Tarım Ekonomisi Dergisi
Turkish Journal of Agricultural Economics
ISSN 1303-0183
e-ISSN 3023-5596

Evaluation of potential alternative markets for dried apricot exports using the CAPMA technique: An application to Türkiye

Nizamettin ÖZTÜRKÇÜ
Orcid: 0000-0001-8369-3735
Bursa Uludag University, Social Sciences Vocational Scholl, Department of Management and Organization, Logistics Program, 16370, Bursa, Türkiye

Makale Künyesi

Araştırma Makalesi / Research Article

SorumluYazar / Corresponding Author
Nizamettin ÖZTÜRKÇÜ
nozturkcu@uludag.edu.tr

Geliş Tarihi / Received: 25.01.2025
Kabul Tarihi / Accepted: 28.03.2025

Tarım Ekonomisi Dergisi
Cilt: 31 Sayı:1 Sayfa: 77-90
Turkish Journal of Agricultural Economic
Volume: 31 Issue: 1 Page: 77-90

DOI
10.24181/tarekoder.1626692
JEL Classification: D81, F17, L1, Q17

Abstract

Purpose: This study aimed to evaluate the potential of new target markets for Türkiye's dried apricot exports. To this end, a novel approach was adopted, diverging from the conventional decision-making methodologies employed in the extant literature.

Design/methodology/approach: In the course of this study, 20 alternative countries were identified according to the data obtained from the Trade Map, and these countries were considered target markets. The potential of these countries for Türkiye is discussed based on an analysis of secondary data from 2023. The data utilized in this study were obtained in 2024. Entropy and ARAS methods, which are multi-criteria decision-making methods (MCDM), and a new technique, the classification of potential market alternatives approach (CAPMA), were used in the process of evaluating potential markets.

Findings: The findings indicate that Austria and China have the highest potential to increase dried apricot exports in dimension 1. In dimension 4, Hong Kong, Poland, India, the United Arab Emirates (UAE), the United States of America (USA), Russia and France were identified as countries in which the current export potential should be maintained.

Originality/value: This study adopts an innovative approach to target market selection, diverging from conventional methods frequently used in the past. This study evaluates alternative markets in different dimensions and helps with the correct use of resources through the correct target market strategies. To the best of the author's knowledge, no previous studies have been conducted using multi-criteria decision-making methods on target market selection for dried apricots. Consequently, the present study has made a significant contribution to literature.

Keywords: CAPMA, dried apricots, export analysis, multi-criteria decision-making, target market selection.

CAPMA tekniği kullanılarak kuru kayısı ihracatı için potansiyel alternatif pazarların değerlendirilmesi: Türkiye için bir uygulama

Özet

Amaç: Bu çalışmanın amacı, Türkiye'nin kuru kayısı ihracatı için yeni hedef pazarların potansiyelini değerlendirmektir. Bu amaçla, mevcut literatürde kullanılan geleneksel karar verme metodolojilerinden farklı olarak yeni bir yaklaşım benimsenmiştir.

Tasarım/Metodoloji/Yaklaşım: Çalışma sürecinde Trade Map'ten elde edilen verilere göre 20 alternatif ülke belirlenmiş ve bu ülkeler hedef pazarlar olarak kabul edilmiştir. Bu ülkelerin Türkiye için potansiyeli, 2023 yılına ait ikincil verilerin analizine dayalı olarak tartışılmıştır. Çalışmada kullanılan veriler 2024 yılında elde edilmiştir. Potansiyel pazarların değerlendirilmesi sürecinde Çok Kriterli Karar Verme Yöntemlerinden (ÇKKV) Entropi ve ARAS yöntemleri ile yeni bir teknik olan potansiyel pazar alternatiflerinin sınıflandırılması yaklaşımı (CAPMA) kullanılmıştır.

Bulgular: Bulgular, Boyut 1'de Avusturya ve Çin'in kuru kayısı ihracatını artırmak için en yüksek potansiyele sahip olduğunu göstermektedir. Boyut 4'te Hong Kong, Polonya, Hindistan, Birleşik Arap Emirlikleri (BAE), Amerika Birleşik Devletleri (ABD), Rusya ve Fransa mevcut ihracat potansiyeli korunması gereken ülkeler olarak belirlenmiştir.

Özgünlük/Değer: Bu çalışma, geçmişte sıklıkla kullanılan geleneksel yöntemlerden farklı olarak hedef pazar seçiminde yenilikçi bir yaklaşım benimsemektedir. Çalışma, alternatif pazarları farklı boyutlarda değerlendirmekte ve doğru hedef pazar stratejileri aracılığıyla kaynakların doğru kullanımına yardımcı olmaktadır. Literatür incelemesi neticesinde kuru kayısı için hedef pazar seçimi konusunda daha önce çok kriterli karar verme yöntemleri kullanılarak çalışma yapılmadığı görülmüştür. Sonuç olarak, mevcut çalışma literatüre önemli bir katkı sağlamıştır.

Anahtar kelimeler: CAPMA, kuru kayısı, ihracat analizi, çok kriterli karar verme, hedef pazar seçimi.

INTRODUCTION

Apricot is a temperate fruit that occupies an important commercial share and is the third most valuable stone fruit after plums and peaches in terms of commercial value (Lyagoubi et al., 2024). Apricot is a member of the subfamily Prunoideae in the Rosaceae family. The apricot is cultivated in a number of regions, including Central Asia, Europe, Iran-Caucasus and Dzhungar-Sailing. China has the largest number of apricot varieties in the world, with 2,000 of the 3,000 varieties cultivated in its territory (Zhebentyayeva et al., 2012). In this species, which exhibits considerable diversity, genotypic structure exerts a predominant influence on fruit quality. The selection of genotypes for apricot cultivation in Türkiye is dependent on the climatic conditions. Genotypes requiring high chilling can be grown at high altitudes, whereas those requiring low chilling can be cultivated in the Mediterranean basin (at low altitudes). (Sarıdaş et al., 2024).

Apricot is an important crop in Türkiye, with the majority of its production occurring in the Malatya region. Crops are of considerable economic importance, with high domestic demand and substantial exports (Karacaoğlu et al., 2024). The apricot tree (Prunus armeniaca) is cultivated in Türkiye under a wide variety of climatic conditions. The climate is mild in the Iğdır, İçel, and Sakıt valleys, while Erzincan is a plateau (Ercisli, 2009). The ARAS valley and Erzincan plains are notable for their high concentrations of wild apricots, with elevations ranging from 500 m to 1650 m above sea level (Karatas, 2022). Apricot varieties that are economically important in Türkiye include "Hacıhaliloğlu," "Hasanbey," "Soğancı" and "Sakıt" (Muradoglu and Kayakeser, 2022).

Apricots can be consumed in several ways. Although apricots are typically consumed fresh, they can also be dried naturally in the sun or through industrial processing, representing an alternative method of consumption (Iglesias-Carres et al., 2019). In addition to its culinary applications, the fruit is utilised in the production of jam, fruit juice and frozen fruit (Aslantürk et al., 2022). Following the harvest of apricots, they are domestically consumed and exported in both fresh and dried forms. Drying is considered the most important method for apricot preservation because of its impact on the quality of the final product (Khan et al., 2016). The subsequent phase involves two drying processes, employing suitable methods, with the first being outdoor sun-drying, followed by pitting the fruits. This process is undertaken to obtain a final product with a mass ranging between 25% and 35% of the weight of fresh fruit (Ucar et al., 2023).

