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The Competitiveness of Turkish Foreign Trade in Selected Agri-Food Products Compared to Other Candidate Countries

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Abstract

This study evaluates the competitiveness of Türkiye's agri-food foreign trade relative to other European Union (EU) candidate countries (CCs). It explores trade volumes to examine Türkiye's position within the EU market. Competitiveness indicators show that the Turkish agri-food sector is well positioned to become a competitive player in the EU market, especially among the largest group of CCs covered by this analysis, with a high degree of specialization in fruit and vegetable exports. The analysis identifies Türkiye as a significant player due to its extensive agricultural land and diverse climate. However, challenges such as infrastructural gaps and inconsistent policies limit its full potential. Targeted policy reforms and investments in infrastructure and technology are essential to further enhance Türkiye's competitiveness.

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Introduction

In today's uncertain times, increasing economic competitiveness, including foreign trade, especially in the European Union market, is crucial. A country's ability to compete effectively in the global marketplace is called international competitiveness, and it includes factors such as investment, economic growth, and trade advantages. The concept of national competitiveness can be understood as a nation's ability to generate the necessary resources to satisfy its domestic demands, as outlined in the Aldington Report (1985). This aligns with Scott and Lodge's (1985) definition of national competitiveness as a country's capability to create, produce, distribute, and service products in international trade while achieving increasing returns on its resources (Buckley, Pass, and Prescott 1988:177). The primary limitation of competition policy is that it is designed to resolve challenges within national borders. In essence, competition policy deals with internal competition within a country, while trade policy manages competition in international commercial relations (Sabır 2014:23).

Adam Smith's concept of absolute advantage (cheaper production) was one of the first abstractions, followed by Ricardo's concept of comparative advantage (price and cost differences), and the term was then fine-tuned by Heckscher and Ohlin based on efficiency (Maneschi 1992; Ingham 2004; Koo and Kennedy 2005; Sawyer and Sprinkle 2015). According to the Heckscher–Ohlin (H–O) theory, the volume and structure of international trade derive from differences in the real cost of production following from differences in extreme productivity of both factors. Differences in productivity are due to the relative abundance of factors in the respective countries (Helpman 2011:11; Krugman, Obstfeld, and Melitz 2018:37).

Two neo-factor theories extend the classical theory of resource abundance by incorporating a larger number of production factors; for instance, Vanek's three-factor theory identifies natural resources as a production factor that includes a country's agricultural land resources (Helpman 2011:12). Tesch (1980) further develops this factor-based approach through the theory of competitive advantage, which stems from the available products and production factors. This framework links competitiveness to various absolute and permanent production capabilities that follow from natural conditions such as land quality or climate and to relative and interim capabilities related to differences in the level of technical knowledge, human resource qualifications, and capital resources (Misala 2011). Balassa (1965:99) provided both the theoretical background for and empirical verification of comparative advantages.

Various authors have characterized competitiveness as a theoretical, multidimensional, and relative concept tied to the market mechanism. In analyzing its definitions, the concept can encompass different levels of aggregation, such as supranational, national, regional, local, industrial, sectoral, and even down to individual companies or farms. Collectively, these levels constitute the entities through which competitiveness can be analyzed (Siudek and Zawojska 2014:94).

The drivers of competitiveness differ across countries and can be categorized into two main areas: macroeconomic and microeconomic factors. Macroeconomic competitiveness is influenced by various institutions, policies, and public investments that shape the overall economic environment. Social infrastructure including education, healthcare, and public safety along with political

institutions, establishes the overarching framework for productive economic activities. Microeconomic factors are those that directly influence company productivity and labor force mobilization and include factor endowments and demand conditions. The literature on regional competitiveness identifies three groups of key factors that determine the international competitive status of a region – infrastructure and accessibility, human assets, and industrial environment – which, in turn, comprise several constituent sub-factors. Sub-factors under infrastructure and accessibility include basic, technological, and knowledge-based infrastructure, as well as habitat quality. Human assets include demographic trends and a highly skilled labor force. The industrial environment includes factors such as entrepreneurial culture, sectoral concentration, internationalization, specialization, innovation, nature and pattern of competition, the sufficiency of manufacturing resources, and government and institutional capability (Brykova 2007:12; Mizik 2021:2).

