



ECONOMIC ANALYSIS OF ENDEMIC WHEAT AND KARAKILÇIK

ENDEMİK BUĞDAYLARIN İKTİSADİ ANALİZİ VE KARAKILÇIK

Assistant Prof.Dr. Ali BİRVURAL

Iskenderun Technical University, Faculty of Business and Management Sciences, Department of International Trade and Management, Hatay, Turkey

ORCID ID: 0000-0001-8373-7486

Cite As: Konakoğlu, Z.N. & Kurak Açıcı, F. (2021). "Economic Analysis Of Endemic Wheat And Karakılçık", International Social Mentality and Researcher Thinkers Journal, (Issn:2630-631X) 7(54): 3523-3530.

ABSTRACT

Wheat is grown today on a very wide range of fields, from temperate climates to the north of Europe, from South America to tropical countries. Wheat, wheat products and bulgur have been one of the most important food sources of the Turkish people both in the past and today. In addition to nutrition, wheat and bulgur have great cultural, social and historical value. Wheat is a revered and sacred product due to the great value it carries. Wheat has an increasing importance not only for Turkey, but also for the nutrition of the world's people. It is the most produced product after corn and rice among the cereals grown in the world. There are hundreds of local varieties in Turkey, which is home to 28 wild wheat taxa, and as of 2016, there are 198 bread and 61 durum registered varieties. Despite the great importance it carries, recently opinions have been expressed that wheat is a very harmful product that triggers diseases such as obesity, diabetes, and as a result of breeding studies, it is a genetically modified organism that should not be consumed by humans. This review describes the genetic sources of wheat, the history of wheat breeding in our country, the varieties developed from the past to the present, the history and current status of local wheat varieties, and the facts in the face of propaganda against wheat.

In the case of wheat species cultivated in Turkey and the parents of these species, it is the gene and diversity center of wild species. These species are the main source of adaptation of wheat to various conditions, its spread, evolution and evolution, as well as the genetic progress that has resulted in the development of modern varieties.

Wheat farming in Turkey dates back to 10 000 years ago, when wheat first entered human life. Archaeological studies show that the place where wheat first appeared and spread around the world was the Fertile Crescent Region covering the southeast of Turkey. Turkey ranks first in the world in terms of the wild relatives of wheat it hosts. All the relatives that make up modern wheat and are in the first gene pool are located in Turkey.

Key Words : Wheat, Fertile Crescent, Hatay, Karakılçık.

ÖZET

Buğday günümüzde ılıman iklimlerden Avrupa'nın kuzeyine, güney Amerika'dan tropik ülkelere kadar çok geniş bir sahada üretilmektedir yetiştirilmektedir. Buğday, buğday ürünleri ve bulgur hem geçmişte hem günümüzde Türk insanının en önemli besin kaynaklarından biri olmuştur. Buğday ve bulgurun beslenme yanında kültürel, sosyal ve tarih değeri çok büyüktür. Buğday taşıdığı büyük değere bağlı olarak saygı duyulan, kutsal sayılan bir üründür. Buğday sadece Türkiye için değil aynı zamanda dünya insanının beslenmesinde de giderek artan bir öneme sahiptir. Dünyada yetiştirilen tahıllar içinde mısır ve çeltikten sonra en fazla üretilen üründür. 28 yabani buğday taksonuna ev sahipliği yapan Türkiye'de yüzlerce yerel çeşit ve 2016 itibarıyla 198 ekmeçlik, 61 makarnalık tescilli çeşit bulunmaktadır. Taşıdığı büyük öneme rağmen son zamanlarda buğdayın obezite, diyabet gibi hastalıkları tetikleyen çok zararlı bir ürün olduğu, yapılan ıslah çalışmaları sonucu insanlarca tüketilmemesi gereken bir genetiği değiştirilmiş organizma olduğu şeklinde görüşler bildirilmektedir. Bu derlemede buğday genetik kaynakları, ülkemizde buğday ıslahının tarihçesi, geçmişten günümüze geliştirilmiş çeşitler, yerel buğday çeşitlerinin geçmişi ve güncel durumu ile buğday aleyhine yapılan propagandalar karşısında gerçekler anlatılmaktadır.