Türkiye occupies a significant position in the global market in terms of both apricot production and export. Türkiye is the world's foremost producer and exporter of apricots (Poyraz and Gül 2022). Türkiye accounts for 24.4% of the total global area devoted to apricot production. Iran accounts for 10.9% of global production, followed by Uzbekistan (6.6%) and Algeria (4.9%). As indicated in the International Nut & Dried Fruit Council (INC) 2022/2023 Statistical Yearbook, the production of dried fruit has exhibited a consistent upward trajectory over the past decade (Trade Map, 2024). Over the past six seasons, the production of dried fruit has exceeded 3 million tons, reaching 3.1 million tonnes in the 2022/2023 season. Dried apricots account for 165.8 thousand tonnes (5%) of the estimated 3.1 million tonnes of dried fruit worldwide (Tarım Orman Bakanlığı, 2024). Türkiye is the foremost producer of dried apricots, with an output of 86,000 tons, representing 52% of global production. Iran is the second-largest producer, with an output of 24,000 tons and 14% share. Furthermore, Uzbekistan, Afghanistan and China, which are other significant producers of apricots, account for 11% of the total production of dried apricots (Statista, 2024).

In 2023, Türkiye exported 69.8 thousand tonnes of dried apricots, the highest quantity exported worldwide. Subsequent rankings were occupied by Tajikistan and Afghanistan, with exports of 34.09 thousand tonnes and 29.5 thousand tonnes, respectively (Trade Map, 2024). The total value of dried apricot exports worldwide is estimated at $562,728 million. Türkiye was responsible for 70.3% of total exports, with a value of 395,533 million USD. Subsequent rankings were occupied by Afghanistan with $35.4 million in exports and then Uzbekistan with $26.19 million and 4.7% market share (Statista, 2024).

It is inadequate to produce a product or produce most products. The potential for a return on investment may be significantly diminished in the absence of a clearly defined target market. To achieve this, it is essential to identify the most appropriate target market (Arnett, 2024). The target market represents a pivotal aspect of marketing decision-making, including aspects such as supply chain management and the selection of distribution channels (Kotler et al., 2023). One of the most effective methods for accurately determining a target market is dividing the target into specific segments. Market segmentation is a frequently employed technique to classify consumers into discrete groups based on their perceptions, beliefs and values (Velasco et. al., 2024).

In the contemporary business environment, which is characterized by intensified competition among enterprises, it is imperative for businesses to innovate and enhance their efficiency. This has resulted in mounting pressure on businesses to explore new markets in order to enhance profitability (Vu et. al., 2019; Aydemir and Alper, 2024). As markets are crucial locations that respond to consumer demand, identifying the most appropriate avenues for meeting human needs is a pivotal decision for managers (Çalık, 2020). For an organization engaged in international trade, the increase in uncertainties and difficulties encountered makes the selection of an appropriate target market paramount. Consequently, these companies must concentrate on target market selection, identify priority target countries to enhance their export potential, and facilitate a more efficacious foreign trade process (Çelik and Akmermer, 2021). Determining the target market has a significant impact on the success of foreign trade activities at both the enterprise and country levels, as well as on future economic operations (Yeşilkaya and Çabuk, 2023). The identification of target markets is also instrumental in ensuring that the company's efforts are focused on the most effective manner, thereby preventing superfluous competition (Skopenko et al., 2024). The process of market segmentation and selection represents a pivotal decision within the realm of marketing, and is of paramount importance for any business (Tang and Mantrala, 2024). The market segment or segments concentrate on the company's competitive advantages and the organization of marketing strategies in accordance with customer expectations (Hernani-Merino et al., 2021)

There are three primary avenues through which a product or service can be introduced into the market. These are mass, target, and consumer marketing. The efficacy of mass marketing, predicated on the assumption of homogeneity among customers, is anticipated to wane in the contemporary era (Kuo et al., 2002). Instead, the focus shifts towards a targeted marketing strategy that identifies specific target segments and their corresponding marketing plans (Kotler and Armstrong, 2003). The plethora of alternatives and targets necessitates companies to identify markets that align with these criteria in terms of cost and time (Zakeri et al., 2020). Multi-criteria decision making (MCDM) is a frequently employed methodology for determining the most appropriate alternative from a range of options. This methodology involves the selection of specific criteria for evaluating and comparing alternatives (Thao and Duong, 2019). The criteria employed to establish these targets can be quantitative or qualitative. Quantitative criteria may include sales, profits, market share, growth rates, and financial metrics. Qualitative criteria may encompass the nature of a business, an assessment of its strengths and weaknesses, industry structure, geographical scope, market trends, or strategic synergies (Weinstein, 2014).

A substantial number of studies have been conducted in the literature employing multi-criteria decision-making methods and diverse approaches. A study was conducted on the export and marketing processes of dried apricots by Bilican (2001). Within the scope of the study, a questionnaire was administered to 14 enterprises that are members of the Southeastern Anatolian Exporters' Associations. The export patterns of these enterprises were determined, and their market structures were analysed. Aghdaie and Alimardani (2015) select a target market for a company operating in the chair manufacturing sector. The rationale behind this choice stems from two key factors: first, the observed increase in the company's sales, and second, the strategic realignment of competitors towards new target markets. To this end, an expert team comprising of four individuals was established as the decision-making group. The Delphi method was used to achieve a consensus. Uçar and Engindeniz (2018), in their study on the marketing of dried apricots in Malatya province, recommended the establishment of marketing cooperatives to effectively market apricots. Other suggestions included increasing the use of apricots as a raw material, obtaining high value-added products from apricots, and explaining to consumers that apricots are a healthy product. Sukoroto et al. (2020) conducted a study that employed the multi-criteria decision making (MCDM) method for the market heder market selection of PT INKA, a railway vehicles manufacturer in Indonesia. In a study conducted using AHP, Australia, Kenya, Tanzania, New Zealand and India were identified as suitable markets among the 24 alternatives. Vanegas-Lopez et al. (2020) conducted a target market selection process for Antioquia to enhance the region's international standing. This process involves the implementation of MCDM methodologies. The process, conducted in accordance with the criteria derived from a comprehensive literature review, identified Canada, Belgium and the United Kingdom as optimal alternatives. Uçar et al. (2021) utilized the Box-Jenkins (ARIMA) method to make future forecasts for apricot production in Türkiye. In their study on the selection of target markets in Türkiye's aquaculture, Akmermer (2022) utilized the TOPSIS and Fuzzy AHP methods, which are both classified as multi-criteria decision-making methods. Among the 15 alternatives determined in this study, the optimal target market for trout and sea bass was identified as Japan, whereas the most favorable target market for sea bream was determined to be the Russian Federation. Fidan (2021) conducted a study consisting of nine criteria and eight alternatives for target market selection in a manufacturer-exporter enterprise. Among the alternatives determined for Central Asian and Eastern European countries, Romania was found to be the best option. The competition criterion exerted the most significant influence on the alternatives.