Measuring competitiveness involves evaluating and quantifying various factors that contribute to the ability of individuals, firms, industries, or countries to compete effectively. Furthermore, various methods are employed to measure this competitiveness. The Global Competitiveness Index (GCI) is a comprehensive assessment of national competitiveness that combines various indicators across different dimensions. It ranks countries based on their competitiveness and provides insights into their strengths and areas for improvement. Although the GCI is one of the most recognized composite indicators of national competitiveness in the literature, it has faced criticism for its instability, potential correlations, or reverse causality between its pillars, and the lack of a strong theoretical foundation (Petrylė 2017:30).

Other measures include trade indicators, which measure a country's competitiveness in international trade, such as the trade balance, trade openness, export diversification, export sophistication, and revealed comparative advantage. These indicators reflect a country's ability to compete in global markets (Gault and Soete 2022:1).

Regarding the limitations of the study, and because of the approach used and its international scope, this study does not account for a number of major aspects of foreign trade, such as historical or institutional variations at the country level. Extending the analysis to examine the above-mentioned issues will form the basis for further research.

In view of the above, this study examines the agri-food trade competitiveness of Türkiye relative to that of EU candidate countries (CCs) important partners within the European market based on available 2012–2022 EUROSTAT and FAOSTAT data. To achieve the stated research objective, the following research questions were posed:

RQ1: Is Türkiye's foreign trade in agri-food products competitive in the EU market?

RQ2: What is the competitiveness of Türkiye's agri-food trade compared to that of other EU CCs?

The study of foreign trade competitiveness is an important element in testing economic theories in the field of competitiveness research, and it shows which CCs, apart from Türkiye, may become competitive in the future in the EU market. By demonstrating the importance of foreign trade in Türkiye and in other CCs, we can observe its impact on the future integration process of these countries. The research results contribute to the theory and empirical study of European integration,

particularly regarding the Common Agricultural Policy (CAP). The study's comprehensive and multi-directional approach, along with its findings, provides valuable insights for both Turkish agricultural policy and the CAP.

The remainder of this article is organized as follows. Section 2 provides a literature review, while Section 3 details the methodology. Section 4 presents the results and discussion, while Section 5 concludes.

Literature Review

Agriculture is one of the most sensitive economic sectors worldwide. Nevertheless, agri-food exports have several economic benefits, stimulating a wide array of industries linked to the sector, including transportation, processing, and farm-input supply. Furthermore, most of the future growth in food demand is expected to occur in developing countries (McMinimy et al. 2017:2). Several factors, including increased trade liberalization, population growth, urbanization, and changing diets, have driven a significant increase in international trade in agri-food (Anderson 2010:3007). However, countries must also navigate several challenges, such as climate change, deteriorating soil conditions, and the loss of biological diversity (Shemshad 2025:279).

Although European countries currently have the largest share of world food exports, agri-food exports from developing nations are expanding rapidly, particularly from low- and middle-income countries in Africa, Asia, and South America. This strong expansion of agri-food trade coincides with important changes in the structure of trade (Aksoy and Ng 2010:2). While the importance of high-value food products – such as fruit, vegetables, and products of animal origin – is increasing in agri-food trade, the importance of staple food products, including cereals and traditional tropical commodities, has decreased. Such a changing structure of exports can be observed especially in developing countries (Diop and Jaffee 2005:237).

Globalization and participation in international trade have fostered economic growth in developing countries. Trade in high-value agri-food products has been argued to be particularly promising for fostering agricultural growth and rural development in low-income countries because of higher revenues (relative to lower-value staple food and raw commodity exports) and labor-intensive production systems. Due to the unique characteristics of the agricultural sector, countries often pursue similar objectives that contribute to higher levels of agricultural protectionism, especially in times of uncertainty. These objectives include ensuring food security for consumers, achieving self-sufficiency, maintaining a variety and quality range of products, stabilizing markets, mitigating the impact of global disturbances such as wars or natural disasters, protecting against uncontrolled imports of genetically modified (GM) foods, and preventing the spread of animal diseases (Gombkötő 2019:108).