Türkiye kültürü yapılan buğday türleri ve bu türlerin ebeveynleri durumunda yabani türlerin gen ve çeşitlilik merkezidir. Bu türler buğdayın çeşitli koşullara uyumu, yayılması, evrimi ve evrimi yanında modern çeşitlerin geliştirilmesiyle sonuçlanan genetik ilerlemenin de ana kaynağıdır.

Türkiye'de buğday tarımı, buğdayın ilk kez insan yaşantısına girdiği 10 000 yıl öncesine dayanmaktadır. Arkeolojik çalışmalar buğdayı ilk kez ortaya çıktığı ve dünyaya yayıldığı yerin Türkiye'nin güneydoğusunu da kapsayan Verimli Hilal Bölgesi olduğunu göstermektedir. Türkiye ev sahipliği yaptığı buğday yabani akrabaları bakımından dünyada ilk sırayı almaktadır. Modern buğdayı oluşturan ve birinci gen havuzunda bulunan tüm akrabalar Türkiye'de bulunmaktadır.

Anahtar Kelimeler : Buğday, Bereketli Hilal, Hatay, Karakılçık

1. INTRODUCTION

Ten thousand years ago, a woman probably staggered while returning to her shelter in an area called the fertile crescent, which covers the south of Turkey, and some of the seeds she spilled on the ground. Later, these plants, which were the ancestors of wheat, germinated and the great invention called agriculture began. Hot spring in our country, which is the ancestor of modern wheat (t. einkorn, known as monocoque), is currently cultivated in mountainous areas. The importance of the selection made by the farmers who came from those days to the present day in the transition from the genetic material ten thousand years ago to the modern varieties cannot be denied (Cabi & Doğan, 2009:447).

Wheat, barley, paddy and other crops represent the great and rich farmer knowledge stored inside the seed in this thousands year old agricultural revolution. Modern plant breeders sometimes forget about this and consider themselves the only source of innovations and intellectual property. In the process that started with the green revolution after 1960, farmers began to lose their power over seeds. Yesilmaz Yılmaz then increased his hegemony over the seeds of large companies. It turned out that the ecological, economic and social cost of this process, which is perceived as modernization, is quite heavy (Douthwaite, 2002: 19).

As in Turkey today, the proportion of seeds produced and used by villagers and farmers in the world is still quite high. Even in countries such as Argentina, Australia, Canada, this ratio varies from December 65 to Dec 90%. In addition to the fact that the seed industry tends to grow with monopolies, agricultural chemicals can also have a multiplier effect on companies by using GMO tools together. The fact that the seed varieties of companies can only be grown with agricultural drugs and fertilizers forces farmers to buy the products of companies. GMO seeds give these companies an even greater new power (Ozkaya, 2007:40).

For example, a variety resistant to herbicides is being developed by GMO methods. However, the herbicide to be used is the company's trademark herbicide. Therefore, seeds and herbicides are marketed together, increasing each other's sales. Complementary goods, almost inseparable brands are being created (Ozkaya, 2007:46).

