-CoCoSo methods

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Abstract

Türkiye ranks third in the world in natural honey production, after China and India, but it lags significantly behind in exports. Therefore, increasing Türkiye's natural honey exports is of great importance. To achieve this, honey exporters in Türkiye need to operate in multiple markets and prioritize these markets. In this regard, the aim of this study is to identify, classify, and evaluate priority markets for Türkiye's natural honey exports. For this purpose, the LODECI method was used as the objective criterion weighting method, and the CoCoSo method was used to rank countries as priority markets. The current study analysed 18 markets and 7 criteria to determine priority markets, which were then classified into three groups. As a result of the study, when determining Türkiye's priority market for honey exports using the LODECI method, the two criteria with the highest weights were the annual increase in import unit value between 2020 and 2024 and the annual increase in import volume between 2020 and 2024. In the analysis that determined priority markets using the CoCoSo method, taking criterion weightings into account, seven countries were identified as high-priority markets for Türkiye's natural honey exports. The priority markets included the United States of America, the Netherlands, Belgium, Canada, the United Arab Emirates, the United Kingdom, and Italy.

Keywords: Natural honey, Export strategy, Potential market, Target market selection, Multi-criteria decision-making (MCDM)

INTRODUCTION

In recent decades, sugar and artificial sweeteners have come under scrutiny for their detrimental impact on human health. The increased consumer preference for sugar substitutes, particularly natural sweeteners, is attributable to several factors (Bilici and Seren 2025). The rise in the number of individuals who prioritize healthy living, as well as the increase in the number of diabetics, obese individuals, and those with high cholesterol who are constantly seeking healthier alternatives to sugar, are among the most important reasons. The wide availability of these products, which add a desirable flavour to food and beverages, is driving growth in the natural honey market (Fortune Business Insights 2026). Natural honey is honey obtained directly from the beehive without processing (Bilici 2024). It contains various substances, including water, monosaccharides, phenolic compounds, organic acids, pigments, vitamins, minerals, proteins, and volatile organic compounds (El-Sayed et al. 2018).

Due to its antioxidant properties and antibacterial compounds, natural honey is considered a high-

quality product with potential health benefits (Mir et al. 2022).

The trend toward natural honey is increasing, and production is also on the rise. The leading countries in global natural honey production are China (22.4%), India (7.3%), Türkiye (4.8%), Ethiopia (4.3%), Iran (4.0%), Argentina (3.5%), Brazil (3.4%), Russia (3.3%), the United States of America (USA) (3.1%), and Mexico (2.9%) (FAOSTAT 2026a). India has the highest number of beehives; however, China has a significantly higher honey yield per beehive, making it a leading producer despite having fewer beehives. These differences may stem from factors such as bee breeds, climatic conditions, nectar source richness, beekeeping techniques, and disease/pest management (Wakgari and Yigezu 2021).

Conversely, Türkiye, which has a similar number of beehives to China, has seen its production constrained by honey yields per hive well below the world average (FAOSTAT 2026b). Türkiye's failure to fully utilize its beekeeping potential is compounded by problems such as climatic

adversities, diseases, old queen bees, winter colony losses, and a lack of technical knowledge, all of which have kept honey yields low (TEPGE 2025).

The structure of global natural honey production is variable and influenced by climate conditions, bee health, agricultural practices, and other environmental factors (Landaverde et al. 2023, Pawłowska-Tyszko et al. 2024). Consequently, many countries are not self-sufficient and rely on foreign markets to meet their consumption needs. Natural honey imports are an important part of the global food trade, serving to meet domestic demand, offer variety, and fill gaps in local production.

The countries that import the most natural honey worldwide include the USA (28%), Germany (9.9%), Japan (5.9%), the United Kingdom (UK) (5.3%), France (4.8%), the Netherlands (4%), Belgium (3.5%), Italy (3.4%), Saudi Arabia (3%), and Spain (2.9%) (Trade Map 2026a).

In recent years, significant changes have occurred in the global honey export market (Akdeniz and Kantar 2022). While some countries have maintained their traditional exporting positions, new market entrants have increased competition. Quality standards, food safety regulations, and consumer preferences have also shaped countries' export strategies (Pippinato et al. 2020). The leading countries in global natural honey exports are China (11.4%), New Zealand (10.7%), India (7.8%), Argentina (7.3%), Ukraine (7.2%), Germany (4.9%), Spain (4.4%), Brazil (4.3%), Hungary (3.7%), and Belgium (3.4%) (Trade Map 2026b).