In Türkiye and many other potential EU member countries, the agricultural sector plays a significant role. This importance is due to the sector's substantial contributions to GDP, employment, and trade. Additionally, trade liberalization at the regional level was enhanced through the establishment of the renewed Central European Free Trade Agreement (CEFTA) in 2006. Despite notable improvements, these countries still face challenges with export competitiveness. Over the long term, agricultural exports could enhance the export performance of EU CCs. However, exports

tend to decrease as the distance between trading partners increases, and this decline becomes more pronounced with greater distances. Consequently, the marginal decline in exports grows as the geographical distance expands. Overall, trade liberalization has positively impacted the export performance of EU CCs and provided them with the opportunity to become competitive on the EU market.

Considering the importance of the Turkish agricultural sector to both the national economy and the EU, several studies have analyzed the competitiveness of Turkish foreign trade in agri-food products, mainly analyzing the RCA, TBI, RSCA, and Grubel-Lloyd indices. These analyses demonstrated that Türkiye is mainly competitive in the fruit and vegetable market. For example, Sahinli (2014) examined Türkiye's international competitiveness between 2000 and 2011, Bashimov (2017) covered the period 2002–2015, and Bashimov, Çiçek, and Aydın (2017) examined the competitiveness of selected food products from 2001–2015. Similarly, Tatar (2020) examined Türkiye's competitiveness with that of neighboring countries, while Yılmaz and Genç (2021) focused on 2010–2019, and Yıldız (2022) analyzed its competitive position relative to selected global markets from 2002 to 2020.

Nevertheless, few studies compare the competitiveness of Turkish agri-food trade with that of other EU CCs. Thus, this paper addresses a gap in the literature by providing an international approach to agri-food competitiveness using a diverse set of indicators. In this respect, the approach proposed in this paper differs from the previously cited analyses.

Research Methodology

This study examines the competitiveness of Turkish agri-food foreign trade in comparison to that of other EU CCs (Albania, Bosnia and Herzegovina, Georgia, North Macedonia, Moldova, Montenegro, Serbia, and Ukraine). It analyzes the volume of agri-food exports and imports, providing an overview of Türkiye's current position within the EU agri-food market. The following products were selected for analysis: cereals, fruit, vegetables, beef and veal, sheep and goat meat, and milk and eggs, as these represent important components of agricultural production for most CCs. The study covers the period 2012–2022, as many of the analyzed countries attained CC status during this time. The choice of this timeframe effectively captures structural breaks, such as the COVID-19 pandemic, currency crises, the war in Ukraine, and the Black Sea Grain Corridor agreement. Relevant data on agri-food trade flows were primarily obtained from the Food and Agriculture Organization (FAO). The analysis employs basic descriptive statistics alongside the following competitiveness indicators based on the methodology proposed by Pawlak (2013).

The import penetration rate (*MP*) indicates the share of total domestic demand met by imports.

$$MP = \frac{M}{Q - X + M}, \tag{1}$$

where:
M – imports,
X – exports,
Q – production.

The export-import coverage ratio (*CR*) shows whether a country has a foreign trade deficit or surplus: a value below 100 indicates a deficit, whereas a value above 100 indicates a surplus.

$$CR = \frac{X}{M} \cdot 100\%, \tag{2}$$

where:
X – exports,
M – imports.

The export specialization index (*SI*) indicates a country's level of export competitiveness relative to the EU average. An *SI* value greater than 1 signifies that the country has above-average expertise and is competitive and specialized in exporting that product. An *SI* value of 1 indicates export performance similar to the EU average, while a value below 1 indicates that the country is not competitive or specialized in exporting that product.

$$SI = \frac{x_{ij}}{X_{it}} : \frac{m_{kj}}{M_{kt}}, \tag{3}$$

where:
x_{ij} – export value of product *j* for country *i*,
X_{it} – total exports of country *i*,
m_{kj} – import value of product *j* in market *k*,
M_{kt} – total imports in market *k*.