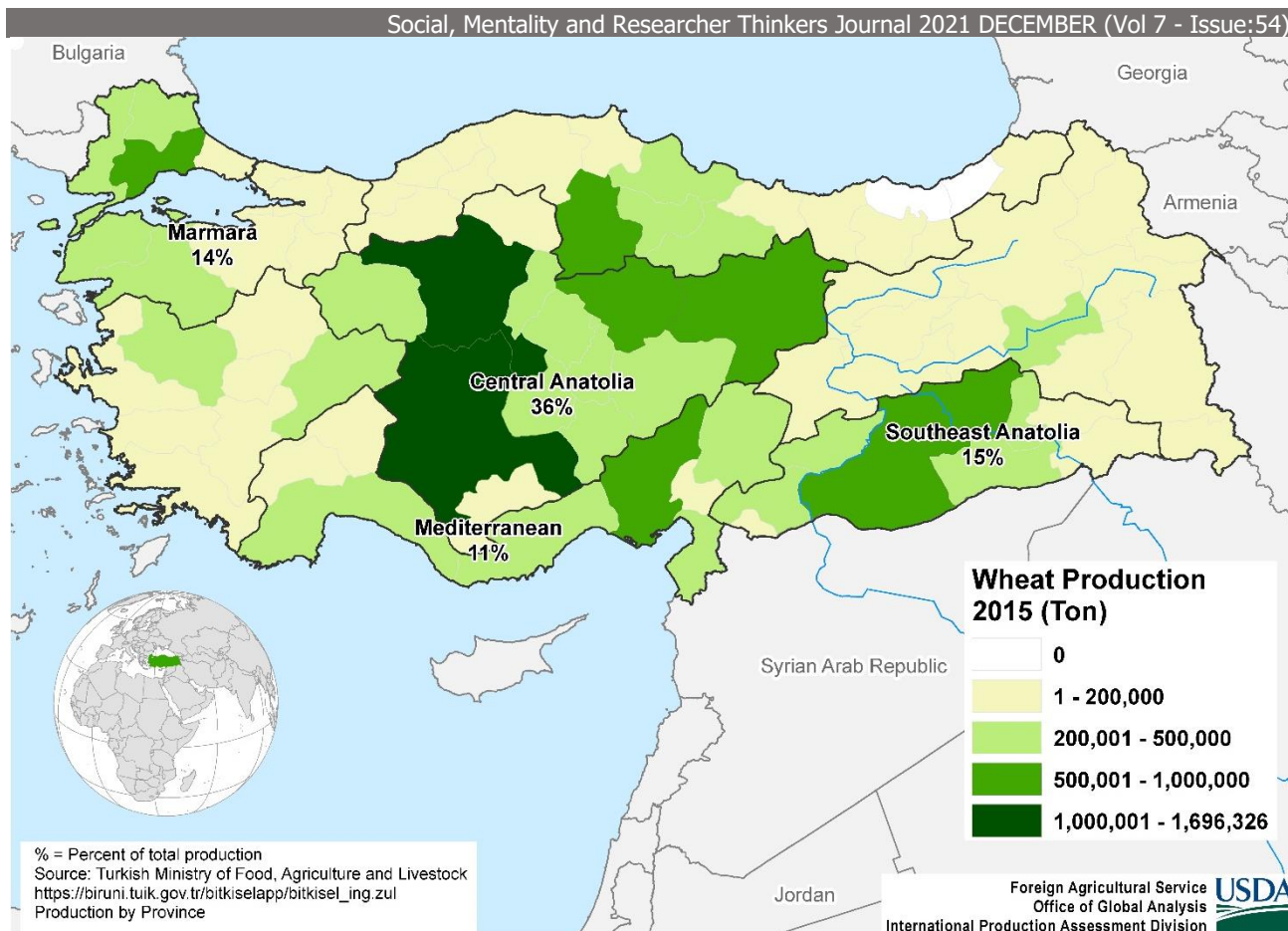
2.WHEAT AND BREAD

The most valuable wheat-related product in all places where wheat is produced in Turkey is bread. Bread has the most important place in the food consumption of the Turkish people. Breads produced using local products are part of Anatolian culture with their production techniques and tastes specific to the regions. Among the bread varieties, there are many more local varieties besides those known by the names of yufka, lavash, tandyr, sac, fetir, kömbe, bazlama, pas decuz. In some regions, there are also local varieties of bread made with additives such as chickpeas and potatoes. Wheat culture is not limited to bread in Anatolia, but also widely used products such as kadayıf, yufka, bulgur, couscous, eriş, pasta, keşkek are consumed.

Bread has been accepted as an indicator of existence in human life and a symbol of man's struggle for life. This situation is best expressed by the phrase "bread fight". It is sometimes very difficult to earn bread, because "bread is in the lion's mouth". When the first tooth of a newborn child comes out, dental wheat or dental floss is boiled, consumed with neighbors and relatives (Ozkaya, 2007:48).

The first produced bread was probably obtained by baking the dough obtained by mixing roasted or ground cereal grains with water. Similar types of this bread were produced in the following years and are still produced in different countries today as yufka, pita or lavash. For example, chapati, roti, naan in India; tortilla in Mexico, lavash in the Middle East and Central Asia, pita in the Middle East, etc. In Egypt, 12 000 years AGO, plain bread with the name ta was produced and marketed in villages. Since people were fed by hunting and gathering in the Palaeolithic era, they were fed mainly on protein and fat. The consumption of cereals and bread by humans as a staple food occurred about 10 000 years ago, in the Neolithic era (ZMO, 1970: 37).