Baki (2023) conducted a study to identify alternative markets for Türkiye's hazelnut exports and proposed a new decision-making approach, the Classification Approach of Potential Market Alternatives (CAPMA). This approach compares the current market with potential markets and ranks potential market alternatives. Yeşilkaya and Çabuk (2023) conducted a target country market selection for the fibreboard sector, which is one of the main sectors of the forest products industry in Türkiye. They utilized AHP, VIKOR, and TOPSIS methods from the MCDM framework in their study. The solution rankings were then compared using correlation tests, and the top ten countries were selected for the target market. Gallego et. al. (2023); conducted a study in which they determined the target market by measuring Spain's international tourism demand using MCDM methods before and after the Covid-19 pandemic. Göktaş and Gültekin (2024) carried out a study on the marketing structure of apricots in Malatya province. According to the results obtained, it was found that technical and financial support to producers should be increased. In addition, it was found that producers have high expectations that positive steps will be taken for production, export and promotion factors. Baki (2024) proposed and applied a novel systematic approach to evaluate and rank the potential of alternative markets to increase the export volume of fig, a significant agricultural product in Türkiye. The study's findings indicate that the United States of America (USA), the Netherlands, China, and Spain emerge as alternative markets with the highest potential to boost export volume.

MATERIAL and METHODS

Material

This study used secondary data obtained using TRADEMAP as the primary material. The Harmonized Commodity Description and Coding System (HS Code) was utilized within the scope of this research (International Trade Administration 2024). Chapter 08, which encompasses Edible Fruit and Nuts (EFN), was analyzed to identify countries importing the peel of citrus fruit or melon products worldwide. These countries were then considered as potential markets. As a substitute for the dried apricot product, the main subject of the study, the products in the sub-position under the HS Code 0813 heading number were determined to be prunes, dried apples, other fruits, and mixtures of nuts or dried fruits (081320, 081330, 081340, 081350), respectively (United States International Trade Commission, 2024). The alternative countries were determined to be the 20 countries with the highest EFN imports by 2023.

Methods

A substantial corpus of literature has been dedicated to the subject of multi-criteria decision-making methods in the context of target market selection. In this study, the classification of potential market alternatives approach (CAPMA) developed by Baki (2023) was utilized to compare market alternatives according to their potential. CAPMA, a novel technique in the decision-making literature, predict the acquisition of the potential and current market rates of alternative markets, followed by the calculation of the classification coefficient and subsequent classification of the alternatives into four dimensions based on this coefficient. The method is based on ENTROPY to determine the criteria weights and the ARAS technique to evaluate the alternatives. In the proposed CAPMA technique, after calculating the utility degrees of the alternatives, the classification coefficients obtained by comparing the potential market outcomes with the current market situation are applied. Market alternatives were then categorized into four categories: Dimensions 1, 2, 3, and 4. The sequence of steps in the CAPMA technique is as follows:

Entropy method

The concept of ENTROPY was first developed by Rudolf Clausius in 1865, and was originally conceived as a measure of disorder and disorganisation in the field of thermodynamics (Bakır and Atalık, 2018). Shannon advanced the concept of information entropy in 1948. The ENTROPY method is a weighting method that measures the distribution level of different information sources in decision-making. It is a highly versatile method that is; frequently employed in comprehensive evaluation studies, where the weights of different indices are determined according to their ENTROPY values of different evaluation indices (Qu et al. 2022).

The following presentation outlines the steps of the ENTROPY method (Xia et. al., 2024; Zhu et al., 2020; Bakır and Atalık 2018, Karaatlı, 2016);

Step 1: Creating the decision matrix,

$$D = \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_m \end{matrix} \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \cdots & \vdots \\ x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix} \quad (1)$$

; According to the evaluation criterion j alternative i's value

Step 2: Normalisation of the decision matrix

$$p_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}}} \quad \forall i, j \quad (2)$$

Step 3: The ENTROPY values for the criteria were calculated, and the degree of differentiation was determined.

ENTROPY values of each evaluation criterion

$$e_{ij} = -k.\sum_{j=1}^{n} p_{ij} \,.\, ln(\, p_{ij}) \quad (3)$$

$i = 1,2,\ldots,m$

$j = 1,2,\ldots,n$

$k = (ln(\, m))^{-1}$ is a constant coefficient defined

$0 \leq e_j \leq 1$values are taken in this range

e_j value is defined as the uncertainty measure or ENTROPY value of Criterion j.

Step 4: Determination of degrees of differentiation

d_j values with differentiation degrees:

$d_j = 1 - e_j \quad j = 1,2,\ldots,n$

High values of dj indicate that the distance or differentiation between the alternative scores for the criteria is high.

Step 5: Calculating ENTROPY criterion weights

$$w_j = \frac{d_j}{\sqrt{\sum_{j=1}^{n} d_j}} \quad (4)$$

ARAS method

The Additive Ratio Assessment Method (ARAS), a multi-criteria decision-making methods, was developed by Zavadskas and Turskis in 2010 (Bakır and Atalık 2018). According to the ARAS method, the utility function used to determine the relative effectiveness of a possible alternative in a project is directly proportional to the relative effects of criteria weights and values. The ARAS method helps determine the performance of the alternative and reveals the relative similarity of each alternative to the ideal alternative.

The stages of the ARAS method are as follows (Gheibdoust et. al., 2024; Bakır and Atalık 2018; Ecer, 2016; Zavadskas and Turskis 2010);

Step 1: The decision matrix is created as in Equation 1.

In this step, if the optimal value of criterion j is unknown, the formulas in equations 2 and 3 are used.

If the criterion is benefit oriented; $x_{oj} = \max_i x_{ij}$ (5)

If the criterion is cost-oriented; $x_{oj} = \min_i x_{ij}$ (6)

Step 2: Obtaining the Normalized Decision Matrix

For benefit-oriented criteria; $\overline{x_{ij}}=\frac{x_{ij}}{\sum_{i=0}^{m} x_{ij}}$ (7)

For cost-oriented criteria; $\overline{x_{ij}}=\frac{\frac{1}{x_{ij}}}{\sum_{i=0}^{m} \frac{1}{x_{ij}}}$ (8)

Step 3: Obtaining Weighted Normalized Decision Matrix

$\hat{x}_{ij} = \bar{x}_{ij} w_j$ (9)

While wj in the equation represents the importance coefficient of criterion j, $\bar{x}_{ij}$ represents the normalized value of criterion j.

Step 4: Calculation of Optimality Function

Considering the weighted normalized decision matrix, the optimality function values were calculated for each decision alternative.

$S_i=\sum_{j=1}^{n} x_{ij}$ (10)

S_i is the optimal function of alternative i. The decision alternative with the largest S_i value was a more efficient alternative.