The relative comparative advantage in export (*XRCA*) reflects the degree of comparative advantage for a particular product. An *XRCA* greater than 1 indicates that a country exports the product more intensively than the EU average, demonstrating a comparative advantage and competitive strength in that product. An *XRCA* value equal to 1 signifies that the country's export share matches the EU average, while a value below 1 indicates the absence of a comparative advantage and low competitiveness.

$$XRCA_{ij=} = \frac{X_{ij}}{\sum_i X_{ij}} : \frac{\sum_j X_{ij}}{\sum_i \sum_j X_{ij}} \tag{4}$$

where:
X_{ij} – exports of product *i* by country *j*,
$\Sigma_i X_{ij}$ – total exports of all products by country *j*,
$\Sigma_j X_{ij}$ – total exports of product *i* by all countries in the reference group,
$\Sigma_i \Sigma_j X_{ij}$ – total exports of all products by all countries in the reference group.

The index of relative import absorption (MRCA) measures a country's import intensity of a particular product relative to the EU average. An MRCA value greater than 1 indicates that the country imports a larger share of the product than the EU average, reflecting higher demand or greater dependence on it. A value of 1 signifies a share matching the EU average, while a value below 1 reflects lower demand or reduced dependence on the product.

$$MRCA_{ij=} = \frac{M_{ij}}{\sum_i M_{ij}} : \frac{\sum_j M_{ij}}{\sum_i \sum_j M_{ij}} \tag{5}$$

where:
M_{ij} – imports of product *i* by country *j*,

$\Sigma_i M_{ij}$ – total imports of all products by country *j*,
$\Sigma_j M_{ij}$ – total imports of product *i* by all countries in the reference group,
$\Sigma_i \Sigma_j M_{ij}$ – total imports of all products by all countries in the reference group.

The relative trade advantage index (*RTA*) indicates whether a country is a net exporter or importer of a particular product. An *RTA* greater than 0 signifies that the country exports more than it imports, demonstrating a comparative advantage, whereas a value less than 0 reflects a comparative disadvantage. An RTA of 0 indicates that exports and imports are balanced.

$$RTA = XRCA - MRCA. \tag{6}$$

The self-sufficiency indicators were calculated using the following formula recommended and used by the FAO:

$$\text{Self-sufficiency level} = \frac{\text{Production}}{\text{Production} + \text{import} - \text{export}} \cdot 100\%. \tag{7}$$

Based on this calculation, the CCs are listed by their average self-sufficiency rate between 2012 and 2022.

Results and Discussion

Türkiye is self-sufficient in most agri-food products (Table 1). An analysis of the overall self-sufficiency indicators demonstrates that the country maintains high levels for all products; the lowest are for cereals and sheep and goat meat (around 80%), while for the remaining products, indicators remain around or above 100%. Türkiye achieved its highest indicator for eggs (131%), which is the highest among the analyzed countries, followed by fruit (112%) and vegetables (106%). Self-sufficiency for milk and beef is approximately 100%.

Table 1. Average food self-sufficiency of candidate countries, 2012–2022 (%)

	Cereals	Fruit	Vegetables	Milk	Eggs	Beef and Buffalo Meat	Sheep and Goat Meat
Albania	72	96	106	99	101	95	45
Bosnia and Herzegovina	72	72	95	100	107	37	93
Georgia	42	100	83	87	98	89	155
Moldova	167	129	96	90	99	121	468
Montenegro	13	63	59	85	72	50	92
North Macedonia	82	117	118	90	89	29	331
Serbia	143	113	104	98	100	103	73
Türkiye	80	112	106	101	131	99	82
Ukraine	293	83	100	103	104	109	73

Source: own calculations based on FAOSTAT n.d.

The share of imports of most agricultural products decreased in most of the analyzed countries during the years under review. In Serbia, this share remained stable, while in Türkiye and Ukraine, it increased, averaging around 6%. Despite this increase, Türkiye has the lowest share among the countries considered, reflecting its favorable climatic conditions and low dependence on agri-food imports (Table 2).

Regarding the share of agricultural product exports in total exports, as total exports increased, the agricultural export rate also increased in Türkiye, Albania, Georgia, Moldova, and Ukraine, although in Türkiye it increased only slightly (Table 3).