Wheat farming in Turkey dates back to 10 000 years ago, when wheat first entered human life. Archaeological studies show that the place where wheat first appeared and spread around the world was the Fertile Crescent Region covering the southeast of Turkey. Turkey ranks first in the world in terms of the wild relatives of wheat it hosts. All the relatives that make up modern wheat and are in the first gene pool are located in Turkey. Wild and cultured wheat was collected in two genera, *Aegilops* and *Triticum*, and at the level of three different ploids (diploid, tetraploid and hexa). The density of wheat growing areas in today's Turkey is shown in Fig.1 is shown. From a regional point of view, the Central Anatolia Region and the Southeastern Anatolia Region produce the most.



Graph:1. Turkey: Wheat Production https://ipad.fas.usda.gov/rssiws/al/crop_production_maps/metu/Turkey_wheat.jpg

3. GREEN REVOLUTION

Industrial agriculture, also known as factory agriculture, is based on the industrial production of livestock, fish and crops. The methods used aim to produce the most output at the lowest cost. Their application is much more common in developed countries, and the resulting products are often offered for sale in supermarkets. The practice of industrial agriculture began in parallel with developments quite recently in the 10 thousand years history of agriculture. New practices in agriculture, which began at the end of the 1800s, are closely connected with developments in different industrial activities, which is called the Industrial Revolution. We can summarize the development effects of industry on agriculture in the form of the introduction of machinery into agriculture, the application of biology and chemistry to agriculture, the economic impact of sea and land transportation developments on agriculture (Perkins, 1997:37).

The identification of nitrogen and phosphorus as important factors in plant growth stimulated the production of synthetic fertilizers, which made intensive agriculture possible. The discovery of vitamins, it allowed them to be used as supplements in animal nutrition in the first 20 years of the 20th. century. Farm animals began to be bred indoors in order to be isolated from the adverse conditions of nature. The discovery of antibiotics in the 1940s allowed diseases to be easily controlled and farm animals to be raised together in large numbers. 2. Types of chemicals Their development for use in World War II increased the use of synthetic pesticides (the generic name of pesticides used against pests and weeds) in agriculture.

Green parlance of the revolution in agricultural production between the 1940s and 1960s, which led to a marked increase in agriculture in developing countries were used to exactly define the transformation. This change has occurred as a result of agricultural research, dissemination and infrastructure development programs as a result of the great support of the Rockefeller and Ford Foundations and governments.

Green Revolution started in 1943 with the establishment of the Office of Special Studies in Mexico in cooperation with the Rockefeller Foundation and the Mexican government. In this office, high-yielding varieties of wheat and corn were developed. By 1951, Mexico had achieved self-sufficiency in wheat production and began to export it. The Office of Special Studies was transformed into an unofficial

international research institute in 1959, and in 1963 it officially became the CIMMYT (International Center for the Development of Corn and Wheat).

The second stop of Green Revolution was India. Here, too, in cooperation with the Ford Foundation and the government of India, large quantities of wheat germ were imported from CIMMYT. India has implemented its own Green Revolution program in the form of plant nutrition, irrigation investments and financing agricultural chemicals. Green Revolution by the end of the 1970s, it had increased its paddy yield by 30%.

Together, the Rockefeller and Ford Foundations founded IRRI (International Paddy Research Institute) in the Philippines in 1991. The high-yielding varieties grown here quickly spread to the countries of the third world. IRRI and CIMMYT joined CGIARI, which was founded in 1971. Since then, CGIAR has opened research centers in many parts of the world.

With the Green Revolution dec, agricultural products production reached its highest point between 1980 and 1995 in many regions of the world. Green Revolution applications. Nowadays, as a result of mistakes made in desertification and irrigation practices, production has started to decline. As a result of these, the Green Revolution has become a partial or complete limiting factor in agricultural production in many regions.

Grain production in developing countries more than doubled dec 1961 and 1985. Paddy, corn and wheat yields increased uniformly during this period. The Green Revolution has been useful in preventing widespread famine with this effect. The increase in agricultural production brought with it an increase in the population. The world's population has increased by about 4 billion since the beginning of the Green Revolution. Yesilmaz The Green Revolution is also being questioned quite a lot in this aspect. Yesilmaz Because, without the Revolution, the world's population would not have grown so fast either. In the developing world, the average person consumes an average of 25% more calories per day than before the Green Revolution. The average person in Yesildirim consumes 25% more calories per day than before the Green Revolution. After all, the problem of hunger in the world has also not been solved (Tan, 2010:9).