China exports natural honey in large quantities at low prices, while New Zealand exports honey in small quantities at high prices. Manuka honey exports

have particularly made New Zealand a major player in global honey exports (Hegazi et al. 2022). Türkiye's share of global natural honey exports is 1.4%, ranking 18th worldwide. The countries to which Türkiye exports the most natural honey are: The USA (37.2%), Germany (21.4%), Canada (5.7%), the United Kingdom (4.3%), Saudi Arabia (3.7%), Spain (3.3%), Bulgaria (3.2%), the United Arab Emirates (2.1%), Jordan (1.7%), and Japan (1.4%) (Trade Map 2026c).

Beekeeping is a long-standing tradition in Türkiye, with a rich history of producing natural honey. Türkiye's unique position in global beekeeping is due to its rich vegetation, climate, and geographic location, all of which are suitable for beekeeping (Güler and Demir 2005). Beekeeping has become an integral part of rural life, the local economy, and the natural balance, going beyond mere production. Its location at the intersection of different climate zones and its rich vegetation provide bees with access to different nectar and pollen sources throughout the year (Çakmak and Sevençakmak 2016).

This approach also facilitates the production of high-quality honey with a variety of aromas. Regional and unique honey varieties, including flower honey, pine honey, and chestnut honey, contribute significantly to the richness of Turkish beekeeping (Ünal 2022). Türkiye has made significant progress in the beekeeping sector, developing both traditional practices and technological integration. These developments are made available to beekeepers to ensure the sustainability of beekeeping activities and to promote the sector (TEPGE 2025). In this context, Table 1 presents data on Türkiye's beekeeping sector from the past five years.

Table 1. Türkiye's beekeeping data (tons)

	2020	2021	2022	2023	2024
Number of beehives (a thousand)	8179	8733	8985	9225	8962
Yield (kg/beehive)	13	11	13	12	11
Natural honey production	104077	96344	118297	114886	95492
Enterprise (number)	82862	89361	95386	100399	97984
Imports	45	49	63	58	15
Exports	6038	10046	17248	9386	8657

Source: TEPGE (2025).

As shown in Table 1, Türkiye's beekeeping sector experienced a significant increase in the number of hives in 2023, followed by a slight decline to 8,962 in 2024. There have been minor changes in hive productivity over the years. Natural honey production rose to 118,297 tons in 2022 and declined to 95,492 tons in 2024. The number of beekeeping businesses peaked in 2023, followed by another decline in 2024. While Türkiye's natural honey imports are insignificant, its exports have been quite volatile. The main reason for this is that a

significant portion of the honey produced is consumed in the domestic market. In terms of production, the share of exports has been quite limited (fluctuating between 6 and 15 percent). In 2024, 9 percent of the natural honey produced was exported. Therefore, although Türkiye is a major producer of natural honey, it has not fully realized its export potential.

Literature Review

In the current economic landscape, where global competition is intensifying, identifying suitable target markets for a wide range of products—including agricultural goods—is of critical importance to producers, companies, and all relevant stakeholders. Target market selection constitutes a strategic decision-making problem that requires the simultaneous evaluation of numerous criteria. For this reason, multi-criteria decision-making (MCDM) methods are widely preferred in the literature, as they provide a systematic, analytical approach to decision-making. In this section, studies focusing specifically on natural honey, as well as research utilizing MCDM methods in target market selection, have been examined within the framework of the existing literature.

Studies on Türkiye's natural honey exports have mostly focused on competitiveness (Akdeniz and Kantar 2022, Terin et al. 2018). These studies emphasize that Türkiye is a net exporter of natural honey (Terin et al. 2018) and has high competitiveness (Akdeniz and Kantar 2022). In addition, there are studies on the marketing of honey and other beekeeping activities in Türkiye (Saner et al. 2007), the evaluation of geographical indication practices in honey production and trade in the European Union and Türkiye (Saygın Alparlan and Demirbaş 2019), and on the logistics processes involved in Türkiye's honey exports to Europe (Sönmezay 2025). In this context, studies on Türkiye's natural honey exports have been quite limited. In contrast to previous studies, this study focuses on identifying priority markets for Türkiye's natural honey exports.