Table 2. Agricultural imports among total imports in candidate countries, 2012–2022 (%)

Agricultural Import (%)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	17	18	17	16	16	17	16	17	17	21	18
Bosnia and Herzegovina	18	18	17	18	18	16	16	16	17	15	14
Georgia	17	19	18	18	17	16	16	15	17	15	16
Moldova	17	17	15	16	15	14	14	14	16	14	14
Montenegro	24	23	24	24	21	21	20	21	20	21	18
North Macedonia	13	13	11	11	11	10	9	9	10	9	9
Serbia	9	9	10	10	10	10	9	9	10	9	9
Türkiye	5	5	6	6	6	6	6	8	8	7	7
Ukraine	8	9	9	9	10	9	9	10	12	11	10

Source: The Observatory of Economic Complexity n.d.

Table 3. Agricultural exports among total exports in candidate countries, 2012–2022 (%)

Agricultural Export (%)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	6	6	7	8	9	9	10	11	13	11	10
Bosnia and Herzegovina	7	7	7	9	9	9	7	7	8	6	6
Georgia	18	22	25	23	28	24	25	21	24	23	19
Moldova	33	37	39	41	42	42	37	38	38	39	40
Montenegro	10	16	22	20	21	7	11	11	18	18	5
North Macedonia	14	15	12	12	12	12	9	9	11	9	8
Serbia	24	19	21	23	23	20	18	19	22	20	17
Türkiye	10	11	12	12	12	11	11	11	12	11	12
Ukraine	25	27	30	37	41	39	37	43	45	41	52

Source: The Observatory of Economic Complexity n.d.

Looking at trading partners, all CCs except Türkiye mainly import agricultural goods from neighbors or maritime neighbors. Partner countries remained largely the same between 2012 and 2021 (Table 4). Due to historical ties, Russia, the United States and Germany were among Türkiye's main import partners.

The main export partners closely mirror the import partners (Table 5). These partnerships are mostly established with land-border neighbors. However, in a departure from import patterns, Iraq was the main agricultural export partner for Türkiye for all the years analyzed; in 2021, the United States became the second largest export destination for Türkiye.

Table 4. Main agricultural import partners of EU candidate countries, 2012–2021

	2012	2013	2015	2016	2019	2021
Albania	Italy	Greece	Italy	Italy	Italy	Italy
Bosnia and Herzegovina	Croatia	Serbia	Serbia	Serbia	Serbia	Serbia
Georgia	Ukraine	Ukraine	Ukraine	Ukraine	Ukraine	Ukraine
Moldova	Ukraine	Ukraine	Ukraine	Ukraine	Ukraine	Ukraine
Montenegro	Serbia	Serbia	Serbia	Serbia	Serbia	Serbia
North Macedonia	Serbia	Serbia	Serbia	Serbia	Serbia	Serbia
Serbia	Croatia	Germany	Croatia	Belgium	Germany	Germany
Türkiye	Germany	U.S.A.	Russia	U.S.A.	Russia	Russia
Ukraine	Russia	Russia	Russia	Germany	Poland	Poland

Source: WITS (World Integrated Trade Solution) n.d.

Table 5. Main agricultural export partners of EU candidate countries, 2012–2021

	2012	2013	2015	2016	2019	2021
Albania	Italy	Italy	Italy	Italy	Italy	Italy
Bosnia and Herzegovina	Croatia	Croatia	Croatia	Croatia	Croatia	Serbia
Georgia	Ukraine	Russia	Russia	Russia	Russia	Russia
Moldova	Russia	Russia	Belarus	Romania	Romania	Romania
Montenegro	Serbia	Serbia	Serbia	Serbia	Serbia	Serbia
North Macedonia	Serbia	Serbia	Serbia	Serbia	Serbia	Serbia
Serbia	Bosnia	Bosnia	Bosnia	Bosnia	Bosnia	Bosnia
Türkiye	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq
Ukraine	Russia	Russia	Belarus	Belarus	Belarus	China

Source: WITS (World Integrated Trade Solution) n.d.

Table 6 shows the share of primary products within Türkiye's total agricultural exports. Türkiye is recognized as one of the EU's biggest partners for fruit and vegetable imports. After 2018, the depreciation of the Turkish lira made Turkish products more competitive abroad, leading to increased exports. This situation also had a positive impact on grain exports. In 2022, Türkiye, Ukraine, Russia, and the United Nations established the Black Sea Grain Corridor Agreement, which ensures the safe transport of grain and food products through the Black Sea. This agreement helped stabilize global food prices while also enhancing the presence of Turkish flour in export markets. The increase in the share of cereal exports consequently affects the shares of other agricultural goods, among which, fruit accounts for the highest share (approximately 50%), while vegetables represent a much lower share (around 30%).