Step 5: Obtaining Benefit Ratings

The degree of utility was obtained by comparing the optimality function value of an alternative with that of the best alternative. The formula for the degree of utility, where S_0 is the best optimality function value, is as follows:

$K_i=\frac{S_i}{S_0}$ (11)

CAPMA methods

In the proposed CAPMA technique, after the utility degrees of the alternatives were calculated, the classification coefficients obtained by comparing the potential market results with the current market situation were applied. In the CAPMA model, the potential market results resulting from the ranking of alternatives with multi-criteria decision-making methods are compared with the current market situation. To this end, the current market share (CMi) and potential market share of all alternatives were calculated. The value Ei in Equation (12) denotes the export quantity of the alternative. Subsequently, the classification coefficient (CCi) values were obtained using Equation (14). Alternatives with large CCi values are considered to have high potential to increase market size.

$CM_i = \frac{E_i}{\sum_{i=1}^{m} E_i}$ (12)

$PM_i = \frac{K_i}{\sum_{i=1}^{m} K_i}$ (13)

$CC_i = CM_i - PM_i$ (14)

In the last step of the CAPMA technique, market alternatives are clustered in four dimensions to prioritize advertising and marketing activities, use resources effectively, and develop effective sales strategies. Thus, it will be determined which of the alternatives with low export rates have high potential, for various reasons,

$CC_i \geq 0.03 \rightarrow$ Dimension 1 (15)

$0.03 > CC_i \geq 0.01 \rightarrow$ Dimension 2

$0.01 > CC_i \geq 0 \rightarrow$ Dimension 3

$0 > CC_i \rightarrow$ Dimension 4

The proposed model is predicated on the following dimensions:

Dimension 1: markets with the highest potential to increase exports

Dimension 2: markets with the medium potential to increase exports

Dimension 3: markets with little potential to increase exports

Dimension 4: markets where current export levels should be maintained

FINDINGS

To determine the potential markets for dried apricot exports 20 countries that import the most edible fruits and nuts worldwide were identified. These 20 countries were identified using the TradeMap (2024). These countries the USA (A1), China (A2), Germany (A3), the Netherlands (A4), France (A5), the United Kingdom (A6), Canada (A7), Spain (A8), Italy (A9), India (A10), the Russian Federation (A11), Vietnam (A12), Japan (A13), Belgium (A14), Hong Kong (A15), Poland (A16), the UAE (A17), Korea (A18), Austria (A19), and Mexico (A20). The ranking of these alternatives was carried out by considering other dried fruits in the same chapter (0813) as dried apricots. The relevant criteria were as follows: dried prunes (C1), dried apples (C2), dried others (pears, papaws, tamarinds, and others) (C3), and mixtures of nuts or dried fruits (C4). The decision matrix obtained from these criteria are listed in Table 1. The normalised decision matrix in Table 2 and entropy values of the criteria in Table 3 are then obtained.

Decision matrices are a useful tool for determining the most appropriate option from a set of similar options. The creation of a decision matrix in Table 1 was utilised in order to ascertain the most appropriate alternative country for the products which share the same position number as dried apricots. The findings from this analysis are then compared with the existing dried apricot values, as presented in Table 6. The E_i value in Table 6 shows Türkiye's dried apricot export figures to 20 countries determined as alternatives in 2023.

Table 1. Data set of the decision problem (decision matrix)

Alternatives/criteria	Dried Prunes	Dried Apple	Dried Other(Pears,papaws,tamarinds and other..)	Mixtures of nuts or dried fruits
USA	22061	56428	192685	9945
China	84280	11	150295	11
Germany	46592	37466	111382	15810
Netherlands	29217	11049	31745	14988
France	11337	3677	20080	34907
United Kingdom	26054	8603	43660	41073
Canada	19734	10346	41171	4724
Spain	30602	11346	11169	10270
Italy	34385	4101	31463	10205
İndia	2428	838	133	2
Russia	7832	1459	23100	3584
Vietnam	124	29	54238	10
Japan	28492	2518	17926	369
Belgium	10021	1797	8713	15742
Hong Kong	2136	658	11017	544
Poland	27719	1648	20224	8504
UAE	1569	108	10268	424
Korea	6575	42	8797	290
Austria	8619	8385	20394	11989
Mexico	20959	1068	15043	10

Source: TradeMap data edited by the author

Table 2. Normalized decision matrix

Alternatives/criteria	Dried Prunes	Dried Apple	Dried Other(Pears,papaws,tamarinds and other..)	Mixtures of nuts or dried fruits
USA	0.0524	0.3492	0.2340	0.0542
China	0.2003	0.0001	0.1825	0.0001
Germany	0.1107	0.2319	0.1353	0.0862
Netherlands	0.0694	0.0684	0.0385	0.0817
France	0.0269	0.0228	0.0244	0.1903
United Kingdom	0.0619	0.0532	0.0530	0.2240
Canada	0.0469	0.0640	0.0500	0.0258
Spain	0.0727	0.0702	0.0136	0.0560
Italy	0.0817	0.0254	0.0382	0.0556
İndia	0.0058	0.0052	0.0002	0.0000
Russia Federation	0.0186	0.0090	0.0281	0.0195
Vietnam	0.0003	0.0002	0.0659	0.0001
Japan	0.0677	0.0156	0.0218	0.0020
Belgium	0.0238	0.0111	0.0106	0.0858
Hong Kong	0.0051	0.0041	0.0134	0.0030
Poland	0.0659	0.0102	0.0246	0.0464
UAE	0.0037	0.0007	0.0125	0.0023
Korea	0.0156	0.0003	0.0107	0.0016
Austria	0.0205	0.0519	0.0248	0.0654
Mexico	0.0498	0.0066	0.0183	0.0001

Following the acquisition of the decision matrix in Table 1, a process of normalisation is applied to the values contained within the matrix. Given that the criteria may comprise different units of measurement, it is necessary to employ normalisation methods to ensure that the units of measurement of the criteria are dimensionless. As in Table 1, the ranking of alternative countries in Table 2 is determined according to the 20 countries importing the most edible fruits and nuts in the world. As dried apricots are categorised within Chapter 8 "edible fruits and nuts" of the HS code the evaluation of alternative countries was undertaken in accordance with this specific section. The analysis of the obtained data indicates that the USA holds the top position as the world's largest importer of edible fruits and nuts in 2023. The USA was followed by China and Germany, respectively.

Table 3. Obtaining ENTROPY values for criteria

Alternatives/criteria	Dried Prunes	Dried Apple	Dried Other(Pears,papaws,tamarinds and other..)	Mixtures of nuts or dried fruits
USA	-0.1546	-0.3674	-0.3399	-0.1580
China	-0.3221	-0.0007	-0.3104	-0.0006
Germany	-0.2437	-0.3389	-0.2706	-0.2113
Netherlands	-0.1852	-0.1834	-0.1255	-0.2047
France	-0.0974	-0.0861	-0.0906	-0.3158
United Kingdom	-0.1723	-0.1562	-0.1557	-0.3351
Canada	-0.1435	-0.1760	-0.1498	-0.0942
Spain	-0.1906	-0.1865	-0.0583	-0.1614
Italy	-0.2047	-0.0932	-0.1247	-0.1607
İndia	-0.0297	-0.0273	-0.0014	-0.0001
Russia Federation	-0.0742	-0.0425	-0.1002	-0.0769
Vietnam	-0.0024	-0.0015	-0.1792	-0.0005
Japan	-0.1823	-0.0649	-0.0833	-0.0125
Belgium	-0.0890	-0.0500	-0.0481	-0.2108
Hong Kong	-0.0268	-0.0224	-0.0577	-0.0173
Poland	-0.1792	-0.0468	-0.0910	-0.1424
UAE	-0.0209	-0.0049	-0.0547	-0.0140
Korea	-0.0650	-0.0021	-0.0485	-0.0102
Austria	-0.0796	-0.1535	-0.0916	-0.1783
Mexico	-0.1494	-0.0332	-0.0731	-0.0005

The entropy values for each criterion were obtained using Equation 3 and are shown in Table 3. Using the entropy values obtained in Table 3, the weight values of the criteria important for the ranking method were found in Table 4.

