

# IN EUROPEAN UNION MARKET, COMPETITIVE POWER OF TURKISH CEREAL SECTOR

Dr. Ayse esra peker<sup>1</sup>

Prof. Dr. Orhan çoban<sup>2</sup>

## Abstract

*Together with globalization process gaining acceleration in 1980s, liberalization in trade of the goods, services, and capital brought together the competitive advantage phenomenon gradually increasing at the national and international level. Together with this process, globalization has become an important factor in forming the competitive strategies. Together with globalization, at the present days when the competitive phenomenon gains importance increasingly, it is seen that country economies try to increase the competitive power for being able to obtain more share from the market. It is impossible to explain the competitive power with an only definition; however, in general, competitive power is defined as that a county increases production process and capacity at the national international level regularly and continuously.*

*In the recent years, for the countries to be able to reach their sustainable developmental targets, the concept of competitive economy stands out. For the countries to be able to have the competitive production conditions, it is necessary to include all sectors in the production process. With regardless of the developedness levels of the countries, the agricultural sector rising to the position of a strategic sector in the world, on the reason for the climatic change, drought, global food crisis experienced especially in the recent years and its key role in the point of providing the food safety and security of the country became the focus of the political and economic discussions. Therefore, besides evaluating the agricultural sector with the strategic point of view and the contribution of sector to the economy, considering the synergy it formed with the other sectors has gained importance. In turkey, one of the countries drawing attention their rapidgrowths, a number of theoretical studies handling the direct and indirect contribution of the agricultural sector were carried out. However, there is an insufficiency about the applied studies presenting the existing situation of sector and making a contribution to the development of effective policies toward the sector. In this scope, the competitive power of turkish cereal sector in the issue of eu, the main objective of the study was presented. In the analysis, in which the period of 1990 -2011 is based on, revealed comparative advantages index (acai), relative export advantage index (reai), relative import advantage index (riai), and relative trade advantage index (rtai)were utilized. Moving from the index results calculated, the effusive policy suggestions, toward turkish cereal sector were made.*

Keywords: turkish cereal sector, revealed comparative advantages index, relative trade advantage index

## 1. Introduction

Together with globalization, at the present days, when the phenomenon competition increasingly gains importance, the country economies, for being to draw more share from markets, attempt to increase the competitive power. In the framework of these developments, the concept of competitive power comes to our face in a number of literatures. It is impossible to describe the competitive power in a single definition. In a number of studies in national and international level, competitive power is defined in different ways at the levels of sector and business. Competitive power is defined as a country to increase its production process and capacity at the national and international level regularly and continuously.. In other words, competitive power can be defined, increasing value added of a country in production in a stable way, as raising its economic prosperity level. Increase of the competitive power, balanced foreign trade level as well as income and employment level of a country is

---

<sup>1</sup>Ayşe Esra PEKER, Selçuk University, Advanced Technology Research And Application Center,

<sup>2</sup>Orhan ÇOBAN, Selçuk University, Faculty of Economics And Administrative Sciences,

measured with its being able to raise its quality of life continuously and increase its share in international market (aktan, 2003: 115-116). It is argued that international businesses are effective in determining the competitive power. The main element in introducing the competitive power of businesses is accepted as innovations in the product and production systems. (porter, 1990: 77) but it is difficult to define

There are many different theories attempting to present the competitive power of countries. It is possible to classify these theories as classical and modern approach. Mercantilists became those first introducing the basis of competitive advantage the foreign trade will form on the country economies (miral, 2006: 30) following this, by the classical economists beginning with adam smith, the famous theorist of economics and then continuing with david ricardo, john stuart mill, and alfred marshall, foreign trade was perceived as a very important instrument in increasing the world competition and competitive power (demir, 2004: 5)

The theory of absolute advantages introduced by adam smith (1766), the classical economist, is the first theory of international trade. Smith, in his theory, argues that countries should export the goods they can produce in cheaper way and that they should import the goods they produce in more expensive way. Then, by david ricardo (1817), theory of comparative advantages were introduced. Ricardo, in his theory, while countries are making foreign trade, they do not hold to the prices between the products and services they themselves produce and they should take as a basis the relative price differences of the same good and service produced in the other countries. Differently from the theory of smith, ricardo, in his theory, emphasizes that especially a country should specialize in export of a certain product and service and it should import the other products (erkan, 2012: 197). Thus, it is considered that the income obtained from the foreign trade will both raise the prosperity of country to the maximum level and lead the economic prosperity of world to raise via free trade (sharma, 2004: 3).

Economists after ricardo predominantly emphasized the factor equipment, technology, and human factor. According to the mutual demand presented by john stuart mill (1806-1873), in foreign trade, in which there are two goods, mutually made, in two countries, it is argued that the mutual demand of countries determines the foreign trade. In the theory of heckscher-ohlin, it is argued that specialization is provided with that country uses the cheaper input more intensively

Micheal porter and paul krugman, pioneers of modern approach, pulling off international competitive power from being country based, considered it at the level of the sector and country. Porter, in his theory, unlike the approaches of classic comparative advantages, put forward that competitive advantage was not production advantage or price competition and it introduced a new determinatives forming the competitive power such as cost, product diversification, new product, and different technology (miral, 2006: 27). Krugman defines the competitive power as providing foreign trade balance of a country and raising its life standard. Krugman expressed that businesses can finish their activities but, setting out that this situation will not occur in the country economies, made a metaphor. In other words, he suggests that that businesses becomes unsuccessful in competition will mean that a lot businesses being in active in the same country also becomes unsuccessful (krugman, 1994: 34).