Table 6. Share of exports of main products among total agricultural exports of Türkiye, 2012–2022 (%)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cereals	7	9	3	4	2	4	3	15	11	11	17
Fruit	55	55	56	60	58	58	62	52	57	53	50
Vegetables	31	29	32	30	26	27	25	24	26	27	25
Milk	1	2	3	2	8	5	4	6	3	6	5
Eggs	5	6	6	4	5	6	6	4	3	3	3

Source: FAOSTAT n.d.

Table 7 shows the share of the most significant products in Türkiye's agricultural imports. Türkiye imports almost 95% of its cereals, and the share of imports in cereals increased by almost 6%. However, the share of imports for other goods decreased. Cereal production is not sufficient for the large population, and there is a huge demand for cereal-based foods due to dietary habits. Furthermore, climatic conditions have been unfavorable for cereal production in recent years. In contrast, goods such as fruit and vegetables are produced in sufficient amounts due to the suitable climate. According to FAOSTAT reports, Türkiye ranks third globally for cereal imports.

Table 7. Share of imports of main products among total agricultural imports of Türkiye, 2012–2022 (%)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cereals	90.0	91.3	92.9	90.6	90.3	93.1	93.8	93.2	93.4	94.4	95.5
Fruit	6.8	5.9	4.7	6.3	7.1	5.3	4.3	4.6	5.2	5.0	3.4
Vegetables	0.8	0.7	0.6	0.8	0.8	0.5	0.4	1.3	0.6	0.4	0.8
Milk	1.9	2.0	1.8	2.0	1.7	0.8	0.8	0.7	0.8	0.2	0.3
Beef and Buffalo Meat	0.5	0.1	0.0	0.3	0.1	0.2	0.6	0.1	0.0	0.0	0.0

Source: FAOSTAT n.d.

The per capita import of the primary agri-food products was also analyzed (Table 8). Cereals stand out, with imports increasing over the study period to 144 kg per person the second highest among the analyzed countries after Bosnia and Herzegovina. This increase resulted from rising production

costs, economic and currency instability, and drought risks in the Anatolia region, the center of Turkish grain production.

Table 8. Import of selected agri-food products in Türkiye, 2012–2022 (kg per capita)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cereals	64	77	98	63	50	77	88	154	134	139	144
Fruit	5	5	5	6	5	5	5	9	9	9	5
Vegetables	0.6	0.6	0.7	0.8	0.6	0.6	0.5	3	1	0.9	2
Milk	1	2	2	2	1	0.8	0.9	1	1	0.3	0.5
Eggs	0,01	0,02	0,03	0,03	0,03	0,03	0,04	0,06	0,03	0,03	0,03
Beef and buffalo meat	0.34	0.08	0.01	0.25	0.09	0.23	0.73	0.10	0.08	0.03	0.03
Sheep and goat meat	x	x	x	x	x	x	0.002	0.001	0.002	0.005	x

Source: FAOSTAT n.d.

Fruit also deserves attention, although its per capita import is much smaller averaging only 6 kg per person the lowest among the CCs. Favorable climatic conditions, diverse production, and improving production techniques result in lower import levels. The other CCs and Türkiye maintained relatively stable production between 2012 and 2022.

A different situation is observed in egg imports. The import was about 30 g per person, becoming one of the lowest among the analyzed CCs, similar to Ukraine. The decline stemmed from the expansion of domestic poultry production and the impact of avian flu on the European egg market.

Beef and buffalo meat production was insufficient in CCs, rendering these countries net importers. In Türkiye, imports of beef and buffalo meat decreased in the years under review due to the 2018 currency crisis, which affected the Turkish economy; government attempts to stabilize prices did not prove effective. Per capita imports of beef and buffalo meat were calculated at 730 g per person, but in subsequent years, they declined to lower levels similar to those in earlier years. Throughout the study period, it remained one of the lowest among the analyzed countries, comparable to the indicator for Ukraine. Similarly, sheep and goat meat are not prominent import commodities because breeding sheep and goats is easier than raising cattle. All analyzed countries maintained imports of less than 100 g of sheep and goat meat per person, which is consistent with local dietary habits.