The Green Revolution sought to spread existing technologies, especially to developing countries. Yesilmaz However, these were not used much outside the industrial countries. These technologies consisted in the use of pesticides with synthetic nitrogen fertilizers and the implementation of irrigation projects .

The new technological development of the Green Revolution is agricultural production carried out with "miracle seeds". Green Revolution 's new technological development is agricultural production carried out with "miracle seeds". In this regard, scientists have developed high-yielding varieties of corn, wheat and paddy. Compared to traditional varieties, these high-yielding varieties also began to consume nitrogen from the soil quickly (Perkins,, 1997:1244) (Ata,2019: 3884).

High-yielding varieties could be more productive than conventional varieties if sufficient irrigation, pesticides and fertilizers were used. In the absence of these inputs, on the contrary, traditional varieties were more efficient. Although the high-yielding varieties offered by Green Revolution were not so at the beginning, they were transformed into a form that yields products only once in the following process. This, in turn, was an element that increased the farmer's dependence on companies for seed and the cost of production (Perkins,, 1997:1243).

The increase in production provided by the Green Revolution has also brought a number of discussions with it. Green Revolution for example, decanting a large number of animals together increased the risk of disease and encouraged the use of antibiotics. This situation also negatively affected human health by creating antibiotic resistance in bacteria in the human digestive tract. In the United States, growth hormones were used to ensure the rapid growth of animals, but soon after this hormone began to appear in the blood of people who consumed them, and when a number of related health problems were encountered, the use of this hormone was immediately prohibited. The remnants of intensive animal and vegetable production lead to environmental pollution. Again, especially the fact that animals are raised indoors in a cramped order causes their stress to increase. Intensive agriculture also requires intensive resource use. The intensive agricultural system also complicates the traceability of the source of food. The consumer cannot buy the product directly from the manufacturer. From the point of view of crop production, it can be seen that a single crop is grown on large areas every year in a row. This has led to an increase in the use of synthetic fertilizers and pesticides. Genetically modified organisms create many environmental and health problems. The spread of machine-tool agriculture and the expansion of agricultural lands have also accelerated the output of greenhouse gases due to erosion and global warming. The opening of large areas for irrigation has limited agricultural production due to salinization in some regions due to improper use (Çetiner, 2010:9).

4. THE WHEAT PROCESS IN TURKEY

Although the first agricultural education in Turkey started in 1846 at Ayamama Farm in Istanbul and continued with Halkalı Higher Agricultural School in 1891, agricultural engineering education in the modern sense started in 1933 with Dr. It started with the Higher Agricultural Institute in parallel with the well established university reform carried out under the leadership of Reşit Galip. The 10th Republic. founded in 1933 and 30 October, Atatürk to modernize agriculture held by the Turkish Institute of agriculture, agriculture and see it from a scientific point produce a solution of the problems of Turkish agriculture and farmers was established to conduct research that will serve to train and agricultural engineers.

Despite all the impossibilities in the early years of the republic, German scientists who fled from the Nazis were employed at the Higher Agricultural Institute, agronomists who would work at Agricultural Research Institutes established in various parts of Turkey were trained, techniques to save Turkish agriculture and farmers from black sheep were implemented (Tan, 2010:178) .

The "Green Revolution" took effect in Turkey after the 1960s; the transition to a free market economy together with Özal enabled the transition of seed production from a state monopoly to the private sector, thus allowing the widespread use of high-yield hybrid varieties in Turkey. Although these hybrid varieties are discussed by everyone who knows and does not know, the increase in yields provided by them and the contribution of this to the well-being of farmers is undeniable.

To Turkey XX. mid-century, brought from Mexico Norin 10/ Brevor hybrids derived from landraces Penjamo-62, Pitic-62, Lerma Rojo-64, Super-X, semi-dwarf wheat varieties production has vastly improved. In addition to the effect of this period, which is also called the "Green Revolution", the increase in the use of agricultural inputs and the spread of mechanization in the same periods were also effective in this. Under these conditions, the october areas of local wheat varieties began to decrease, and even in some regions they were completely abandoned.