A review of the literature reveals no studies that identify target or priority markets for natural honey exports. However, numerous studies have identified priority markets for specific products and sectors in Türkiye using MCDM methods. Agricultural products (Atlı 2024), cold storage and pre-cooling systems (Akpınar and Metin 2023), dried apricot (Meral et al. 2025, Öztürkçü 2025), fiberboard (Yeşilkaya and Çabuk 2023), figs (Baki 2024), footwear (Öztürkçü and Aydemir 2024), hazelnuts (Baki 2023), sea bass (Aydemir 2025), and wood pellets (Akmermer and Senturk 2025) have been prominent studies in recent years.

Numerous studies in the international literature have examined how to identify priority markets. Some of these studies focus on chemical products (Baena-Rojas et al. 2021), coffee-producing SMEs (Baena-Rojas et al. 2023), construction (Tomczak et al. 2025), liquefied natural gas (LNG) and naphtha (Aghazadeh et al. 2025), metal (Oey et al. 2018), paper and paperboard (López-Cadauid et al. 2023), and textile (Vanegas-López et al. 2021).

Although many products, sectors, and countries have been studied, there has been little research identifying priority markets for Türkiye's natural

honey exports. This lack of research is the main motivation for the current study. This study aims to identify, classify, and evaluate high-priority markets for Turkish natural honey exports. To this end, two key research questions have been addressed: (RQ1) Which criteria are more important in determining market prioritization for Türkiye's natural honey exports, specifically regarding the top importing countries? (RQ2) Which of the top natural honey importing countries stand out in market prioritization for Türkiye?

To answer these research questions, the study uses criteria highlighted in the literature for prioritizing export markets. These criteria include annual growth in import unit value and import quantity between 2020 and 2024, tariffs faced by Türkiye, import unit value, share of world imports, import quantity, and distance.

The 18 countries that import the most natural honey were analyzed based on these criteria. The LODECI method, a relatively new objective criterion weighting method, was used for the analysis. The CoCoSo approach was used for market prioritization. The study's findings reveal and classify priority markets. In this context, market groups have been categorized into high-, medium-, and low-priority. Thus, the importance of Türkiye focusing on high-priority markets for its natural honey exports has been emphasized. Additionally, the robustness of the study was tested through a sensitivity analysis. Ultimately, this study will provide exporters, policymakers, and academics with a valuable guide for strengthening Türkiye's position in the global natural honey market.

Conceptual Framework

Target Market Selection for Market Prioritization

The target market plays a central role in numerous decisions, such as the marketing mix, procurement processes, and distribution channels. The selection of a target market results from evaluating market segments and making choices based on that evaluation (Aghdaie and Alimardani 2015). When expanding into international markets, different marketing processes are implemented for each country and region during target market identification. Goods and services are identified that align with the unique legal, economic, and cultural dimensions of the countries designated as target markets (Atlı 2024).

To achieve higher economic returns in target markets, it is necessary to focus on exporting products with strong competitive advantages. In this context, the strategic selection of products with the potential to generate greater economic value-added is crucial. This process involves analyzing the existing export product portfolio and identifying pathways to shift toward products that offer higher value (Ren et al. 2024).

Since empirical modeling of causal relationships is both a high-cost process and one that requires advanced expertise, the effective use of market data is crucial for analytical selection of target markets (Sukoroto et al. 2020).

Multi-Criteria Decision-Making Methods

MCDM is an analytical decision-support approach that enables the systematic evaluation of alternatives under multiple and often conflicting criteria. This approach features a comprehensive conceptual framework comprising the stages of problem formulation, identification of criteria and alternatives, performance evaluation, and final ranking/selection (Taherdoost and Madanchian 2023).

MCDM evaluates both quantitative and qualitative criteria together, integrates the decision-maker's preferences into the model, and establishes comparative superiority among alternatives (Boutkhom et al. 2016). In the MCDM process, problem formulation generally involves defining objectives, specifying criteria, and generating alternatives. Evaluation is carried out by determining

the weights of the criteria and measuring the performance of the alternatives (Kabak and Ervural 2017).

MATERIALS AND METHODS

Materials

The present study examines the 18 countries that imported the most natural honey worldwide in 2024, according to the Trade Map database. The objective of this study is to identify priority markets for Türkiye's four-digit Harmonized System (HS) code 0409, "natural honey" exports. The selection of countries for inclusion in this study was based on a minimum share of 1% in global natural honey imports. The aforementioned countries include the USA, Germany, Japan, the UK, France, the Netherlands, Belgium, Italy, Saudi Arabia, Spain, Poland, China, Canada, Switzerland, the United Arab Emirates, Australia, Austria, and Portugal. Moreover, these countries accounted for 84.2% of the world's total natural honey imports in 2024.