Türkiye and Ukraine also have lower levels per capita of milk imports (below 1 kg per person) in most years, which decreased in the years studied. Furthermore, Turkish vegetable imports per person are the lowest among the analyzed CCs. In most of the years analyzed, it remained below 1 kg, despite an increase every year.

Competitiveness has been defined in various ways, reflecting its multiple dimensions. Originally, in the context of international trade, competitiveness was understood as price or cost competitiveness, which refers to relative export prices or terms of trade, whereby a country's domestic prices or costs are compared with respective international prices or costs. In contrast, non-price competitiveness

is not directly related to prices or costs. Instead, it encompasses a broader range of factors and captures a multitude of dimensions both quantitative and qualitative that influence a country's trade performance and openness. The World Economic Forum defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country" (Bardaka and Rentifi 2021:61).

Selected competitiveness indicators were calculated for the 2012–2022 period (Table 9). The MP in Türkiye increased only for cereals, averaging 21% a level similar to that of North Macedonia. The CR shows that Türkiye like Albania, Bosnia and Herzegovina, Georgia, and Montenegro maintained a trade deficit in cereals. Results for the SI and XRCA show that Türkiye lacked greater cereal export experience than the EU average. According to the MRCA, Türkiye had a higher import share of cereals than the EU average as rising energy costs drove import levels to meet demand. The RTA confirms that Türkiye is a net cereal importer, while only Moldova, Serbia, and Ukraine are net exporters.

Table 9. Competitiveness indicators for selected Turkish agri-food products, 2012–2022

	MP		CR		SI		XRCA		MRCA		RTA	
	2012	2022	2012	2022	2012	2022	2012	2022	2012	2022	2012	2022
Cereals	13	28	14.5	24.2	0.2	0.3	0.08	0.1	5.72	8.87	−5.64	−8.74
Fruit	2	2	2740.9	5895.5	4.5	3.6	11.40	6.3	0.19	0.08	11.21	6.21
Vegetables	0	0	766.6	809.8	1.4	1.8	1.48	2.2	0.18	0.29	1.30	1.88
Milk	1	0	0.0	5.9	0.0	0.0	0.0	0.0	0.01	0.01	−0.01	−0.01

Source: own calculations based on Eurostat n.d.

Türkiye's climate is conducive to the production of different types of fruit such as citrus, bananas, and melons. The adoption of new technologies and agricultural policies further increased production and export volumes. The MP indicates that Türkiye imports less fruit than cereals; the share of domestic fruit demand met by imports averages around 2%, a level similar to that of Moldova. The CR indicates that Türkiye maintains the highest surplus for fruit trade among the analyzed CCs, and this indicator more than doubled in the analyzed years. The SI shows that Turkish fruit exports, along with those of Albania, Georgia, and Montenegro, are higher than the EU average. The XRCA indicates that CCs excluding Moldova, Serbia, and Ukraine export more fruit than the EU average, with Türkiye attaining the second-highest value behind Georgia. Only in Türkiye is the MRCA of fruit lower than the EU average across all analyzed years. Consequently, the RTA indicates that Türkiye, alongside Georgia, is a net exporter of fruits.

It is clear that the countries with a Mediterranean climate such as Türkiye, Albania, North Macedonia, and Serbia have strong vegetable exports. In particular, Türkiye and Serbia, which pursue more aggressive trade strategies in agricultural products, have reduced North Macedonia's market share. The MP demonstrates that Türkiye, alongside Albania, Bosnia and Herzegovina, North Macedonia, and Ukraine, had the lowest import rates for vegetables. The increasing dependence on imports is mainly due to the lack of local supplies during the off-season. The CR shows that Türkiye and North Macedonia both maintained a surplus in all years, with the Turkish surplus being the largest. Although fluctuations were recorded, the surplus persisted. The SI shows that Türkiye,

along with Albania, Bosnia and Herzegovina, Montenegro, and North Macedonia, had higher export levels than the EU average. Similarly, the XRCA shows that Türkiye along with Albania, Montenegro, and North Macedonia exported more vegetables than the EU export average, confirming its standing in vegetable production and trade. Finally, the MRCA shows that Türkiye's average vegetable imports were lower than the EU average. Consequently, the RTA indicates that Türkiye, along with Albania, Bosnia and Herzegovina, and North Macedonia, is a net exporter of vegetables, and the value of this indicator has increased over the analyzed years.