9<sup>th</sup> development plan was prepared with the vision of turkey *“that grows in stability, shares its incomes more justly, has competitive power, transforms into information society, and completed the adaptation process for membership to eu”*, and in the framework of long termed strategy (2001- 2023). In the determination of vision strategies of first agricultural sector, in the period before and after 9<sup>th</sup> development plan, the plans and works, prepared in this direction, were taken into consideration. In the definition of these plans, increasing the competitive power of sector is especially emphasized. Setting out the need for the studies toward introducing the competitive power of agricultural sector in the international arena, in the study, it was aimed to determine the competitive power of sector in the sub-sectors of cereal –legume and vegetable –fruit in the face eu countries and to present the existing situation. Thus, instead of presenting the existing situation of sector with a static

analysis, identifying the variations in the competitive power of the agricultural products in time, making a dynamic prediction on the next period is targeted.

## 2. Data set and method

### 2.1. Data set

In 21<sup>st</sup> century, the sectorial competition analyses, carried out at only national level, are not adequate in presenting the existing situation of the country economy. In this framework, there is a need for studies, in which in the recent years, the place of country economies in the world economy and different country groups are considered and the national competitive power and international competitive conditions are discussed.

In measuring the international competitive power, in literature, a number of methods, different from each other, are used. In this study, for [measuring] the competitive power of turkish cereal sector in face of eu market, calculating revealed comparative advantage index (akü), relative export advantage index (rxa), relative import advantage index (rma), and relative trade advantage index (rta), it was wanted to present the competitive power of turkey in face of eu countries, the important foreign trade partners of turkey. At the end of study, it is targeted whether the cereal sub-sector of turkey has “exposed comparative advantage or disadvantage” in face of eu market. In the data used in measuring the competitive power, the period of 1990 -2011 was based on and the data were compiled from faostat website. Thus, setting out the index results obtained, it is aimed to form the suggestions of effective policies toward the cereal sector of turkey.

### 2.2 Method

In this section, the methodological properties of indexes presenting the competitive power of sector in the study will be given place.

#### 2.2.1 exposed compared advantageindex (akü/ecai)

The person first introducing the theory of comparative advantages to literature is liesner(1958) (liesner, 1958: 302-316). Liesner (1958) using this theory to present the comparative power of united kingdom in face of european common market (ecm/aet) employed simple akü measure.

$$Akü=x_{ij}/X_{nj}$$

In this formula, while  $x_{ij}$  denotes the export of goods j of country i,  $x_{nj}$  denotes the export of goods j of the country or country group of in number of n.

This approach was later improved by balassa (1965) and, in explaining the competitive power in a number of the national and international literature, method of exposed comparative advantage (akü) are most commonly used in explaining the competitive power. Akü index was used in evaluating specialization in international trade and, in addition, has been also used in determining the role of factor incomes and intensities in practice (kum, 1999: 167).

Index indicates the rate of the total export of a sector or a certain group of goods in a country to [the export]in the same sector or group of goods in world or any group of country. In other words, index is a determinative indicator presenting the specialization level of a sector or a certain group of goods in the group of world and a different country.

Akü index;

$$Akü=(x_{ij}/X_{nj})/(X_{it}/X_{nt})$$

$X_{ij}$ = the export of goods j of the country i

$X_{nj}$ = the export of goods j of the group of county in a number of n

$X_{it}$  = total sector export of country i

$X_{nt}$  = total sector export of country group in a number of n.

In interpreting the results of akü index (coxhead,2007:1109),

If  $akü > 1$ , the share of export of goods j of country i in the period t is larger than its share in total export of world and country of group in the same period. In other words, the county has a comparative advantage in the product (sector) under consideration and has specialized.

If  $akü < 1$ , the share of export of goods j of country i in the period t is smaller than its share in total export of world and country of group in the same period. In other words, the county has a comparative disadvantage in the product (sector) under consideration and specialization has not become a fact.

If  $akü = 1$ , the share of export of goods j of country i in the period t equals to its share in total export of world and country of group in the same period. In other word, the specialization level of country under consideration actualized in the same level with specialization of the world.

Hinloopen (2001), in order to demonstrate the power of comparative advantage, classified the akü coefficient in the four stages:

$0 \leq akü \leq 1$ ; there is no comparative advantage

$1 < akü \leq 2$ ; there is a comparative advantage in weak degree

$2 < akü < 3$ ; there is a comparative advantage in medium degree

$3 < akü$ ; there is a strong comparative advantage.

#### 2.2.2. Relative export advantage index (rxa)

The second index developed by vollrath is relative export advantage index is equivalent to akü index developed by balassa. The difference between two indexes, for preventing from duplicate counting the country and goods, is a result of subtraction of the commercial values of country, where the competitive power is wanted to be presented, from those of the group of country compared. In this study, since turkey does not take place in group of eu countries, akü index and rx index will turn out equal.