Table 4. ENTROPY value (e_j) degree of differentiation (d_j) and criteria weight (w_j)

	Dried Prunes	Dried Apple	Dried Other(Pears,papaws,tamarinds and other..)	Mixtures of nuts or dried fruits
e_j	0.8721	0.6801	0.8193	0.7696
d_j	0.1279	0.3199	0.1807	0.2304
w_j	0.1489	0.3724	0.2104	0.2683

As a result of the weighting using the ENTROPY method, the ENTROPY Value (ej) Degree of Differentiation (dj) and criterion weights (wj) of each criterion were determined and shown in Table 4, and the weights obtained were used in the ARAS method. The weighting process, which was executed using the entropy method, identified dried apple as the criterion with the highest degree of importance, assigning it a value of 0.3724. In the second position, Mixtures of nuts or dried fruits received a value of 0.2683, indicating their significance in the assessment. Dried Other and Dried Prunes were assigned the lowest values of 0.2104 and 0.1489, respectively.

The entropy method was utilised to obtain the criteria weights for each criterion. These weights were then multiplied by the values corresponding to the normalised decision matrix presented in Table 2. The weighted decision matrix, as outlined in Table 5, was consequently derived from this process. Subsequently, by aggregating all the criteria values of each alternative in the weighted decision matrix, the Si values are derived, as presented in Table 6. These values illustrate the potential value of each alternative.

The weighted decision matrix obtained as a result of the ARAS method is shown in Table 5 as follows.

Table 5. ARAS method weighted decision matrix

Alternatives/criteria	Dried Prunes	Dried Apple	Dried Other(Pears,papaws,tamarinds and other..)	Mixtures of nuts or dried fruits
The USA	0.0078	0.1301	0.0492	0.0145
China	0.0298	0.0000	0.0384	0.0000
Germany	0.0165	0.0864	0.0284	0.0231
Netherlands	0.0103	0.0255	0.0081	0.0219
France	0.0040	0.0085	0.0051	0.0510
The UK	0.0092	0.0198	0.0111	0.0601
Canada	0.0070	0.0238	0.0105	0.0069
Spain	0.0108	0.0262	0.0029	0.0150
Italy	0.0122	0.0095	0.0080	0.0149
İndia	0.0009	0.0019	0.0000	0.0000
Russia Federation	0.0028	0.0034	0.0059	0.0052
Vietnam	0.0000	0.0001	0.0139	0.0000
Japan	0.0101	0.0058	0.0046	0.0005
Belgium	0.0035	0.0041	0.0022	0.0230
Hong Kong	0.0008	0.0015	0.0028	0.0008
Poland	0.0098	0.0038	0.0052	0.0124
The UAE	0.0006	0.0002	0.0026	0.0006
Korea	0.0023	0.0001	0.0022	0.0004
Austria	0.0031	0.0193	0.0052	0.0175
Mexico	0.0074	0.0025	0.0038	0.0000

As a result of the ranking of the alternatives using the ARAS method, the rankings of the alternatives are shown with Rp in Table 6.

Table 6. Comparison of current market and potential market situations of alternatives

	Current market			Potential market				Results	
Alternatives	E_i	CM_i	R_c	S_i	K_i	PM_i	R_p	CC_i	R^*
A1	67.879	0.2531	1	0.2016	0.7491	0.2016	1	-0.0515	0
A2	8.191	0.0305	10	0.0682	0.2536	0.0682	5	0.0377	5
A3	38.138	0.1422	3	0.1544	0.5737	0.1544	2	0.0122	1
A4	16.863	0.0629	6	0.0658	0.2446	0.0658	6	0.0030	0
A5	38.828	0.1448	2	0.0687	0.2551	0.0687	4	-0.0761	-2
A6	19.465	0.0726	5	0.1003	0.3725	0.1003	3	0.0277	2
A7	11.317	0.0422	7	0.0483	0.1793	0.0483	8	0.0061	-1
A8	10.910	0.0407	8	0.0549	0.2038	0.0549	7	0.0142	1
A9	7.670	0.0286	11	0.0446	0.1656	0.0446	10	0.0160	1
A10	3.565	0.0133	13	0.0028	0.0105	0.0028	20	-0.0105	-7
A11	22.052	0.0822	4	0.0173	0.0642	0.0173	14	-0.0650	-10
A12	430	0.0016	19	0.0139	0.0517	0.0139	15	0.0123	4
A13	2.291	0.0085	14	0.0210	0.0780	0.0210	13	0.0125	1
A14	1.753	0.0065	16	0.0329	0.1224	0.0329	11	0.0264	5
A15	1.856	0.0069	15	0.0059	0.0219	0.0059	17	-0.0010	-2
A16	9.553	0.0356	9	0.0312	0.1160	0.0312	12	-0.0044	-3
A17	5.236	0.0195	12	0.0040	0.0150	0.0040	19	-0.0155	-7
A18	854	0.0032	18	0.0051	0.0189	0.0051	18	0.0019	0
A19	33	0.0001	20	0.0451	0.1676	0.0451	9	0.0450	11
A20	1.267	0.0047	17	0.0137	0.0510	0.0137	16	0.0090	1

Note(s): E_i: Türkiye's dried apricot exports in 2023, R_C: Dried apricot current ranking, R_p: Potential ranking, R^*: Difference between current ranking and potential ranking

Table 6 displays Türkiye's exports of dried apricots to 20 alternative countries alongside the E_i value. The CM_i value indicates the ratio of each alternative country to the total dry export value of 20 countries, and the R_c value indicates the ranking of alternative countries in Türkiye's dried apricot exports. The ARAS method was employed to obtain the alternatives' shares in the potential market and the PM_i value was used to show their rankings. In the final stage, the CC_i value, which is the classification coefficient, is obtained by calculating the difference between the PM_i and the CM_i values. The CCi values for each alternative and the rankings of the alternative countries are listed in Table 7.