Milk exports in Türkiye were among the highest of the CCs comparable to those of Ukraine because Türkiye increased its export rate more than ninefold from 2012 to 2022. This increase was mainly due to increased production capacity, the modernization of quality standards, and the depreciation of the Turkish lira, allowing Turkish dairy products to be sold at more competitive prices in international markets. Consequently, the MP results confirm that Türkiye, along with Albania and Ukraine, had the lowest milk import levels among the CCs. The CR indicates that all CCs had a foreign trade deficit. The SI shows that all the CCs had a much lower level of export specialization than the EU average. The XRCA shows that none of the CCs have a comparative advantage in milk exports. Potential reasons include a lack of alignment with EU quality standards and insufficient control mechanisms on livestock farms. The MRCA indicates that all analyzed countries have lower average milk imports than the EU. Thus, the RTA shows that most of the CCs are net importers of milk except Bosnia and Herzegovina; however, Türkiye, North Macedonia, and Ukraine have the chance to transition from net importer to net exporter, as the value is very close to 0.

Conclusions

This study examined the competitiveness of Turkish agri-food foreign trade relative to other CCs. Through a detailed analysis of trade flows and the factors influencing competitiveness, the research offers critical insights into Türkiye's standing in the agri-food sector. Due to the size of the country and the importance of the agricultural sector and agri-food trade with the EU, the findings are significant for understanding both foreign trade competitiveness and the potential implications for the CAP.

1. Türkiye is self-sufficient in almost all analyzed agri-food products, with indicators at approximately 100%, except for cereals and sheep and goat meat, which averaged 80%.
2. The analysis shows that while both the share of exports and imports of agri-food products in Türkiye's total trade has gradually increased over the years under study, the import share remains among the lowest compared to the other analyzed countries.
3. Throughout the period, Türkiye's agri-food exports were dominated by fruit, at approximately 50%, followed by vegetables at 30%; in terms of imports, cereals dominate with a share of approximately 90%.
4. The analysis of competitiveness indicators revealed that Türkiye stands out from the other CCs with particularly high competitiveness in the fruit and vegetable markets.

5. Türkiye has emerged as a dominant player among the CCs due to its extensive agricultural land and diverse climatic conditions, which enable a varied agricultural output. However, significant challenges hinder Türkiye's full potential in the global agri-food market, including infrastructural gaps, economic fluctuations, inconsistent trade policies, and variable quality standards.

6. Macro-economic factors, including GDP growth, population trends, and economic stability, play a crucial role in determining competitiveness. Türkiye's relatively robust economic growth and increasing population provide a solid foundation for its agri-food sector, contrasting with the declining populations and economic challenges faced by some other CCs.

7. The policy environment is also critical to enhancing competitiveness. Türkiye's current policies need significant reforms to improve infrastructure, streamline regulations, and foster innovation. Enhanced institutional support, particularly in research and development, and capacity-building initiatives for farmers, is essential to address existing weaknesses and leverage Türkiye's agricultural potential.

While Türkiye demonstrates strong foundational attributes for competitive agri-food trade, strategic policy interventions are crucial to overcome current challenges and achieve competitiveness on the EU market.

To sum up, in Türkiye and in most CCs, the level of agricultural development and productivity is much lower compared to the EU average and is quite diversified. This is due to the low level of development of these countries, a lack of investment in the agricultural sector, limited access to foreign markets, and low productivity, which also results from their historical development. The situation of the agricultural sector and agricultural production was also significantly influenced by numerous changes, including the collapse of the USSR and the war in the former Yugoslavia, as well as the agricultural reforms carried out. Therefore, the chances of Türkiye and other CCs achieving future competitiveness on the EU market are often limited.

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