$Akü = rxa$

#### 2.2.3 relative import advantage index (rma)

Relative import index is defined as the rate of [import] of a certain group of goods or a sector in a country to the share in the total import of the same group of goods or sector in the group of country. The fact that index is bigger than 1 is accepted as an indicator of competitive disadvantage; the fact that index is smaller than 1, that of competitive disadvantage (erkan, 2012: 264).

Index is defined as follows:

$$RMA = (M_{ij} / M_{nj}) / (M_{it} / M_{nt})$$

$M_{ij}$  = import of goods j of country i

$M_{nj}$  = import of goods j of group of country in a number of n

$M_{it}$  = total import of country i

$M_{nt}$  = total import of group of country in a number of n

#### 2.2.4. Relative trade advantage index (rta)

Vollrath (1991), developing akü indexes of balassa, introduced three new index to the literature.

Another one of the indexes developed by balassa is relative trade advantage index (rta). Today, in a large majority of applied research related to the competitive power, this index, developed by vollrath, is used. The positive values of indexes suggested by volltrah are interpreted as revealed

comparative competitive advantage, while negative values as revealed comparative competitive disadvantage (Vollrath, 1991: 265-279)

Rta, relative trade advantage index, is calculated by taking the difference between relative export advantage (rxa) and relative import advantage (rma). In this study, since rxa index equals to the akü index developed by Balassa, it was found by subtracting rma from akü index.

$$Rta = rxa(akü) - rma$$

$$Rxa = (X_{ij} / X_{it}) / (X_{nj} / X_{nt})$$

$$Rma = (M_{ij} / M_{it}) / (M_{nj} / M_{nt})$$

$$Rta = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) - (M_{ij} / M_{it}) / (M_{nj} / M_{nt})$$

### 3. Empirical findings

Although the production of legume is commonly used in all of the world, in general the production of certain groups stands out. The subsector legume including the products of lentil, dry bean, and chick pea is a resource of protein for the people more than two billions all over the world and is a product group having 60 million tons of production and \$ 40 billion of market value.

Akü index results presenting the competitive power of Turkish legume subsector in face of EU countries are given in table 1. When the results of akü index are examined for chick pea and lentil taking place in the group of legumes, it is seen that the subsector of legumes have a high competitive power in EU market. According to the results of akü index, it is seen that Turkey has a high competitive power especially in the group of lentil and chick pea; however, in years, that cyclical fluctuations are experienced.

The results of relative import advantage index presenting the competitive power of the subsector of legumes in face of European countries are given in table 2. Due to the fact that the other countries both begin to enter the world markets with the low prices, increasing their productions and productivities, and that the use of certified seed is highly insufficient, the serious decreases were experienced in the production of lentil. This fall in the production of legumes negatively affected especially the production of green and red lentil. Beginning from 1994, in Turkey, becoming functional of drought caused the level of export to decrease and level of import to increase. This situation also affected the trade of chick peas and lentil and led its import to rise and, losing its competitive advantage in face of EU countries, and it to pass to a disadvantageous position. In the same way, in 2008, the fact that the negative weather conditions affect the production and orientate to import also account for the reason for rising in the results of relative import index. For the trade of chick pea and lentil, the results of relative commercial advantage index are given in table 3. When table 3 is scrutinized, even though all of these negativities experienced, in the production of lentil and chick pea, it is seen that the competitive power of Turkey is quite high in face of EU countries and it has a competitive advantage.

Another one of the products taking place in the group of legumes having the most cultivation area in the world and whose production is intensively realized in especially Asian and American countries, is dry bean. Primarily the global climatic change, due to the factors affecting the production negatively, especially in the prices of dry food products, the important rises were experienced and it is predicted their experiencing to continue. When compared to the world markets, in Turkey, that the costs in Turkey is high, as in many products, negatively affects the commercial competition of production of dry bean in international market. When the results of akü index is scrutinized, it is seen from the table that in 2000s, the trade of dry bean began to lose its competitive power in face of EU and, after the year 2004, completely lost its commercial dimension. In the same way, when table 2 is scrutinized, it is seen that relative important advantage index in the trade of dry bean is bigger than 1, in other words, that it has a disadvantage in the competitive power. The results of commercial advantage index are given in table 3. For the trade of dry bean,

when the values of relative commercial advantage index are scrutinized, after the year 2004, it is clearly seen that in face of eu countries, it passed to the case of revealed comparative advantage and, realizing the production at the level to satisfy the need of country, that its large part was used toward the domestic consumption.

In turkey, in the year 2002, the cultivation of 4.2 million decare of chick pea, 2.1 million decare of red lentil, 2.27 thousands of decare of green lentil, and 932 thousands decare of dry bean actualized (tigem, 2013: 26). In face of eu countries, even though some falls at the level of legume competition are experienced, it is known that the export of turkey to especially to the countries of middle east, western europe, north africa, and south asia realized at quite high levels. In the subsector of legume, among the countries, especially, where turkey has a competitive advantage, its export to the countries of sri lanka, iraq, kuwait, egypt, united kingdom, saudi arabia, germany, and jordan take place.