In general, cultured wheat is divided into two groups as "hot spring" and "naked" wheat we can study it. A diploid species, the syez (T. monococcum), a wild relative of the wild from siyez (T. it is derived from baoticum). Currently, in the Balkan countries and France, as well as in Turkey it is assumed that the cheese, which is also grown, was cultured in Southeastern Anatolia for the first time in the world. Currently, Siyez is the most october area in Kastamonu province and is consumed mostly as bulgur, and bread is also made. Since Siyez is a hot spring group of wheat, it is not separated from melon by the usual threshing process. Therefore, in order to make bulgur, it is first boiled, dried, and then peeled and broken in a stone mill. Another group of hot springs is gernik (T. dicoccon) is a tetraploid species and a wild T. it is derived from the species dicocoides. Gernik is also produced with the name of "kavılca" in the province of Kars in a small amount besides the northern passage region and is used mostly for animal feeding.

It is estimated that the total local wheat and barley cultivation areas in Turkey may be up to 565,312 hectares. Among the local wheat varieties being grown, it has been determined that the 11 varieties that have found the widest october area are Zerun, White Wheat, Red Wheat, Yellow Wheat, Karakılçık, Kırık, Siyez, Koca Wheat, Topbaş, Şahman and Üveyik Wheat, respectively. As a result of local cultivar breeding, which has been carried out for thousands of years in Anatolia, farmers have given hundreds of different names to most varieties due to the characteristics they carry (Özberk, Karagöz, Özberk & Atlı, 2016,24).

4.1 The Current State of Local Varieties

Local varieties (village varieties), as is known, are a collection of similar individuals whose appearance is mostly in the population structure in accordance with the local taste buds that survive under the pressure of natural and artificial selection. They have a wide genetic base. October areas are decreasing day by day, as local varieties cannot compete in yield and profitability with modern varieties of culture (Özberk vd., 2016,28).

4.2 Current Wheat Breeding Objectives in Our Country

Our country is divided into summer (coastal regions and Southeastern Anatolia) and winter (including alternative) belts (central, eastern Anatolia and transition regions) in terms of wheat production. To a large extent, bread wheat is grown in our country (6.5-7.0 mi. ha) durum wheat 1.3-2.0 million ha. it is grown in the field. Southeastern Anatolia is known as the durum wheat belt of our country. Yield, yield stability and final product quality are the most important in bread wheat in the winter belt there appear to be three purposes of reclamation (Özberk vd., 2016, 32).

4.3 Local Varieties and Genetic Resources in the Breeding of Modern Varieties

Nowadays, local varieties are used as genitors in hybrid gardens in research institutes operating in Eskişehir, Konya, Ankara, Sakarya and Edirne depending on the Ministry of Food, Agriculture and Livestock. Hybridization breeding, induction and mutation are the main classical breeding methods known in our country. As a result of breeding studies, as of today, there are 198 bread varieties and 61 durum wheat varieties registered in our country as of 2016. Although the newly developed varieties are particularly satisfactory in terms of their quality and yield, they are behind the desired level, especially in terms of resistance to bed, yellow and brown rust, resistance to extreme cold, heat and drought experienced towards the end of the grain filling period (Özberk vd., 2016, 36).

4.4 Legal Regulations in Turkey

The Seed Law No. 5553, which was passed by the Parliament on 31.10.2006 and became law in Turkey, also prohibits the trade of genetic material defined as local varieties or bay populations. 5 Of the Act. Article "By the Ministry, the production of seeds belonging to only registered varieties is allowed by determining their vegetative and agricultural characteristics." 7. The article is "Registered only in the country

it is allowed to trade seeds belonging to varieties,"he says. In the law "registration" are defined as follows: "Registration: to be treated within or outside the country found and developed plant varieties or distinct, uniform and focused, and/or biological and technological features with resistance to diseases and pests, and agricultural values determined is listed in the register". The emphasis is on the fact that the variety remains the same without changing the relevant characteristics after repeated production or at the end of certain reproduction periods. Difference: It defines the difference of a variety from varieties known to everyone at the time of its application, from the characteristics based on registration, in terms of at least one of them.