Table 2. List of criteria

Criteria	Definition	Reference Study	Source	Direction
2024 Import unit value (USD/unit) (C1)	The USD value per unit ton of natural honey imports in 2024.	Akmermer and Senturk (2025), Meral et al. (2025).	Trade Map (2026a)	Max
2024 Import quantity (tonnes) (C2)	It refers to the country's natural honey import volume in tons for the year 2024.	Meral et al. (2025).	Trade Map (2026a)	Max
Annual growth in import unit value between 2020 and 2024 (%) (C3)	It refers to the growth rate of the value of the country's natural honey imports over the past five years.	Akmermer and Senturk (2025), and Meral et al. (2025).	Trade Map (2026a)	Max
Annual import quantity increase between 2020 and 2024 (%) (C4)	It refers to the growth rate of the quantity of the country's natural honey imports over the past five years.	Meral et al. (2025).	Trade Map (2026a)	Max
Share in world imports as a value (%) (C5)	This indicates the country's share in world natural honey imports.	Meral et al. (2025).	Trade Map (2026a)	Max
Distance (km) (C6)	This illustrates the distance between the capital city of the country from which the natural honey is imported and Türkiye's capital city.	Vanegas-López et al. (2021), Baena-Rojas et al. (2023), Yeşilkaya and Çabuk (2023), Öztürkçü and Aydemir (2024), and Meral et al. (2025).	Distance Calculator (2026)	Min
Tariff faced by Türkiye (%) (C7)	It refers to the average customs tariff applied to natural honey imported from Türkiye.	Baena-Rojas et al. (2021), Öztürkçü and Aydemir (2024), and Meral et al. (2025).	Market Access Map (2026)	Min

Given the countries that import the most natural honey, it is imperative for Türkiye to prioritize market segmentation to gain a more substantial share of the global market for natural honey exports and achieve more profitable, sustainable exports. Table 2 presents the seven criteria used for market prioritization.

As outlined in Table 2, the first criterion, import unit value (C1), is a key profitability indicator that reflects a market's perception of quality and price levels (Akmermer and Senturk 2025). High import unit values indicate that importers are willing to pay more, creating a significant opportunity for higher-value-added natural honey. The second criterion, import quantity (C2), serves as a balancing factor for the first criterion. This is because, in cases of low physical demand, the strategic importance of markets with high profitability may be reduced. The third and fourth criteria measure the average annual growth rates of import unit value (C3) and import quantity (C4) between 2020 and 2024. These dynamic indicators are designed to reveal future potential. Specifically, higher import unit values imply greater value growth and higher profit margins, while increased import quantities indicate expanding demand. The fifth criterion, share in world imports (C5), is also referred to as the import intensity index (Meral et al., 2025). This criterion also reflects a country's importance in the global natural honey trade.

Markets with high shares tend to be more competitive and well-established, while low shares may indicate unsaturated markets with room for new entrants. Given the substantial advantages of high values for these criteria in determining priority markets, the relevant criteria have been incorporated into the analysis with maximum weighting. Distance (C6) is a measure of geographical accessibility and transportation costs (Baena-Rojas et al. 2023; Vanegas-López et al. 2021; Yeşilkaya and Çabuk 2023). The tariff applied to Türkiye's natural honey exports (C7) reflects measures implemented under trade policy that directly affect market access conditions (Baena-Rojas et al. 2021; Öztürkçü and Aydemir 2024).

The final two criteria address the distance to Türkiye and the tariff applied by countries to Türkiye's natural honey exports. Furthermore, as the high values of the last two criteria increase costs and hinder exports, they have been evaluated as minimum directional criteria. These criteria provide a comprehensive framework for evaluating Türkiye's priority markets for natural honey exports. This framework emphasizes large, profitable markets and highlights new opportunities with high growth potential, manageable competition, and favorable strategic conditions.

Methods

In the current study, two MCDM methods were used: LODECI and CoCoSo. The LODECI method is a relatively new objective criterion weighting method that stands out as a robust and stable method against deviations in the data set through logarithmic transformation. The method evaluates differences among alternatives on a logarithmic rather than a linear scale, which balances the impact of outliers; this distinguishes it from other MCDM methods. The CoCoSo method was selected for its ability to produce consistent rankings, demonstrating resilience to minor variations in the data set or fluctuations in criterion weights, thanks to its multi-layered verification mechanism. The combined use of both methods offers methodological advantages, particularly in complex, MCDM problems involving uncertainty.