In the developed countries, beside the subventions provided to the producers toward the production of the subsector legume, via strengthening the works of r&d belonging to the group of legumes, very important subventions are granted (tepege, 2012: 4). In this context, in order to be able to increase and sustain the competitive power in face of eu countries and international markets, it is necessary to be subsidized the legumes and, with more organization and a participative approach, institutionalizing r&g structures, to produce and become widespread the technology. Also, for sustaining the competitive advantage in the group of legumes in turkey, it is possible to encourage the use of certified seed and to increase the subvention of producers using the producers using the certified seed.

The group of cereal in the agriculture is of the products, whose the strategic importance is the highest, since the first ages, one of the most important nutrition group produced and consumed by human beings. Wheat, corn, rice, barley, oat, maize, and the other cereals are among the products in the scope of cereal. According to the report of international cereal council, published on the date of august 30, 2013, it is foreseen that in 2014, the production of wheat all over the world will be 691 million ton, its consumption 688 million ton, and its trade 1141 million ton. Due to the fact that in the wheat production of the countries, wheat producers, primarily russia and kazakhstan, such as eu countries, ukraine, australia, turkey, and argentina, some increases are experienced, the year 2013 became an important year in the production of wheat. Eu countries showed about 8 million tons of increase compared to 2013 and spain, germany, and france became the countries having the largest share (tmo,2013:2-3). In the world, it is seen that the consumption of wheat products increases continuously. China, eu countries, and india take place the leading countries among the countries consuming the most amount of wheat. When the case of wheat trade is considered, the value of total wheat export of world in 2012 is about 154 million tons and 30 million tons of this belong to usa, 22 million tons to eu countess, 20 million tons to canada, 17 million tons to russia, and 10 million tons to ukraine. The amounts of export of eu countries in the past year remained almost the same for this year, the exports of the other countries showed increase. Turkey continued to increase the export of flour. In 2012, although an increase in the wheat production of turkey was experienced, the import of wheat, increasing 0.3 million tons, reached 3.5 million ton. Although harvesting period ends before that expected, wheat production of turkey became 18 million ton, showing 2.5 million tons of production increase. (tusaf,2013:1-8)

Turkey, thanks to its climatic conditions with low temperature and abundant amount of humidity, which provide an environment suitable for agriculture, takes places among the leading wheat producers of the world. The size of wheat plantation and wheat production in turkey show a tendency of decrease from year to year due to urbanization, industrialization, and soil erosion. As a reflection of decrease in wheat plantation area, total wheat production of turkey also decreases. In turkey, the amount of wheat harvested per unit plantation, in other words, wheat productivity increases. In turkey, wheat farmland and productivity in wheat production show diversity regionally. If the years of 2000 and 20001 are excluded, turkey became a country net importing country beginning from 1996. The wheat import realized by turkey since 2006 is in the scope of dir. The main reason for the rapidfall in 2007 became drought experienced in the period of interest. Except for this, that the industrialists import the wheat, whose protein value is high, and export bakery products in the form of flour as semi-products or as final products comes to our face as an effective reason in rise of the level of wheat

import. Wheat import of turkey reached usd 1.6 billion in 2011 from usd 450 million in 1996. The countries, from which turkey imports wheat the most, are russia, usa, ukraine, kazakhstan, and brazil. In the production of global wheat flour, while turkey and kazakhstan take place in the first ranks, it is seen that total of eu countries follow this rank (tmo, 2013: 2-3)..

The results of akü index, one of the indexes presenting the competitive power of the trade of wheat and wheat flour taking place in the cereal subsector group in face of eu, are given in table 1. While the competitive power of the trade of wheat flour shows cyclical fluctuation until 2001, after the year 2011, it is seen that the competitive advantage increases in stable way. The reason for this is explained, in turkey, while high quality wheat is transformed into flour, realizing the production of high quality wheat, as using it in the production of local bread and bakery products