Table 7. Classification of Alternative Countries

Dimension 1		Dimension 2		Dimension 3		Dimension 4	
Alternatives	CC_i	Alternatives	CC_i	Alternatives	CC_i	Alternatives	CC_i
1. A19	0.0450	3. A6	0.0277	10. A20	0.0090	14. A15	-0.0010
2. A2	0.0377	4. A14	0.0264	11. A7	0.0061	15. A16	-0.0044
		5. A9	0.0160	12. A4	0.0030	16. A10	-0.0105
		6. A8	0.0142	13. A18	0.0019	17. A17	-0.0155
		7. A13	0.0125			18. A1	-0.0515
		8. A12	0.0123			19. A11	-0.0650
		9. A3	0.0122			20. A5	-0.0761

As shown in Table 7, following a comprehensive evaluation of potential countries across four distinct dimensions, Austria (A19) was identified as the nation with the highest potential to increase exports, with a score of 0.0450. China (A2), with a score of 0.0377, has the second highest potential to increase exports. Beyond these two nations, the analysis identified the United Kingdom, Belgium, Italy, Spain, Japan, Vietnam and Germany as countries with the potential to increase their exports. Austria's share of Türkiye's dried apricot exports is negligible, amounting to less than 0.1 per cent. Austria, ranked 19th among the top 20 countries in terms of edible fruits and nuts, is ranked 20th among the 20 countries to which Türkiye exports dried apricots. While Austria is ranked 9th in terms of potential target market importance, it is identified as the country with the highest potential to increase its market share, given the substantial difference between its potential market share and the current market share for Türkiye. China had the highest score for increasing its market share. Notably, China has a high percentage (2.1%) of the countries to which Türkiye exports the most dried apricots. Following the United States, China is the second-largest importer of edible fruits and nuts worldwide. Concurrently, it is the 11th country to import the most dried apricots in the world, with a value of 16.43 million dollars.

Austria is of particular note given its relatively minor role in both global dried apricot imports and Türkiye's exports in this sector. It is among the top 20 countries in the world in terms of edible fruit and nut imports. Furthermore, Austria has been determined to be an influential market, as evidenced by its 15th-place ranking globally in terms of

total imports of fruits such as prunes, apples, and peaches in 0813 chapter. Austria is a developed country in terms of its economy. Its national income per capita is notably high, with an estimated USD 56,506 (World Bank 2024). Furthermore, the trade volume between Türkiye and Austria has increased annually. Specifically, in 2020, the total trade volume stood at $2.59 billion, while in 2023 this figure increased to $3.86 billion, as reported by TUIK (TUIK, 2024). This indicates a positive trajectory in the bilateral trade relations between the two countries. The large difference between the potential market result and the current market share for Austrian dried apricots has brought Austria to the first place, making it an important market for Türkiye's exports.

The second-largest country in the dimension 1 was China with a value of 0.0377. China is ranked 11th in the world in terms of dried apricot imports. Among the total imports of fruits such as prunes, apples and peaches in 0813 chapter, China has the third highest share in the world, at a rate of 8.7%. In this respect, it is a country with high potential. China's Gross Domestic Product (GDP) is $17794.78 billion in 2023 and this GDP value representings 16.88 per cent of the world economy. With a population of 1,409.67 million, China is the second most populous country in the world after India. In this respect, they can be said to have a large market presence. According to the difference between the potential market ratio and the countries to which Türkiye exports the most dried apricots, China ranks second in the potential market, whose exports can be increased the most in terms of Türkiye, showing that a result compatible with its economic size has been obtained.

The United Kingdom, Belgium, Italy, Spain, Japan, Vietnam and Germany are included in Dimension 2, which is defined as markets with significant export potential. Conversely, Mexico, Canada, the Netherlands, and Korea were classified within Dimension 3, signifying their capacity for a modest augmentation in export activities. The countries falling within Dimension 4 are Hong Kong, Poland, India, the UAE, the United States, Russia and France. These countries are markets in which current export levels should be maintained. The USA ranked first among the countries with the highest imports of edible fruits and nuts in the world and among the countries to which Türkiye exports dried apricots. However, a negative discrepancy was identified between its score in potential markets and the share of countries to which Türkiye exports dried apricots. Consequently, it is concluded that no additional effort is required on the part of Türkiye to increase its exports to the USA.

CONCLUSION and DISCUSSION

This study employs the Classification Approach of Potential Market Alternatives (CAPMA) method, a novel decision-making approach that facilitates the comparison of current markets with potential market and the subsequent ranking of potential market alternatives. The CAPMA model is predicated on a classification coefficient, and as a consequence of the classification of alternatives into four dimensions, potential countries whose exports can be increased the most are identified. This approach enables a more precise evaluation of a country's resources, thereby preventing waste.

Türkiye is a major player in the global trade of dried apricots and is among the top exporters worldwide. By 2023, Türkiye's exports of dried apricots had reached $395,533 million, thereby establishing itself as the global leader in the export sector, with a substantial export rate of 70%. Quantitatively, Türkiye exported 69,854 tons of dried apricots in 2023, with a unit value of 5,662 thousand dollars, which is approximately five times the value of 1,178 thousand dollars per unit recorded by Afghanistan, its closest competitor. Türkiye is the predominant player in the dried apricot export market; however, countries such as Afghanistan, Uzbekistan, Tajikistan and Iran have witnessed a substantial increase in both value and quantity in recent years. For instance, Afghanistan's share of the global dried apricot export market has grown from 4.7% in 2021 to 5.7% in 2022 and 6.4% in 2023. Conversely, Türkiye's share of global exports has decreased from 72.2% in 2021 to 74.6% in 2022 and 70% in 2023 (TradeMap, 2024). To increase its declining export market share, it is recommended that further market analysis be conducted, and new markets be explored.

The CAPMA (Classification Approach of Potential Market Alternatives) model is a novel decision-making approach that facilitates the comparison of current markets with potential markets and the ranking of potential market alternatives. This assists countries and firms in the effective allocation of resources. This study identified potential alternative markets for the export of dried apricots, a major agricultural product in Türkiye. Dried apricot is a pivotal agricultural product of Türkiye. Türkiye produces and exports the most dried apricots in the world. However, Türkiye's competitors for this agricultural product are increasing their market share annually. To maintain the current market share and increase revenues, it is important for Türkiye to analyze new potential markets and develop strategies accordingly. In this context, this study assumes a significant role as a guide and provides a valuable reference point for future research and policy decisions.

The study makes a significant contribution by assisting dried apricot producers in Türkiye in identifying new target markets. This is particularly important in a context where competitors are increasing their market share on an annual basis. It is therefore imperative for producers to transfer their limited opportunities to the most suitable markets. The study's findings, as outlined in Table 7, highlight Austria and China as the countries with the highest market potential in dimension 1. It is thus recommended that Turkish dried apricot exporters focus their marketing efforts on these countries. Although they have less potential than Austria and China, the United Kingdom, Belgium, Italy, Spain, Japan, Vietnam and Germany should be considered by Türkiye as countries in which to increase its current market share. In the dimension 3, Mexico, Canada, the Netherlands and Korea have been identified as the countries with the least potential to increase exports. Countries with negative values in the dimension 4 are countries where no additional effort is required. Focusing on these countries in a competitive environment where effective use of financial and human capital is important will result in loss of market share. In this respect, it is recommended that dried apricot exporters focus on countries in dimensions 1 and 2 and conduct market research instead of focusing on these countries.