The Seed Law is open to the exchange of seeds obtained from these genetic sources dec farmers, but prohibits their trade. Similar features are also found in the laws of other countries. With these laws, international seed companies have gained a new power to consolidate their hegemony.

5. KARAKILÇIK WHEAT

Karakılçık Wheat is also an ancestral wheat genus. It has evolved over time in seeds, as well as in evolved creatures, and those that can adapt to conditions have survived to the present day. Karakılçık Wheat is an ancestral wheat breed recognized by the digestive system that can adapt to these conditions. This type of wheat, which has a very high nutritional value, is very rich in both potassium and phosphorus. The proportion of vitamins A, E, K, C, iron, fiber and protein is also quite high (Teofarm, 1). Karakılçık local durum wheat genotype is a local variety that farmers grow in order to meet their own bulgur needs, especially in the Çukurova and Amik Plains and Çukurova region, and bulgur is preferred as a palate. In the research, the average polymorphism information content (PIC) value was calculated as 0.98 on average. The highest PIC value was calculated as 0.99, while the lowest PIC value was calculated as 0.94 (Yüce, 2018: 15).

The mean genetic similarity value dec the Karakılçık M4 mutant lines was found to be 59.47%. The least genetic similarity among all genotypes is KK-7 dec KK-3, KK-8- KK-3, KK-KK-5 and KK-5- KK-6, KK-8, KK-9, KK-10, KK-11, KK-12, KK-13 among their genotypes, the greatest genetic similarity is 100% with KK-1 dec KK-4, KK-6-KK-9. It has been observed between the KK-8 dec KK-12 and KK-10-KK-11-KK-13 genotypes. Among the genotypes used in the study, the gluten strength of KK-11 and KK-13, KK-1, KK-2, KK-4, KK-6 and KK-9 in RIS from rye translocation markers the KK-5 genotype was banded on the SCM9 marker and the genotypes were banded on the SCM9 marker. Again, waxiness (Wx-A1) in the KK-1, KK-2, KK4, KK-5 and KK-7 genotypes, black rust (Sr49) in the KK-5 genotype, High protein genes (Gpc-B1) in the KK-1, KK-2, KK-3 and KK-4 genotypes, KK-10 the yellow rust (Yr45) gene has been identified in the line (Yüce, 2018: 26).

This type of wheat, which is high in nutritional values and useful from an economic point of view, also brings quite high prices compared to other types of wheat. General Table of prices for yellow wheat.december Nov.1, 2021, the maximum is in the range of 4.10 to 14.70 TL. November 2021, the maximum is in the range of 4.10 to 14.70 TL.

Table 1. Current Wheat Prices (November 2021)

Wheat	Price
HARD WHEAT	5,20
BREAD WHEAT	4,85
BREAD WHEAT (MANGER)	4,10
BARLEY ÇAKIR	4,15
WHITE BARLEY	4,07
RED SHELLED LENTILS	14,70
CORN (1ST. GROUP - NATUREL)	4,05

Note: Gaziantep Commodity Exchange prices have been compiled.

Although Karakılçık wheat is not listed on the stock exchanges, it may be a serious return for our farmer compared to other wheat, as it is around 56 TL per kilogram according to the prices received from Sunday research and related companies that sell. Even if its yield is low per kilogram, it provides 10 times more yield than classic yellow wheat, which is 4 times more expensive than almost the most expensive other wheat variety.

5. CONCLUSION AND RECOMMENDATIONS

Yesil dominant genetic Revolution in the world after the layout and contrasting viewpoints about the emergence of many different products that have been tampered with and in scientific circles as a result of the emphasis of this subject in our country, and increasingly in the world of organic agriculture has started production. Conscious agriculture, domestic seeds and the increase in the rate of return of agricultural activities that are free from pesticides will push the hedgers back to the old production methods. Therefore, farmers need to be informed about the benefits and benefits of this method of production.

Agricultural and environmental policies should be compatible and supportive of each other. The agricultural sector should now take into account ecological principles and even take them as a basis. Protecting the natural environment will also ensure its continuation in terms of the future of agriculture. Therefore, a sustainable agriculture approach should be applied. Sustainable agriculture takes an approach that takes into account the connections (ecological rules) of all living organisms with their natural environment. Organic farming activities have been widespread in Turkey for the last 20 years, but intensive agricultural practices continue that use excessive chemical fertilizers and pesticides.