In table 2, for the trade of wheat and wheat flour, the results of relative import advantage index are given. When table 2 is examined, in the trade of wheat, it is seen that while the values of relative import index is bigger than 1, in the trade of wheat flour, the results of index is smaller than 1. In other words, it is seen that while there is no competitive advantage, there is a competitive advantage in the trade of wheat flour. In the recent years, the decrease of wheat production and use of production in satisfying the needs for domestic market caused the export of wheat to decrease and its import to increase. Although there is an increase in the productivity of wheat, production does not actualize in such that it will meet the increasing demand, depending on the population increase. The flour plants mostly use the alternative products of tmo, import and farmer. That the share of import in the supply of wheat reveals the trouble experienced in the supply of raw material. The import of wheat is not only made for the insufficiency of production but also the quality of wheat produced in home is not at the desirable level. Especially, in the recent years, for eliminating this problem, the duty free import of wheat is permitted. This policy is a temporary solution for a certain period in the industry exporting the wheat flour but comes into our face as an element increasing the cost as well as a negative factor for the farmer and consumer. Turkey taking place in the third rank in the flour export in the world imports wheat instead of importing flour and realizes the flour production from the imported wheat. Turkey imports most of bread wheat from russia federation, germany, ukraine, lithuania, moldavia, hungary, bulgaria, usa, and leetonia; durum wheat, from greece, canada, spain, france, kazakhstan, and italy (oaib, 2010: 10). In table 3, the results of relative trade advantage index take place. When the results are evaluated for the wheat and wheat flour, due to the fact that the wheat is processed, transformed into the wheat flour, and presented to the market, it is seen that there is a comparative disadvantage in the trade of wheat, while in the trade of wheat flour, there is a comparative advantage. Setting out from the results of index, in the sectors of the wheat and wheat flour, in order to provide the competition in face of eu and to make this sustainable, it is seen that there is a need for effective policies. For the sector of wheat flour to compete with eu countries, it is necessary to subsidize it. In turkey, the increase in the costs of wheat production reflects on the prices and this case also makes it difficult the competition with eu. In the recent years, in turkey, due to the fact that the increase in the production of wheat is not enough; that high quality wheat cannot be produced; that the product diseases cannot be prevented; and the insufficiencies in the flour storage and protection, the import of wheat increases. The most important one of the reasons affecting the export performance of wheat flour arises from supplying the cheap and high quality wheat, because the cost of wheat produced in turkey is considerably higher than the wheat costs in the world. Therefore, the competition of turkey in the trade of wheat becomes difficult. Setting out from these problems, also in the scope of dir, there is need for the projects prioritizing the export. Thus, in order to enable for the wheat to be supplied from the world prices, permission document to process in home must be arranged the contractual farming application, applied in some products in the past years should also include the wheat and, thus, high quality wheat should be supplied from turkey. Application of contractual farming, one of the actions to be taken for reducing the risks and unclearness forming in the production, should be supported and become widespread by the government

Another product taking place in the product group of cereal also forming the basis of turkish economy as much as that of world economy is barley. Although the direct consumption of barley in

human nutrition is quite less, it has a feature of becoming consumable in terms of livestock sector, beside this, it is used as an important raw material in the industry of mixed feed and malt (tepge,2007:2). In the production of barley, the group of eu countries, usa, russia, and canada take place in the first ranks in the world. According to the yield of barley in the world, it is seen that turkey takes place in the 5<sup>th</sup> rank. In the period of 2011 -2012, it is predicted that the production of barley that is 134.3 million ton, due to the drought experienced in russia and ukraine, decreasing by 3% in the period of 2012 -2013, will fall to the level of 130.1 million ton (tmo,2012-5). In turkey, 21% of cereal production that is 33.4 million ton in 2011 consist of barley production.

When the results of akü index taking place are scrutinized, it is seen that the competitive advantage of turkey in face of eu showed an increase in a few years and, however, that three is no stability. When the results of relative import advantage taking place in table 2 are scrutinized, it is seen that the results of index are smaller than 1, in other words, there is no a disadvantageous case. In table 3, when the results of relative trade advantage are examined, it is seen that a great majority of index results consist of positive values near zero. According to the results of relative trade advantage, it is seen that the trade of barley has no a comparative advantage and disadvantage. When the results of every three indexes are compared, it is seen that, just the trade of barley has no a competitive advantage in face of eu, it has no a disadvantageous position. That is, it is seen that turkey has an economic self-sufficiency in the barley production, however, in eu market, that it has no dimension of commercial competition.

Besides corn, another product taking place in the group of cereal, is used as human food and animal feed, it is also consumed as raw material of many products in industry. In the developed countries, a large part of corn consumed is used as animal feed, in the less developed and undeveloped countries, large part of it is also used in human nutrition. All over the world, it is estimated that 60% of corn produced are used as animal feed, 20% as human food for direct consumption; 10% as processed food, and 10% as the other consumptions and seed. Beside the diversity in the use of corn, the effect of the increasing population, increase of demand for the processed products, desire of healthy life, increase of animal production, and continuous increase of demand in the various lines (food, fodder, starch, cosmetics, seed, snack, frozen food) of industry caused world corn production to increase.

While the production of corn, in the developing countries, in asia, take place in the second rank following the wheat and paddy, it takes place in latin america and africa. Corn, in the world, takes place in the second rank in cereal as plantation, while in the production in the first rank. 32% of world corn production are realized in usa, 24% in china. As in the production, also in the consumption of corn, usa, china, and eu countries take place in the first ranks (tmo,2013: 8). While brazil takes the first rank in the export of brazil with the share of 28%, this country is followed by usa with the share of usa and argentina with the share of 20%. While it is expected that the high demand increases the global trade, the global corn trade of the period of 2010-2011, compared to the period of 2009 -2010, rose to 94.4 million ton with the increase of 8.2 million ton that is the highest value of the last three years. According to the predictions of corn import, while japan takes the first rank with the share of 17%, this is followed by mexico, south corea, egypt, and eu countries (uhk, 2012: 18-19).