In addition to high importance attributed to this study, there are some limitations. First, it was conducted in only 20 countries that import the most edible fruits and nuts in the world. However, because these 20 countries constitute the largest importer group in percentage terms, this can be considered a limitation that can be ignored. However, because these percentages may change in future studies, the number of countries determined as alternatives may be re-evaluated.

Conflict of interest declaration

The author of the article asserts that he has no conflict of interest and does not engage in plagiarism.

REFERENCES

Aghdaie, M.H., & Alimardani, M. (2015), Target market selection based on market segment evaluation: a multiple attribute decision making approach. *Int. J. Operational Research, 24*(3), pp.262–278. doi:10.1504/IJOR.2015.072231

Arnett, D.B. (2024), Market segmentation strategy, target markets, andcompetitors: a resource-advantage theory perspective. *Journal of Marketıng Management, 40*(13), pp.1269-1285. doi:10.1080/0267257X.2024.2391367

Aslantürk, B., Altuntas, E., & Öztürk, B. (2022), Effects of modified atmosphere packaging and methyl jasmonate treatments on fruit quality and bioactive compounds of apricot fruit during cold storage. *Journal of Agricultural Sciences, 28*(1), pp.71-82. doi: 10.15832/ankutbd.748453

Aydemir, M.F., & Alper, D. (2024), The Internationalization-Firm Performance Relationship: A Meta-Analysis for MNCs. *Uluslararası Yönetim İktisat Ve İşletme Dergisi, 20*(4), pp.896-926. doi:10.17130/ijmeb.1458989

Bakır, M. & Atalık, Ö. (2018), Entropi ve ARAS yöntemleriyle havayolu işletmelerinde hizmet kalitesinin değerlendirilmesi. *Journal of Business Research, 10*(1), pp.617-638. doi: 10.20491/isarder.2018.410

Baki, R. (2023), The evaluation of target markets for hazelnut exports with the classification approach of potential market alternatives. *British Food Journal, 125*(10), pp.3540-3552. doi: 10.1108/BFJ-02-2023-0100

Baki, R. (2024), Evaluating and classifying market alternatives using the CAPMA technique to assess potential export volume: an application for Turkey's fig exports. *British Food Journal, 126*(8), pp.3301-3315. doi: 10.1108/BFJ-03-2024-0266

Bilican, E. (2001), *Malatya İlinde Kuru Kayısı İhracatı ve Pazarlama Yapısı*. Yüksek Lisans Tezi, Selçuk Üniversitesi Fen Bilimleri Enstitüsü, Konya.

Celik, P., & Akmermer, B. (2022), Target market selection for the major aquaculture products of türkiye-an evaluation on export markets by hybrid multi-criteria decision-making approach. *Aquaculture Studies, 22*(1), pp.1-11. doi: 10.4194/AQUAST691

Ecer, F. (2016), ARAS yöntemi kullanılarak kurumsal kaynak planlaması yazılımı seçimi. *Uluslararası Alanya İşletme Fakültesi Dergisi, 8*(1), pp.89-98. https://dergipark.org.tr/en/download/article-file/201870

Ercisli, S. (2009), Apricot culture in Turkey. *Scientific Research and Essay, 4*(8), pp.715-719. https://academicjournals.org/journal/SRE/article-full-text-pdf/9BD17CD19456

Fidan, H. (2021), CRITIC ve MAIRCA çok kriterli karar verme yöntemleri ile uluslararası hedef pazar seçimi. *KMU Journal of Social and Economic Research, 23(*41), pp.291-309. https://earsiv.kmu.edu.tr/xmlui/handle/11492/5831

Gallego, I., Gonzalez-Rodriguez, M.R., & Font, X. (2024), A multi-criteria, composite index methodology to measure the suitability of target markets for the hotel industry. *Tourism Management Perspectives,* 47, pp.1-12. doi: 10.1016/j.tmp.2023.101104

Gheibdoust, H., Gilaninia, S., & Taleghani, M. (2024), Identification and prioritization of the factors influencing service quality in the hotel industry by SWARA and ARAS methods during the COVID-19 pandemic. *Journal of Quality Assurance in Hospitality and Tourism, 25*(6), pp.1918-1940. doi: 10.1080/1528008X.2023.2209343

Göktaş, B., & Gültekin, E. (2024). Malatya ilinde kayısının pazarlama yapısı konusunda üreticiler üzerinde bir inceleme. *The Journal of International Scientific Researches, 9*(3), pp.173-196. doi: 10.23834/isrjournal.1481157

Hernani-Merino, M., Lazo, L.J.G., Talavera-López, A., Mazzon, J.A., & López-Tafur, G. (2021), An international market segmentation model based on susceptibility to global consumer culture. *Cross Cultural & Strategic Management*, *28*(1), pp.108–128. doi: 10.1108/CCSM-04-2019-0081

Hayran, S., Dönmez, R., Karabacak, T., & Külekçi, M. (2023), The reduction of greenhouse gas emissions and energy optimization in apricot production in Turkey. *Erwebs-Obstbau, 65(*4), pp.1207-1216. doi: 10.1007/s10341-022-00767-7

International Trade Administration (2024), Harmonized System (HS) Codes, available at: https://www.trade.gov/harmonized-system-hs-codes (accessed: 8 October 2024).

Iglesias-Carres, L., Mas-Capdevila, A., Bravo, F.I., Blade, C., Arola-Arnal, A., & Muguerza, B. (2019), Optimization of extraction methods for characterization of phenolic compounds in apricot fruit (Prunus armeniaca). *Food&Function,* 10, pp.241-254. doi: 10.1039/C9FO00353C

Karacaoğlu, M., Keçeci, M., & Pamuk, D. (2024), An Investigation on The Side Effects of Some Pesticides Against The Predatory Insect Exochomus nigromaculatus (Coleoptera: Coccinellidae) Under Laboratory Conditions. *Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi, 27*(1), pp.152-158. doi: 10.18016/ksutarimdoga.vi.1106007

Karatas, N. (2022), Evaluation of nutritional content in wild apricot fruits for sustainable apricot production. *Sustainability, 14*(3), pp.1-13. doi: 10.3390/su14031063

Khan, M.U., Kamal, T., & Gill, M. (2016), Influence of different chemical preservatives and local preservation methods of drying apricot. *Food Science and Quality Management,* 47, pp.14-21. https://iiste.org/Journals/index.php/FSQM/article/view/28079

Kotler, P., & Armstrong, G. (2003), *Principles of Marketing*, Upper Saddle River, NJ: Prentice-Hall.

Kotler, P., Armstrong, G., & Balasubramanian, S. (2023), *Principles of Marketing*. 19th Edition, Pearson Education Limited.