The LODECI Method

Pala (2024) proposed the LODECI method as an approach that reconciles the Entropy and MEREC (method based on the removal effects of criteria) methods. This method is predicated on the distances between the alternative scores for each criterion (Pala et al. 2024). The LODECI steps are as follows (Pala 2024):

Step 1. Creation of the decision matrix:

$$X = [x_{ij}]_{n \times m} \quad (1)$$

Step 2. Normalization of the decision matrix:

$$a_{ij} = \frac{x_{ij}}{x_j^{\max}} \text{ (for max)} \quad (2)$$

$$a_{ij} = \frac{x_j^{\min}}{x_{ij}} \text{ (for min)} \quad (3)$$

Step 3. Calculate the standard deviation of the normalized values:

$$SD_{ij} = \max\{|a_{ij} - a_{rj}|\} r \neq i \quad (4)$$

Step 4. Calculate the logarithmic standard deviation for each criterion:

$$LSD_j = \ln \left(1 + \frac{\sum_{i=1}^m SD_{ij}}{m} \right) \quad (5)$$

Step 5. Calculate the criterion weights:

$$w_j = \frac{LSD_j}{\sum_{j=1}^n LSD_j} \quad (6)$$

The CoCoSo Method

The CoCoSo method was proposed by Yazdani et al. (2019). This approach integrates the WASPAS, SAW and EWP methods (Yazdani et al. 2019). In this method, the benefit values of decision alternatives are first determined from different perspectives using various aggregation or combination operators. Subsequently, a combination function is provided to aggregate the benefit values of each decision alternative to yield a

compromise solution (Altıntaş 2021). The CoCoSo steps are as follows (Yazdani et al. 2019):

Step 1. Creation of the decision matrix:

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \dots & \cdot \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \quad (7)$$

Step 2. Normalization of the decision matrix:

$$r_{ij} = \frac{x_{ij} - \min_i x_{ij}}{\max_i x_{ij} - \min_i x_{ij}} \quad (\text{for max}) \quad (8)$$

$$r_{ij} = \frac{\max_i x_{ij} - x_{ij}}{\max_i x_{ij} - \min_i x_{ij}} \quad (\text{for min}) \quad (9)$$

Step 3. S_i and P_i values are obtained using Equations (10-11):

$$S_i = \sum_{j=1}^n (w_j r_{ij}) \quad (10)$$

$$P_i = \sum_{j=1}^n (r_{ij})^{w_j} \quad (11)$$

Step 4. The appraisal score strategies are calculated using Equations (12-14):

$$k_{ia} = \frac{P_i + S_i}{\sum_{i=1}^n (P_i + S_i)} \quad (12)$$

$$k_{ib} = \frac{S_i}{\min_i S_i} + \frac{P_i}{\min_i P_i} \quad (13)$$

$$k_{ic} = \frac{\lambda(S_i) + (1-\lambda)(P_i)}{\lambda \max_i S_i + (1-\lambda) \max_i P_i} \quad (14)$$

Equation (12) expresses the arithmetic mean of the WSM and WPM sums. Equation (13) sums the relative WSM and WPM scores. Equation (14) states the balanced reconciliation of WSM and WPM scores. In equation (14), decision makers usually choose $\lambda = 0.5$.

Step 5. The final ranking of the alternatives is determined by their respective k_i values. A high performance score is desirable.

$$k_i = (k_{ia} + k_{ib} + k_{ic})^{\frac{1}{3}} + \frac{1}{3}(k_{ia} + k_{ib} + k_{ic}) \quad (15)$$

Additionally, based on the CoCoSo results, Türkiye's natural honey exports have been classified according to target-market potential. According to this classification:

$$k_i \geq 1.7 \quad (\text{high-priority markets}) \quad (16)$$

$$1.5 \leq k_i < 1.7 \quad (\text{medium-priority markets}) \quad (17)$$

$$k_i < 1.5 \quad (\text{low-priority markets}) \quad (18)$$

RESULTS

In this study, the LODECI method was used to determine weighting criteria for Türkiye's natural honey exports, and the CoCoSo method was used to rank and classify priority markets. The data presented in Table 3 were used in applying these methods.