The developments in the world corn production revealed in the first five years, depending on the five main factor. These are the climatic factors, such as the increase in the demand of bioethanol and fodder, drought, and the rises in the agricultural prices. The use of biofuels in the energy sector is newly developing and their use areas become widespread. Therefore, some countries, particularly tax exemption, with some incentives, subsidize the production of biofuel, and increase the rate of blending. Industrial purposed corn consumption, including bioethanol standing out among the products that are alternative to oil, is gradually increasing. Especially the developed countries, that the countries wanting to increase the share of renewable energy in satisfying their energy needs support the alternative fuels such as ethanol with the applications such as tax advantages indicates that this increase will also continue in the future (oecd, 2011, taşdan etal. 2011). In the use of ethanol purposed corn, usa and brazil are of the countries in the first ranks. In usa, in the last five



years, due to increase in the ethanol production, in the period of 2000-2010, the production of corn increased eight times. The increase especially accelerated after 2005 and ethanol production that is 3.9 billion gallons in 2006 rose to 13.6 billion gallons in 2010 and, for this amount of ethanol, 118 million tons of corn were used. According to the predictions of the year 2011, USA taking place in the first rank in world corn consumption with the share of 35% is followed by China, EU, Brazil and Mexico. The consumption of USA and China correspond to 55% of total consumption.

Corn is one of the cereals produced the most after wheat and barley. In the recent years, on the reasons for subsidizing the production of corn, considerable amount of increases in the production of corn the production of corn of Turkey that is 1.24 million tons in 1980 realized as 4.31 million tons in 2001 with the increase of 87% of increase compared to 2010. The most important reasons for this increase in the production of corn are that in the regions intensively making production, the use of hybrid seed becomes widespread; the developments in the production techniques, and corn productivity that increases, depending on these. The productivity of corn in Turkey, with 7.26 ton/hectare, remains above the world average, but below USA average (UHK, 2012: 23). Throughout long years, since it cannot satisfy domestic consumption, the corn that is needed were satisfied with import. In 2004, together with beginning to subsidize the production of corn with premium, the important increase realized in plantations and production and, in respect with 2012, in Turkey the case of self-sufficiency reached the level of 80% (UHK, 2012: 2). The largest share in the production of corn in Turkey is used as the material of fodder with the consumption around 70%. The second sector, where corn is used the most, is the sector of starch with its consumption capacity amounting to 20%. The trade of corn, in which the considerable increases are expected in the recent years and, depending on, the increase of the use of corn occur in the industrial consumption the production of ethanol, as in the world, also in Turkey, became an important sector, whose increase are continuing in accelerating way.

When the results of AKÜ index in table 1 is scrutinized, it is seen that the trade of corn does not have a competitive advantage in face of EU countries. In the trade of corn, table 2, the results of relative import index, is considered, although an increase is experienced in the production of corn of Turkey, it is seen that its import is quite high and there is a comparative disadvantage in the trade of corn. With effect of "biosecurity regulation" coming into force in September 2009, it is seen that import of corn decreases. With this regulation, the important limitations were brought for the import of the products in attribute of genetically modified organism the results of relative trade index for the trade of corn is given in table 3. When table 3 is scrutinized, it is seen that the index values in the trade of corn are negative in the period of 1990-2011 and has a comparative disadvantage. In Turkey, despite to giving important subventions the cultivation of corn in the last periods and experiencing the important production increases, it is seen that in face of EU, Turkey has still a exposed comparative competitive disadvantage

Table-1. Results of AKÜ index of Turkey cereal subsector,

	Dry bean	Chick pea	Lentil	Wheat flour	Wheat	Barley	Corn
1990	19,80	2662,69	1281,49	2,05	0,06	0,11	0,16
1991	1,92	512,19	161,49	1,59	1,04	0,78	0,02
1992	2,15	314,90	138,79	1,07	1,48	0,66	0,01
1993	4,59	629,53	543,38	2,21	0,68	0,81	0,17
1994	1,57	261,86	353,77	1,99	0,71	1,41	0,16
1995	2,72	224,30	228,10	3,44	0,22	2,10	0,01
1996	25,97	427,02	557,63	4,16	0,01	0,55	0,02
1997	24,08	792,90	201,18	3,93	0,01	1,38	0,03
1998	7,00	161,37	165,59	1,30	0,66	2,83	0,01
1999	6,55	179,12	110,12	1,23	1,39	0,50	0,01
2000	2,88	71,76	120,14	2,09	1,46	0,31	0,01

2001	14,32	274,70	250,80	1,43	1,19	0,48	0,03
2002	6,30	359,64	232,57	3,03	0,07	3,02	0,03
2003	8,30	432,89	280,94	6,01	0,00	1,27	0,04
2004	4,31	281,71	216,31	8,69	0,00	0,00	0,04
2005	0,32	166,56	81,85	10,68	0,18	0,41	0,19
2006	0,58	129,53	208,63	6,88	0,37	0,79	0,32
2007	0,50	112,76	170,65	11,37	0,02	0,49	0,02
2008	0,88	203,36	83,90	14,75	0,01	0,00	0,04
2009	2,69	133,55	103,88	12,33	0,14	0,68	0,44
2010	0,23	70,78	149,04	11,24	0,45	0,73	0,01
2011	0,25	48,94	194,16	15,41	0,00	0,01	0,02

The results of relative import advantage index belonging to the cereal subsector are given in table 2.