Kuo, R.J., Ho, L.M., & Hu, C.M. (2002), Integration of self-organizing feature map and K-meansalgorithm for market segmentation. *Computers and Operations Research*, 29, pp.1475-1493. doi: 10.1016/S0305-0548(01)00043-0

Lyagoubi, A., Yousfi, L.K., Akhdari, S.E., Zarrouk, A., Zinedine, A., & Errachidi, F. (2024), Optimization of the factors affecting dried apricots antioxidants content by experimental design. *Journal of Medicinal and Pharmaceutical Chemistry Research, 7*(2), pp.241-254. doi: 10.48309/jmpcr.2025.458849.1259

Muradoglu, F., & Kayakeser, U. (2022), Multivariate analysis of turkish and foreign apricot cultivars based on biochemical components. *Erwerbs-Obstbau,* 64 pp.639-646. doi: 10.1007/s10341-022-00718-2

Qu, W., Li, J., Song, W., Li, X., Zhao, Y., Dong, H., Wang, Y., Zhao, Q., & Qi, Y. (2022), ENTROPY-weight-method-based ıntegrated models for short-term ıntersection traffic flow prediction. *ENTROPY (Basel), 24*(7), pp.849-864. doi: 10.3390/e24070849

Pamućar, D., & Ćirović, G. (2015), The selection of transport and handling resources in logistics centers using multi-attributive border approximation area comparison. *Expert Systems with Applications, 42*(6), pp.3016–3028. doi: 10.1016/j.eswa.2014.11.057

Poyraz, S., & Gül, M. (2022), The development of apricot production and foreign trade in the world and in türkiye. scientific papers series management. *Economic Engineering in Agriculture and Rural Development, 22*(2), pp.601-616. https://managementjournal.usamv.ro/index.php/scientific-papers/2894-the-development-of-apricot-production-and-foreign-trade-in-the-world-and-in-turkey.

Sarıdaş, M.A., Ağçam, E., Ünal, N., Akyıldız, A., & Paydaş, K.S. (2024), Comprehensive quality analyses of important apricot varieties produced in Turkey. *Journal of Food Composition and Analysis,* 125, pp.1-10. doi: 10.1016/j.jfca.2023.105791

Sukoroto Haryono, S., & Kharisma, B. (2020), Target market selection using mcdm approach: a study of rolling stock manufacturer. *Journal of Distribution Science, 18(*7), pp.63-72. doi: 10.15722/jds.18.7.202007.63

Skopenko, N., Fedulova, I., Mostenska, T., Severyna, I., & Kapinus, L. (2024), Risk assessment in target market selection by bread baking enterprises. *Ukrainian Food Journal, 13*(2), pp.385-405. doi: 10.24263/2304-974X-2024-13-2-13

STATİSTA, (2024), Dried Apricot Exports Worldwide İn 2023, By Leading Country., available at: https://www.statista.com/statistics/1027377/global-leading-exporters-of-dried-apricots/, (accessed: 23 September 2024).

Tang, T.E., & Mantrala, M.K. (2024), Incorporating direct customers' customer needs in a multi-dimensional B2B market segmentation approach. *Industrial Marketing Management,* 119, pp.252-263. doi: 10.1016/j.indmarman.2024.04.005

Thao, N.X., & Duong, T.T. (2019), Selecting target market by similar measures in interval intuitionistic fuzzy set. *Technology and Economic Development of Economy, 25*(5), pp.934-950. doi: 10.3846/tede.2019.10290

Tarim ve Orman Bakanlığı, (2024). Ürün Raporu Kayısı 2023, available at: https://arastirma.tarimorman.gov.tr, (accessed: 21 September 2024).

TUİK, (2024). Data Portal For Statistics, available: https://data.tuik.gov.tr/Bulten/Index?p=Bitkisel-Uretim-Istatistikleri-2024-53447, (accessed: 19 September 2024).

TRADE MAP (2024). Trade Statistics For İnternational Business Development, available at: https://www.trademap.org/Index.aspx, (accessed: 19 September 2024).

Ucar, K., & Engindeniz, S. (2018). Malatya ilinde kuru kayısı pazarlaması üzerine bir araştırma. *Selcuk Journal of Agriculture and Food Sciences, 32*(3), pp.249-256. doi: 10.15316/SJAFS.2018.91

Ucar, K., Engindeniz, S., & Örük, G. (2023), Energy and profitability analysis of dried apricot production in terms of sustainability: a case study for Turkey. *Erwerbs-Obstbau, 65*(3), pp.461-468. doi: 10.1007/s10341-023-00847-2

Uçar, K., Güler, D., & Engindeniz, S. (2021), Estimating of apricot production of Turkey using ARIMA model. *Turkish Journal of Agricultural Economics, 27(*2), pp.55-62. doi: 10.24181/tarekoder.941416

United States International Trade Commission (2024). Harmonized Tariff Schedule, available at: https://hts.usitc.gov/, (accessed: 9 October 2024).

Vanegas-Lopez, J.G., Baena-Rojas, J.J., Lopez-Cadavid, D.A., & Mathew, M. (2020), International market selection: an application of hybrid multi-criteria decision-making technique in the textile sector. *Review of International Business and Strategy, 31*(1), pp.127-150. doi: 10.1108/RIBS-07-2020-0088

Velasco, J.E., Marques, J.M.R., Torres, A.P., Marshall, M.I. & Deering, A.J. (2024), Safe, sustainable, and nutritious food labels: A market segmentation of fresh vegetables consumers. *Food Control*, 165, pp.1-10. doi: 10.1016/j.foodcont.2024.110654

Vu, T.H., Nguyen, V.D., Ho, M.T., & Vuong, Q.H. (2019), Determinants of vietnamese listed firm performance: competition, wage, ceo, firm size, age, and ınternational trade. *Journal of Risk and Financial Management*, *12*(2), pp.1-19. doi: 10.3390/jrfm12020062

Weinstein, A. (2014), Target market selection in B2B technology markets. *Journal of Marketing Analysis, 2*(1), pp.59-69. doi: 10.1057/jma.2014.6.

World Bank, (2024), Austria, available at: https://data.worldbank.org/country/austria, (accessed: 10 October 2024).

Xia, S., Yang, W., & Tan, S. (2024), Evaluation of ecological rehabilitation models for abandoned mines using analytic hierarchy process–entropy method and sustainable development strategies. *Sustainability, 16*(23), pp.1-19. doi: 10.3390/su162310668

Yeşilkaya, M., & Çabuk, Y. (2023), A hybrid mathematical model for international target market decision: the case of fibreboard industry. *Wood Material Science & Engineering, 18*(6), pp.2013-2028. doi: 10.1080/17480272.2023.2212267

Zavadskas, E.K., & Turskis, Z. (2010), A new additive ratio assessment (ARAS) method in multicriteria decision-making. *Technological And Economic Development Of Economy Baltic Journal On Sustainability, 16*(2), pp.159-172. doi: 10.3846/tede.2010.10

Zakeri, S., Delavar, M.R.R., & Cheikhrouhou, N. (2020), Dairy market selection approach usind MCDM methods: a case of Iranian dairy market. *International Journal of Management and Decision Making, 19*(3), pp.267-311. doi: 10.1504/IJMDM.2020.108642

Zhebentyayeva, T., Ledbetter, C., Burgos, L., & Llácer, G. (2012), Apricot. In Fruit Breeding,. in Badenes, M.L., Byrne, D.H. (Eds.). Handbook of Plant Breeding, Springer, New York.

Zhu, Y., Tian, D., & Yan, F. (2020), Effectiveness of ENTROPY weight method in decision-making. *Mathematical Problems in Engineering, 2020*(1), pp.1-5. doi: 10.1155/2020/3564835