Table 3. Decision-matrix

	C1	C2	C3	C4	C5	C6	C7
USA	254926	2551	7	4	28	8930	0.4
Germany	73269	3150	-7	-6	9.9	2913	0
Japan	45416	3015	-6	-3	5.9	8679	25.5
UK	60302	2057	-1	4	5.3	3044	0
France	33743	3271	-4	0	4.8	2808	0
Netherlands	22846	4041	8	9	4	2741	0
Belgium	37606	2162	3	8	3.5	2721	0
Italy	25155	3125	-3	4	3.4	1924	0
Saudi Arabia	18517	3709	-11	-8	3	1935	5
Spain	35357	1876	-2	3	2.9	3288	0
Poland	26651	1925	-13	-10	2.2	1823	0
China	3192	15159	-16	-8	2.1	6726	15
Canada	10452	4584	10	7	2.1	8362	0
Switzerland	7997	4808	1	0	1.7	2324	7.55
UAE	15595	2465	2	12	1.7	2433	5
Australia	9015	3676	-3	4	1.4	14291	0
Austria	7133	3856	1	0	1.2	1808	0
Portugal	12851	1962	8	9	1.1	3783	0

Table 3 presents a ranking of countries based on their highest natural honey import values. The USA is the world's leading importer of natural honey, both in terms of volume and market share. Japan is the third-largest importer of natural honey, followed by Germany, in terms of market share. In contrast, China has imported only small quantities of natural honey, while Portugal has a small market share. China had the highest unit value for natural honey imports, while Spain had the lowest. Between 2020 and 2024, the largest annual increase in the unit

value of imports was observed in Canada, while the largest decline occurred in China. The UAE demonstrated a notable increase in annual import quantities between 2020 and 2024, while Poland experienced a significant decrease. Italy is the country closest to Türkiye, while Australia is the furthest. Japan applied the highest tariff on Türkiye's natural honey exports, while the EU countries and the UK applied a zero tariff. As indicated in the decision matrix, the criterion weights were calculated and subsequently presented in Table 4.

Table 4. Criterion weightings according to the LODECI method

	C1	C2	C3	C4	C5	C6	C7
w_j	0.128	0.118	0.212	0.172	0.127	0.112	0.132
Rank	4	6	1	2	5	7	3

As indicated in Table 4, according to the LODECI method, annual growth in import unit value between 2020 and 2024 is the most significant criterion. It is followed by the annual increase in import quantity between 2020 and 2024. The third criterion with the highest weight is tariff faced by Türkiye, while the

fourth criterion in terms of weight is import unit value. Share in world imports, import quantity, and distance were among the criteria that were determined to have low importance levels. The findings obtained using the CoCoSo method based on these criterion weights are shown in Table 5.

Table 5. Market prioritization ranking and classification findings according to the CoCoSo method

High-Priority Markets			Medium-Priority Markets			Low-Priority Markets		
Country	k_i	Rank	Country	k_i	Rank	Country	k_i	Rank
USA	1.888	1	Portugal	1.698	8	Poland	1.464	16
Netherlands	1.802	2	France	1.685	9	Japan	1.456	17
Belgium	1.752	3	Austria	1.675	10	China	1.415	18
Canada	1.749	4	Germany	1.666	11			
UAE	1.731	5	Switzerland	1.664	12			
UK	1.722	6	Spain	1.641	13			
Italy	1.706	7	Saudi Arabia	1.551	14			
			Australia	1.538	15			

As outlined in Table 5, an evaluation of alternative markets has been conducted into three distinct groups, categorized by their respective priorities. The analysis identified seven countries as high-priority target markets. These countries are the USA, the Netherlands, Belgium, Canada, the UAE, the UK, and Italy. Meanwhile, Portugal, France, Austria, Germany, Switzerland, Spain, Saudi Arabia, and Australia are considered medium-priority markets for Türkiye. Poland, Japan, and China are low-priority target markets.

Additionally, a sensitivity analysis was performed using the CoCoSo method to test the reliability of the results. To this end, the λ value was varied from 0.1 to 0.9 (Huang et al. 2024). The alternative rankings resulting from this analysis are shown in Figure 1.

As illustrated in Figure 1, alternative rankings are shown for different values of λ . The results remain highly stable across changes in λ , demonstrating the method's robustness.