Since foreign seeds have been distributed to farmers in all regions within the scope of agricultural breeding studies in Turkey by the hands of our own agronomists, the endemic seeds of this soil have started to disappear one by one and most of them have even been forgotten. Genetics of this geography, when a foreign seed and domestic seeds are combined in the same genetic pool, a high level of yield has appeared, but new types of wheat that are foreign in taste have appeared. In our country, domestic wheat types can be reproduced as a result of studies conducted in various institutions and universities, and we are trying to make them suitable for the profitable use of our farmer. In this way, species such as Siyez wheat, white wheat, kırık, koca wheat have been re-introduced into production and can be found as seeds.

Karakılçık wheat, on the other hand, is the original product of this soil that resists this cycle. The most important characteristic features of Karakılçık wheat are that it is browner and harder than other types of wheat. But it is also worth noting that it stands out in terms of taste and is more nutritious. Karakılçık also continues to be used as ashura tattoo wheat. Despite these positive properties, Karakılçık wheat is experiencing serious problems in the process of finding seeds industrially.

REFERENCES

- Akar, T. Bağcı, A. Köksel, H. & Eser, V. (2016). Ülkemizde ve Dünyada Buğdayla İlgili Gerçek Dışı İddialar, TÜRKTOB, 17: 4-7.
- Ata, F. (2019). "Yavaş Gazetecilik: Yeni Medya Gazeteciliği, Hızının Kurbanı mı Oluyor?" International Journal of Social Humanities Sciences Research (JSHSR) S.6 (45), Kahramanmaraş.
- Cabi, E. & Doğan, M. (2009). A First Vouchered Wild Record for the Flora of Turkey: *Aegilops juvenalis* (Thell) Eig (Poaceae), Turk. Journal of Botany. 33/6
- Çetiner, S. (2010). Tarihsel Süreçte Genetiği Değiştirilmiş Ürünler, İstanbul.

Douthwaite, B. (2002). *Enabling Innovation- a Practical Guide to Understanding and Fostering Technological Change*, Zed Books, London.

Perkins, J.H. (1997). *Geopolitics and Green Revolution. Wheat Genes And The Cold War: Wheat Breeding in The Green Revolution*, Oxford University Press, UK.

Özberk, İ. & Özberk, F. (2016). “Buğday Genetik Kaynaklarının Islahta Kullanımı”, *Türktob Dergisi*. Yıl:5, 18.

Özberk, F. Karagöz, A. Özberk İ. & Atlı, A. (2016). “Buğday Genetik Kaynaklarından Yerel ve Kültür Çeşitlerine; Türkiye’de Buğday ve Ekmek”, *Tarla Bitkileri Merkez Araştırma Enstitüsü Dergisi*, 25.

Özkaya, T. (2007). “Tohumda Tekelleşme ve Etkileri”, *Tarım Ekonomisi Dergisi*, 200 13/2.

Şehirali, S. & Özgen M. (1987). “Bitki Genetik Kaynakları”, Ankara Üniv. Ziraat Fak. Yayınları No: 1020, Ankara.

Tan, A. (2010). “Türkiye Gıda, Tarım ve Bitki Genetik Kaynaklarının Durumu. Gıda ve Tarım için Bitki Kaynaklarının Muhafazası ve Sürdürülebilir Kullanımına İlişkin Türkiye II. Ülke Raporu”. ETAE. İzmir.

Teofarm A.Ş. Resmi Web Sitesi, <https://www.teofarm.com/karakilcik-bugdayi-nedir-faydalari-nelerdir> .

Türkiye’nin Buğday Atlası http://awsassets.wwfr.panda.org/downloads/turkiye_nin_buday_atlas_web.pdf

Yüce, İlker. (2018). “Karakılçık M4 Bireylerinde Hastalık Ve Kalite İle İlgili Allelerin Moleküler Analizlerle Tespiti”, Yüksek Lisans Tezi, Kahramanmaraş Sütçü İmam Üniversitesi, Fen Bilimleri Enstitüsü, Kahramanmaraş.

Yabancı Menşeli Buğday Tohumluklarının Durumu. Ziraat Mühendisleri Odası. Sıra no: 37. 1970.