Table-2. The results of relative import advantage index of turkey cereal subsector

	Dry bean	Chick pea	Lentil	Wheat flou	Wheat	Barley	Corn
1990	1,24	0,02	0,00	0,35	5,84	1,82	1,74
1991	0,02	0,00	0,00	0,00	1,15	1,21	0,68
1992	0,03	0,00	0,00	0,05	0,31	0,39	1,12
1993	0,27	0,00	0,00	0,00	3,14	0,62	0,44
1994	1,75	0,00	1,46	0,00	2,69	2,84	0,12
1995	1,50	0,22	3,14	0,00	3,14	0,31	2,50
1996	0,05	0,04	1,30	0,00	3,58	0,28	3,00
1997	2,96	0,41	15,52	0,01	3,96	0,11	2,58
1998	3,92	7,79	17,25	0,01	3,06	0,91	2,82
1999	1,13	3,16	15,25	0,02	3,19	0,50	3,16
2000	1,63	2,22	25,98	0,05	1,68	0,29	4,42
2001	4,68	7,16	35,10	0,00	1,01	0,45	3,37
2002	3,54	3,72	5,45	0,00	1,74	0,11	4,34
2003	0,39	0,01	3,01	0,00	2,44	0,46	4,62
2004	1,01	0,14	1,10	0,00	1,67	1,19	2,98
2005	3,28	0,20	12,93	0,00	0,21	0,31	0,66
2006	2,67	0,58	14,22	0,00	0,40	0,40	0,09
2007	2,06	0,96	4,66	0,00	2,47	0,23	1,49
2008	2,39	1,65	25,90	0,01	3,72	0,92	1,48
2009	3,06	1,09	24,29	0,04	3,26	0,34	0,88
2010	2,14	1,68	29,51	0,01	2,41	0,20	0,81
2011	1,65	1,75	40,59	0,00	4,26	0,11	0,50

The results of relative trade advantage belonging to cereal subsector are given in table 3.

Tablo-3. The results of relative trade advantage index of turkey cereal subsector

	Dry bean	Chick pea	Lentil	Wheat flour	Wheat	Barley	Corn
1990	14,0	2049,9	986,56	1,23	-5,79	-1,74	-1,62
1991	3,59	963,39	303,75	2,99	0,8	0,26	-0,64
1992	3,81	560,75	247,15	1,86	2,33	0,79	-1,1
1993	5,7	819,13	707,04	2,88	-2,26	0,44	-0,22
1994	0,99	456,28	614,96	3,46	-1,46	-0,39	0,16
1995	2,42	322,49	325,05	4,94	-2,82	2,7	-2,49
1996	29,14	480,02	625,6	4,67	-3,57	0,34	-2,98
1997	33,59	1203,3	289,89	5,96	-3,93	2,00	-2,54
1998	9,58	303,59	302,29	2,51	-1,78	4,54	-2,79
1999	9,08	276,08	156,43	1,9	-1,03	0,28	-3,14
2000	2,73	106,38	155,85	3,11	0,53	0,19	-4,4
2001	11,53	303,71	248,72	1,62	0,33	0,09	-3,33
2002	2,65	349,42	222,92	2,97	-1,67	2,86	-4,3
2003	8,7	474,01	304,62	6,58	-2,44	0,92	-4,57
2004	3,88	319,26	244,15	9,85	-1,67	-1,19	-2,93
2005	-2,67	317,85	143,37	20,39	0,14	0,47	-0,3
2006	-1,66	223,15	346,12	11,88	0,25	0,97	0,46
2007	-1,38	151,89	226,64	15,41	-2,45	0,43	-1,46
2008	-1,44	218,46	64,91	15,95	-3,71	-0,92	-1,43
2009	0,94	196,81	129,64	18,23	-3,05	0,67	-0,22
2010	-1,77	114,26	214,62	18,41	-1,68	0,99	-0,78
2011	-1,33	61,27	209,44	19,84	-4,25	-0,1	-0,48

#### 4. Conclusion

Examining the agricultural sector from every aspect, the necessity to restructure it in accordance with the requirements of the age comes to our face as a reality accepted by every sector of society. In this thesis, based on a comprehensive database, the results belonging to the competitive level of agricultural sector is summarized in table 4.

When the table is examined, in face of eu market, it is seen that the competitive power of turkey taking place in the trade of the lentil, chick pea, and wheat flour is considerably high. In the cereal-legume subsector, in the dry bean, wheat, and corn, the value of index turned out negative, that is, for these products, the conclusion that turkey does not have a competitive power in eu market. In other words, it is possible to say that turkey is in a foreign dependent position for these products. When regarding to the competition results obtained, it is exhibited once more that the sector should be evaluated as a whole.

Table- 4. The results of competitive power for turkey cereal subsector

	High competitive power	Middle competitive power	It only provides economic self-sufficiency	There is no competitive power
Dry bean				X
Lentil	X			
Chick pea	X			
Wheat				X
Wheat flour	X			
Corn				X
Barley			X	

Agricultural sector is accepted as a vital economic resource, due to the fact that it directly satisfies the nutrition need of people in all economies and that it is a driving resource for economic development. When the economic developmental processes of the countries, accepted as industrialized, are examined, it is seen that they largely obtained these successes from the agricultural sector. In the first stages of economic developmental process, agricultural sector, the resource of saving and investment is an important resources providing the capital accumulation for industrializing and financing the investments. Therefore, in none of the developed countries, just as the agricultural activities are not accepted independent from industry is seen that in the improvement of industrial sector, agricultural sector undertook a fostering and preparing role. In other words, in case that turkey, in the developing process, cannot provide a parallel development between the agricultural and industrial sectors, it shows that in face of conjuncture in the world markets, it will not be able to arrive a competitive dimension.