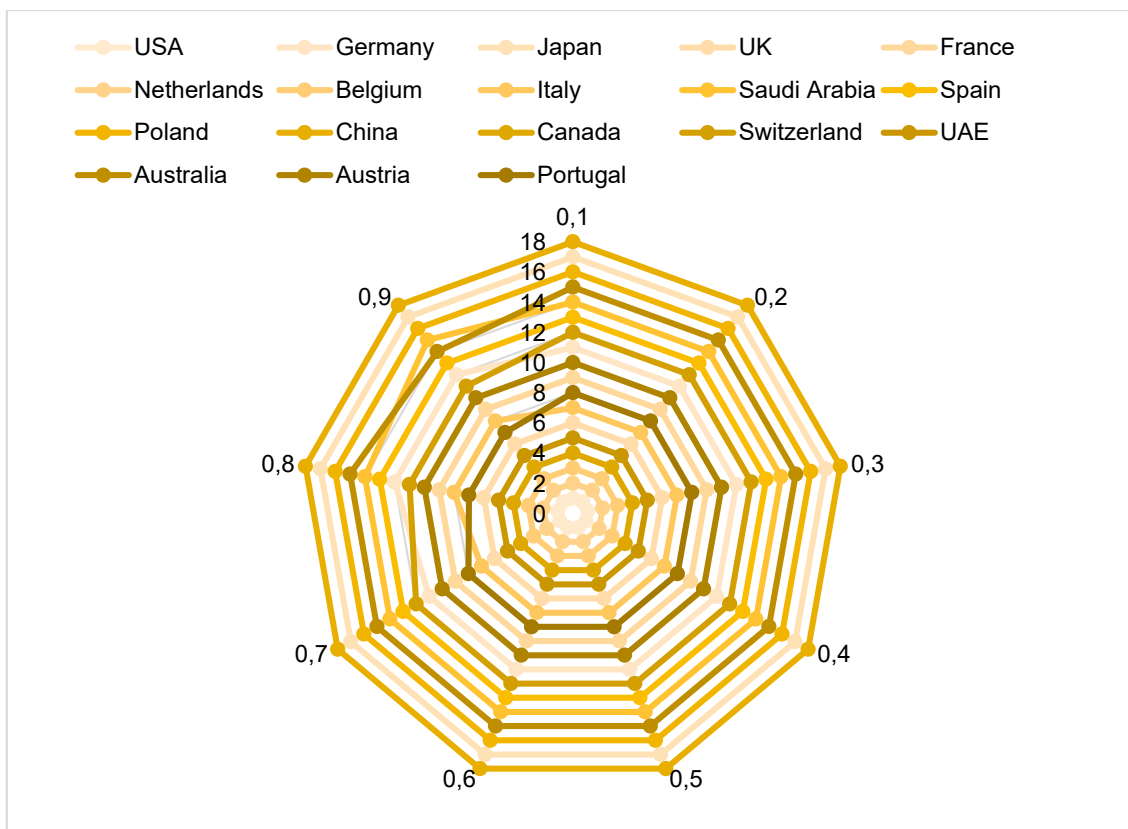


Figure 1. Sensitivity analysis for the CoCoSo parameter

DISCUSSION

This study examined the 18 leading countries in global natural honey imports to evaluate prominent markets for Türkiye's natural honey exports. However, in the present study, data on the annual growth in import unit value between 2020 and 2024 and the annual increase in import quantity between 2020 and 2024—two key indicators reflecting changes over the past five years—were not available for earlier years via Trade Map (2026a). Therefore, the 2024 data were used in the study as the most recent data available. In addition to economic indicators such as import data and applied tariffs, distance was also considered. Nevertheless, excluding data on animal consumption habits, production, and the demand structure in the considered countries significantly limits the analysis.

The LODECI method, one of the contemporary objective criterion weighting methods, was employed in this study. According to this method, the criteria were ranked by importance as follows: annual growth in import unit value and annual growth in import quantity; tariffs faced by Türkiye; import unit value; share in world imports; import quantity; and distance. These findings differ significantly from those of a similar study that identified priority markets for Türkiye's dried apricot exports (Meral et al. 2025). Specifically, in this study, distance was found to be the criterion with the lowest importance level, suggesting that other criteria should be given greater weight in market prioritization. Similarly,

while the distance criterion was found to be of low importance for fiberboard (Yeşilkaya and Çabuk 2023), it was determined to be of moderate importance for footwear (Öztürkçü and Aydemir 2024) and dried apricots (Meral et al. 2025). Likewise, as in this study, the import unit value criterion was found to be of moderate importance for wood pellets (Akmermer and Senturk 2025).

In this study, tariff was of moderate importance, while it was the most important criterion for footwear (Öztürkçü and Aydemir 2024). Thus, compared to studies using similar criteria, it has become clear that Türkiye needs to focus more on different criteria in market prioritization for natural honey exports.

