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Research / Araştırma

PRODUCTION PROJECTION OF EINKORN AND EMMER WHEAT CULTIVATED IN TURKEY

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ABSTRACT

Kaplıca (einkorn and emmer) wheat, which is a neglected type of wheat, an important food source, is the product that producers don't approach too much due to market problems but produce as much as they need in their own nutrition and animal breeding. In this study, it was aimed to determine the production projection of kaplıca wheats produced in Turkey according to TUIK database. With regard to the results obtained, the projection coefficient has been calculated as 4,65%. According to the positive projection coefficient obtained, production is predicted to increase over the next sixteen years.

Key words: Kaplıca wheat, einkorn wheat, emmer wheat, production, projection coefficient

TÜRKİYE'DEKİ KAPLICA BUĞDAYLARININ ÜRETİM PROJEKSİYONU

ÖZET

Önemli bir besin kaynağı olan buğdayın ihmal edilen türü olan kaplıca buğdayları, üreticilerin pazar problemleri nedeniyle pek fazla yanaşmadığı ama kendi beslenmelerinde ve hayvan yetiştiriciliğinde ihtiyaçları kadar üretimini yaptıkları ürünlerdir. Bu çalışmada TÜİK (Türkiye İstatistik Kurumu) verilerine bağlı olarak Türkiye'de üretimi yapılan kaplıca buğdaylarının üretim projeksiyonunun belirlenmesi hedeflenmiştir. Elde edilen sonuçlara göre projeksiyon katsayısı %4,65 olarak hesaplanmıştır. Pozitif elde edilen projeksiyon katsayısına göre üretimin önümüzdeki on altı yılda artacağı öngörülmektedir.

Anahtar kelimeler: Kaplıca buğdayı, siyez, gernik, üretim, projeksiyon katsayısı

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INTRODUCTION

Wheat, which constitutes the raw material of products such as flour, bread, semolina, bulgur, pasta, cake, dessert, which has an important place in human nutrition, life and culture, is at the beginning of the basic food chain. (Özberk ve ark., 2016).

The kaplıca wheat, which is neglected in many countries, is among the oldest domesticated plants, and it is known to be produced in the Near East, including Turkey, for thousands of years. (Gurcan et al., 2017). With the increase of agricultural input and the widespread of mechanization, with the spread of semi-dwarf wheat varieties called "Green Revolution" in the middle of the 20th century; today, durum wheat (2n=28, AABB, *Triticum durum* Desf.) and bread wheat (2n=42, AABBDD, *Triticum aestivum* L.) species have started to be preferred. Production areas of cultured einkorn wheat (2n=14, AA, *Triticum monococcum* ssp. *monococcum*) and emmer wheat (2n=28, AABB, *Triticum dicoccum* L.) have decreased over time and their cultivation still continues by a small number of farmers (Zaharieva and Monneveux, 2014). Hulled wheats which are called kaplıca wheat in a wide expression, were given different names (such as kaplıca, kavulca, kabılca, siyez, gernik, gacer, kavuzlu wheat) by the local people in different regions and cultures in Turkey.

Kaplıca wheats have a wider variation than modern wheat and have a wide adaptability. They are reported to be tolerant to many plant diseases and rich in some nutrient content. Considering their superior adaptability, kaplıca wheats have a high yield compared to modern wheat in mostly mountainous areas and regions where difficult environmental conditions are dominant (Atak, 2017). The difficult separation from the scab and the low market share causes these wheat to not be preferred.

The production of kaplıca wheats in Turkey's provinces, Ankara, Bilecik, Karabük, Kars, Kastamonu, Samsun and Sinop (Figure 1) have been recorded (TUIK, 2020). Apart from these provinces, it is tried to continue the production of these wheat by a few farmers, especially in Kayseri. Kaplıca wheat, which has an important place as a genetic source, is protected by researchers and used as a material in breeding studies (Gurcan et al., 2017; Coşkun, 2019; Demirel, 2019).