Setting out from the result of both analyses carried out for the products, the suggestions toward the agricultural sector are put in order as follows:

- for being able to increase the effectiveness of sector, it is considered that the policies that are suitable for the agricultural structure, in addition, strategies, in which the structural features of each sector are taken into consideration, should be developed
- while the government forms a policy, it should take into consideration the innovations and developments in the world agriculture .
- for increasing the effectiveness of the agricultural sector, there is absolutely need for improving the incomes of producers and making subventions of products
- moving from the logic of traditional agricultural business administration, it is necessary to encourage the modern agricultural techniques and the producer to take training about this subject.
- it is necessary to from a logic of agricultural business administration, in which the producers can stand on their feet, adapting the market conditions.
- in order to develop the agricultural based industry and to be able to increase their sustainability in the long period, they should be subsidized by the ministry.
- it is seen that the agricultural products that are under consideration in foreign trade are especially introduced to the market freshly. Therefore, the added value of products remain very below that expected. In order to increase, the value added, it should be paid attention to improve the products in terms of quality norm, and standards for being able to take more share from the world markets, whose combative conditions become difficult every passing day. In this framework increasing the market share of products, for raising its value added, it is necessary to develop new marketing techniques so that they can satisfy the demands of consumers.

- it is necessary to from a research, communication, publishing, and educational system and thus, to provide to continuously increase the productivity.

#### References

- Erkan, birol (2012). Türkiye'nin geleneksel ihracat ürünlerinde uzmanlaşma düzeyi. *Sosyal ve beşeri bilimler dergisi*, c:4, no:1, issn: 1309-8012, 75-93.
- Erkan, birol (2012). Ülkelerin karşılaştırmalı ihracat performanslarının açıklanmış karşılaştırmalı üstünlük katsayılarıyla belirlenmesi: türkiye-suriye örneği. *Zonguldak karaelmas üniversitesi sosyal bilimler dergisi*, cilt/sayı: 8, sayı: 15, 195-218.
- Aktan, coşkun can (2003). Türkiye'de üretim ve istihdama yönelik ulusal rekabet gücü politikası, *tisk ve milliyet gazetesi*, ankara, 2003, 115-116.
- Porter, micheal (1990). *the competitive advantage of nations*, harvard business review, imf world economic outlook, may 1997.
- Miral, zehra ceren (2006). *Açıklanmış karşılaştırmalı üstünlükler ve türkiye'nin avrupa birliği'ne karşı rekabet gücü: seçilmiş tarımsal ürünler için bir uygulama*, dokuz eylül üniversitesi, sosyal bilimler enstitüsü yüksek lisans tezi.
- Demir, musa (2004). *dış ticaret işlemleri ve muhasebesi*, detay yayıncılık, ankara.
- Sharma, abhijit (2004). The indian economy since liberalisation: the structure and composition of exports and industrial transformation (1980-2000), *industrial dynamics, innovation and development*, united kingdom.
- Krugman, paul (1994). *Competitiveness: a dangerous obsession*. Foreign affairs, 73, no: 2.
- Liesner, h.h. (1958). the european common market and british industry, *economic journal*, 68, 302-316.
- Balassa, bela (1965). Trade liberalisation and 'revealed' comparative advantage, *the manchester school*, 33, 99-123.
- Balassa, bela (1977). Revealed comparative advantage revisited, *the manchester school*, 45, 327-344.
- Balassa, bela (1989), *comparative advantage, trade policy and economic development*, harvester wheatsheaf, new york.
- Kum, hakan (1999). Rekabet gücünü belirleyen faktörler: yeni yaklaşımlar, erciyes üniversitesi, *i.i.b.f dergisi*, sayı:14, 165-179
- Coxhead, ian, (2007). A new resource curse? impacts of china's boom on comparative advantage and resource dependence in southeast asia. *World development*, 35, no:7.
- Tepge (tarımsal ekonomi ve politika geliştirme enstitüsü) (2012). dünya ve türkiye'de kuru baklagiller, mehmet ali özdem, tepge bakış, ocak2012/issn:1303-8346/nüsha:7.
- Tmo (toprak mahsulleri ofisi genel müdürlüğü) (2012). 2012 yılı hububat sektör raporu, ankara 2013.
- Tusaf (2013) türkiye un sanayicileri federasyonu, buğday raporu, eylül 2013, <http://www.usf.org.tr/tr/dosya/1-1952/h/bugday-raporu--eylul.pdf>
- Oaib (orta anadolu ihracatçı birlikleri genel sekreterliği) (2010). Hububat sektör raporu, temmuz 2010, <http://www.hububatbirlik.org/content/docs/hububat-sektor-raporu.pdf>.
- Uhk (ulusal hububat konseyi) (2012). Mısır raporu, ekim 2012. [Http://uhk.org.tr/dosyalar/misir\\_dusuk.pdf](http://uhk.org.tr/dosyalar/misir_dusuk.pdf)