The CoCoSo method was used to determine market priorities based on criterion weightings obtained using the LODECI method. According to the CoCoSo method, the priority markets were examined in three groups. The first group included high-priority markets such as the USA, the Netherlands, Belgium, Canada, the UAE, the UK, and Italy. As in many studies (Aydemir, 2025; Baki 2023; Baki 2024; Meral et al. 2025; Öztürkçü 2025), the USA and EU countries have emerged as priority markets for Türkiye in this study. In addition, China (Öztürkçü 2025) has emerged as an important market. Furthermore, in studies by Akmermer and Senturk (2025) and Öztürkçü and Aydemir (2024), the EU countries were prioritized, while the USA lagged behind. Therefore, the EU countries—which, along with the USA, represent the largest market for

Türkiye's exports—hold significant potential for natural honey exports, just as they do for many other agricultural and livestock products in terms of market prioritization.

The USA and Canada rank highly in market prioritization and are among Türkiye's top destinations for natural honey exports. These two countries stand out due to the lower importance of the distance criterion and the growth in both volume and value in these two markets. Consequently, as demand for natural honey increases in these countries, so does the number of consumer groups willing to pay more. Furthermore, the USA, being the largest importer, has also supported its position at the top. Although Türkiye's market share in these countries is low, exports to these markets are growing.

The USA market, in particular, has significant growth potential (Fortune Business Insights 2026). Previous studies have highlighted the importance of handmade and organic products, as well as consumers' willingness to pay more based on honey type, packaging, brand, and, especially, single-flower source (Cosmina et al. 2016). Additionally, Türkiye's organic honey exports to the USA are low, indicating significant potential (USDA 2025). Considering consumer preferences and growth potential, the USA market is particularly important for Türkiye.

EU countries have come to the fore among the priority markets. The Netherlands, Belgium, and Italy are particularly important. Many studies have noted similarities and differences in consumer behavior when prioritizing these markets. Kehagia et al. (2007) found that Dutch consumers prioritize organic honey and the country of origin over brand and price. Cosmina et al. (2016), on the other hand, found that Italian consumers prioritize local and organic honey, but the country of origin is only important if the honey is organic.

Additionally, Mascarello et al. (2024) highlighted the importance of traceability, noting that Italian consumers demand more information about honey's origin, production processes, and beekeeping practices. Bimbo et al. (2025) found that Italian consumers consider adding royal jelly and propolis to honey important and prefer products in glass bottles to those in plastic bottles. Additionally, it has been revealed that consumers value environmental sustainability, including animal welfare and organic beekeeping (Bimbo et al. 2025).

The UAE and the UK stand out among high-priority markets. According to a study by Osaili et al. (2023), honey in the UAE should have low levels of glucose and fructose. Meanwhile, health-focused, premium, and sustainable products have become increasingly important in the UK's consumption of natural honey (Spherical Insights 2025). Furthermore, the UK is considered a suitable market for organic honey consumption, given its status as one of the world's

most important countries in the organic products market (CBI 2024).

Conclusion

This study focuses on identifying, classifying, and evaluating market prioritization for Türkiye's exports, which are of great importance to the global natural honey market. For market prioritization, countries that import at least 1% of their natural honey from abroad have been identified as potential target markets. The most decisive criteria in market prioritization for Türkiye's natural honey exports have been the annual growth rates in import volume and unit value. Conversely, the low weighting of the distance criterion has elevated the significance of other criteria. While customs duties are an important criterion, the fact that many countries—particularly EU member states—do not impose customs duties or apply only low rates does not pose a significant barrier to exports.

The US, Canada, the UK, and the UAE stand out as the highest-priority export markets. Conversely, although the Netherlands, Belgium, and Italy have been identified as high-priority markets in analyses, Türkiye's export volume to these countries remains low. To achieve greater success in high-priority markets, natural honey exporters in Türkiye must focus not only on export volume but also on export unit value. This is because consumers in high-priority markets are willing to pay more for quality. Therefore, there is a necessity to focus on the quality, packaging, sustainability, and traceability of honey. Furthermore, for exports to EU countries (the Netherlands, Belgium, and Italy) and the UK, it is imperative to obtain international certifications such as EU organic standards, Fairtrade, and single-flower honey.

The present study is the first to combine the LODECI and CoCoSo methods to identify target markets for natural honey. This enhances the study's robustness and its value within the literature. However, the study's most significant limitation is that it relies primarily on historical import data, tariff information, and distance data. The study did not include future consumer trends, potential policy changes, and logistics cost modeling. It is recommended that future research address these shortcomings.

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