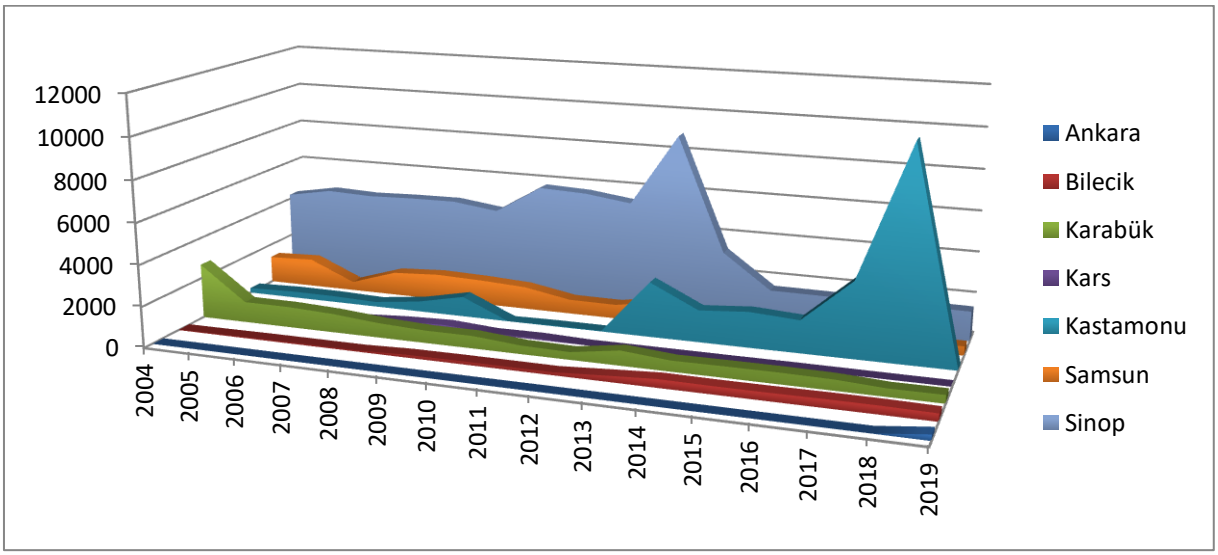

Figure 1. The last 16 year production of kaplıca wheat cultivated in Turkey, according to provinces (Tonnes).

In this study, the harvested areas of kaplıca wheats in the past years, the yields according to the years, the production amounts according to the years were combined and production projections were determined until 2034.

MATERIALS AND METHODS

Kaplıca production values between the years 2004-2019 taken from Turkey Statistical Institute constitute material of the study (TUIK, 2020). The projection coefficients were determined by calculating the percentages in the increases and decreases of the Kaplıca wheats depending on the 16-year production amounts. By multiplying the production occurred in the previous year with this coefficient, it has been calculated 16-year projection of Turkey up to the year 2034, in accordance with the increase or decrease. While the negative result in the projection coefficient indicates a decrease, a positive result indicates an increase (Demir, 2013; Demir and Kuş, 2016; Yaman ve ark, 2018).

RESULTS AND DISCUSSION

While the area of the kaplıca wheat harvested in 2004 was 61000 decares, it decreased to 15923 decares in 2019. It reached the highest harvested area in 2013 (68965 decares). It decreased to the lowest value in 2019 (Figure 2).

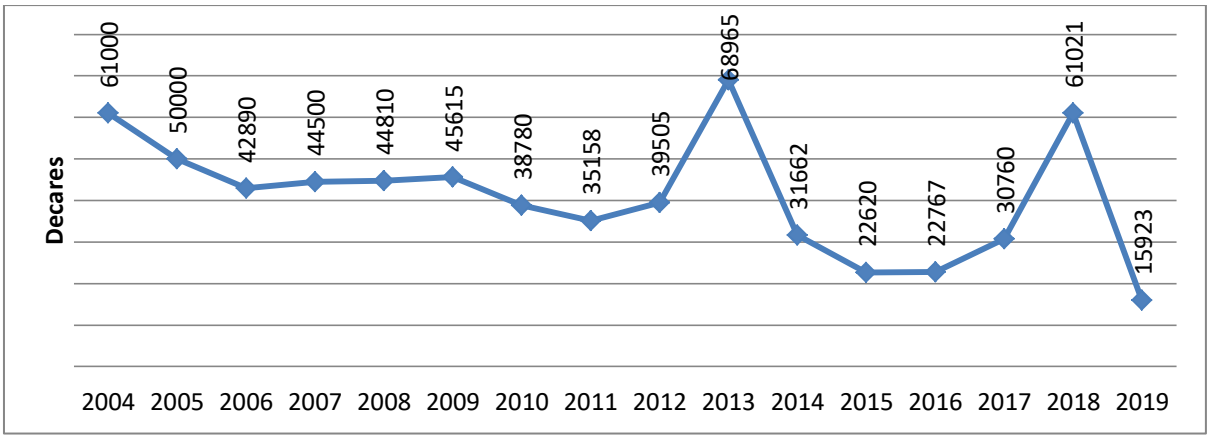

Figure 2. The last 16 year harvested area of kaplıca wheat cultivated in Turkey (TUIK, 2020)

According to the data of the kaplıca yields obtained in the last 16 years; In 2004, 139 kg/hectare yield and in 2019, 189 kg/hectare yield was obtained. While the lowest yield was in 2004 (139 kg/decare), it reached the highest value in 2017 with 215 kg/decare (Figure 3).

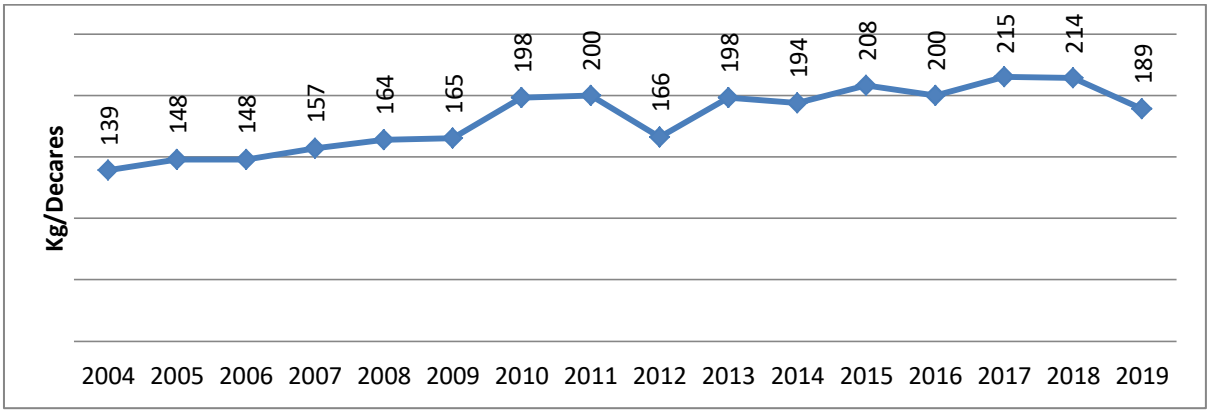

Figure 3. The last 16 year yield value of kaplıca wheat cultivated in Turkey (TUIK, 2020)

When the last 16 year production amount of kaplıca wheat is examined; While 8500 tonnes of production was made in 2004, it decreased to 3006 tonnes in 2019. The highest production amounts were 13658 tonnes in 2013 and 13071 tonnes in 2018. The lowest production amount was realized in 2019 (Figure 4).

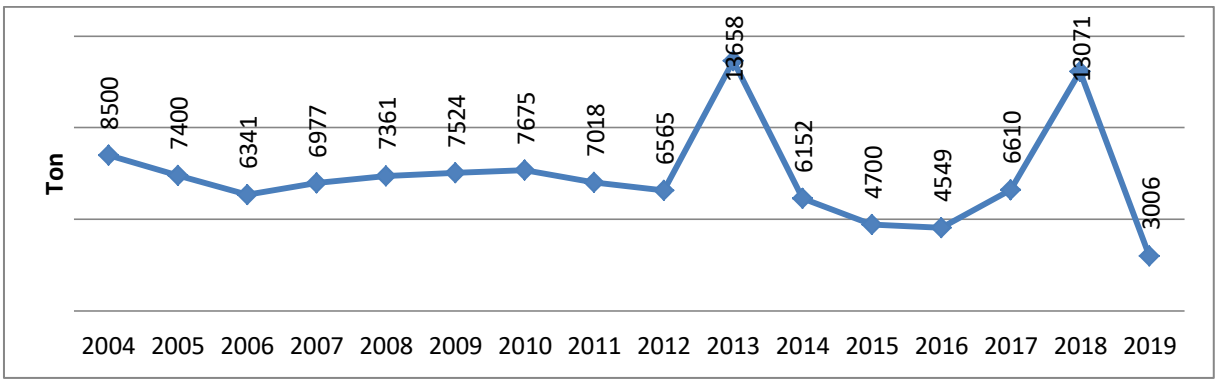

Figure 4. The last 16 year production amount of kaplıca wheat cultivated in Turkey (TUIK, 2020)

The projection coefficient that occurred between 2004 and 2019 in the Kaplıca wheat was calculated. Eight of the projection coefficients were negative and seven were positive, and the mean proportional value was calculated as positive (4,65%) (Table 1). Although the production amount of Kaplıca wheat has decreased in the last 16 years (Figure 4), it is seen that there is an increase in the yield (Figure 3). Depending on this result, the production of kaplıca wheat in the next 16 years is expected to be 3145,78 tonnes in 2020 and 5943,98 tonnes in 2034 (Table 1).

Table 1. Projection coefficients obtained depending on the production value of the Kaplıca wheat cultivated in Turkey and projection between the years of 2020-2034

Years	Projection coefficient (%)	Projection	
		Years	Kaplıca (Tonnes)
2004-2005	-12,94	2020	3145,78
2005-2006	-14,31	2021	3292,06
2006-2007	10,03	2022	3445,14
2007-2008	5,50	2023	3605,34
2008-2009	2,21	2024	3772,99
2009-2010	2,01	2025	3948,43
2010-2011	-8,56	2026	4132,03
2011-2012	-6,45	2027	4324,17
2012-2013	108,04	2028	4525,24
2013-2014	-54,96	2029	4735,67
2014-2015	-23,60	2030	4955,88
2015-2016	-3,21	2031	5186,33
2016-2017	45,31	2032	5427,49
2017-2018	97,75	2033	5679,87
2018-2019	-77,00	2034	5943,98
Mean	**4,65**		

The average of the projection coefficient showed that a positive result indicates an increase It was reported that positive result will increase based on contents of similar studies. (Demir, 2013; Demir and Kuş, 2016; Yaman ve ark, 2018).

CONCLUSION

The areas harvested in the production of kaplıca wheat have been decreasing in the last 16 years notwithstanding it is seen that there is an increase in the yield. While a continuous decrease is observed in the production amount, it was determined that there were sudden increases in 2013 and 2018. Bread and durum wheat is thought to replace kaplıca wheat today.

In the study, the rise in the kaplıca wheat production in Turkey in 2013 and 2018, has led to the emergence of positive projection coefficient. Thus, it is predicted that wheat production will increase until 2034.

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