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Prospects For the Development of Agricultural Crops in the Nakhchivan Autonomous Republic

Abstract

This article provides information on the development prospects of crop production areas in the Nakhchivan Autonomous Republic. It is noted that since ancient times, cereals and legumes, forage crops, tobacco, grapes, melons and vegetables, as well as industrial crops have been cultivated in the region. These crops are widely grown in the plains along the Aras River. The most promising branches of crop production in the autonomous republic are vegetable and melon growing and cereal farming, as they are cultivated in all administrative districts. Research has shown that in 2023, the total cultivated area in the Nakhchivan Autonomous Republic amounted to 40,575.7 hectares. Of this, 22,166 hectares were allocated to cereals and legumes, 1,595.2 hectares to vegetables, and 15,270 hectares to forage crops. The remaining area was used for other types of crops. It has been determined that winter and spring wheat are mostly cultivated in the Babak district, and least in the Shahbuz district. Vegetable cultivation accounts for 3.9% of the total crop area in the region. In 2023, the total area of fruit orchards in the autonomous republic reached 5,573.8 hectares, and 31,506.9 tons of fruit were harvested from fruit-bearing orchards. According to research findings, the Sharur, Julfa, and Kangarli districts stand out in terms of the area allocated to forage crops.

Keywords: *agriculture, forage crops, cereals, cultivated area, industrial crops*

Introduction

The total land fund of the Nakhchivan Autonomous Republic is 550,275 hectares, which constitutes 6.3% of the total land fund of the country (Babayev, 1999). Of the total area of the autonomous republic, 32.2% or 177,382 hectares are lands suitable for agriculture. Agricultural crop cultivation in the Nakhchivan Autonomous Republic covers an area of 40,575.7 hectares. Taking into account perennial crops as well, the amount of cultivated land per capita in the autonomous republic is 0.09 hectares, which is below the national average. Cultivated lands make up 22.9% of the agriculturally usable land (Hasanov, 2001).

The distribution of cultivated areas across administrative districts is uneven. This is influenced not only by the total area of the districts, but also by the relief conditions. Therefore, the majority of the cultivated areas are located in the districts of Sharur (14.4 thousand hectares or 28%) and Babak (13.8 thousand hectares or 26.6%). In Julfa district, there are 7.4 thousand hectares (14.4%) of cultivated land, and in Kangarli district, 6.0 thousand hectares (11.7%) (www.statistika.nmr.az). In other districts, cultivated areas are less than 2–3 thousand hectares.

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More than 90% of the cultivated land is located in the Aras River lowlands and the low mountainous zone, which are characterized by a cold semi-desert and dry-steppe climate with arid summers. However, the cultivated lands constitute only a small portion (up to 10%) of the total area (Hajiyev, 2000).

According to the soil and climatic conditions of Nakhchivan, cereal crops, tobacco, sugar beet, forage, and melon crops are grown in the Aras River lowlands; cereals, fruits, and berries are cultivated in the foothill zones; and forage crops, fruits, and berries are grown on the slopes of the low and medium mountainous areas.

The development of agriculture in the autonomous republic is ensured by natural factors. The provision of high-yield seed varieties and fertilizers to landowners with state support, the regular improvement or reconstruction of irrigation systems, and the supply of modern technical equipment to farmers through the Agro-Leasing mechanism (Hajiyev, 2001), along with other such measures, have had a significant impact on increasing agricultural production.

Research

The most valuable part of the soil is considered to be its arable portion. The dry climate conditions of the Nakhchivan Autonomous Republic have historically contributed to the development of irrigated agriculture in the region. The development of crop production sectors such as grain farming, viticulture, cotton growing, tobacco cultivation, melon and vegetable growing, forage crops, and horticulture in the autonomous republic is presented in the following table (Table).

Table. Total sown areas of agricultural crops, in hectares (2024).

Years	Cereals and grain legumes (including maize)	Vegetables	Potatoes	Melon crops	Forage crops	Technical crops	Total sown area
1970	24200.0	900	100	500	9000	6400	41100.0
1980	11600.0	1200	100	600	12100	2800	28400.0
1985	10132.0	631	105	302	11719	769	23658.0
1990	15500.0	1400	400	600	15700	1115	34715.0
1995	20715.0	210	200	128	2427.6	1796	25476.6
2000	15275.0	4863	1451	2465	10666	2395	37104.0
2005	26764.0	5686	1990	2844	9767	1759	48810.0
2010	36738.2	6006	2740.5	2819	8943.1	1957.4	59204.2
2015	39435.0	6131	2967	2753	9859	269	61414.0
2020	35436.0	6170	3183	2772	13676	294	61531.0
2023	22166,0	1595,2	989,3	490,3	15270	64,9	40575,7

Note: The table is compiled based on statistical data from the Nakhchivan Autonomous Republic. https://nstat.gov.az/sectiongraphic?id=9

Grain farming is an ancient agricultural branch with extensive cultivation areas. The grain cultivation fields are widely spread across the sloping plains of Tananam, Kangarli, Yayji, Sust, Pirjuvar and Turkesh, as well as the depressions of Lizbirt, Arazin, Badamli, Shahbuz, Iydali and the leveled surface of Buzgov. In the Autonomous Republic, the areas of winter and spring wheat cultivation vary by district.

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In 2023, the area planted with winter and spring wheat amounted to 22,166 hectares, which is 6,891 hectares more compared to the 2000s. In 2023, winter and spring wheat cultivation areas by district were as follows: 4,953 hectares in Sharur, 6,919 hectares in Babak, 865 hectares in Ordubad, 2,195.5 hectares in Julfa, 2,838 hectares in Kangarli, 760 hectares in Shahbuz, 1,944 hectares in Sadarak, and 701.5 hectares in the city of Nakhchivan. The districts where winter and spring wheat are most widely grown are Babek, while the least cultivated areas are found in Shahbuz district (Geography of the Republic of Azerbaijan, 2014).

Unlike wheat, the area planted with winter and spring barley decreased in 2023 compared to the 2010s. The largest areas of winter and spring barley cultivation are found in the Babek district, covering 3,013 hectares, while the smallest cultivated area is in the Şahbuz district, with 206 hectares.

The area planted with maize for grain in the Nakhchivan Autonomous Republic was 793.5 hectares in 2023. Compared to the 2010s, the maize cultivation area increased by 66.5 hectares. The Sharur district has the largest maize cultivation area for grain, with 708 hectares, while the smallest area is in the Ordubad district, with only 2 hectares (Geography of the Republic of Azerbaijan, 2014).

Wheat accounts for 73.8% of the grain cultivation area in the autonomous republic, mainly consisting of winter wheat. This is because, in a region like Nakhchivan with limited water resources, winter wheat sown in autumn is naturally irrigated by autumn, winter, and spring precipitation, requiring less irrigation during the growing season and providing a more stable yield. Both hard wheat, used in the production of pasta, groats, and noodles, and soft wheat varieties are cultivated in the area (Aliyev, Zeynalov, 1988).

Potato cultivation. The soil and climate conditions of the mountainous and foothill zones of the autonomous republic are more favorable for growing potatoes, one of the main food crops. However, high yields are currently also obtained in the lowland areas. In 1990, the potato production per capita in the autonomous republic was 8 kg, whereas in 2015 this figure reached 90 kg. In 2015, a total of 45,042.5 tons of potatoes were produced, with a yield of 151.8 centners per hectare. The districts with the highest potato production were Ordubad (8,434 tons), Babak (8,239.2 tons), and Julfa (4,159.5 tons). In 2023, the potato cultivation area in the autonomous republic (989.3 hectares) decreased threefold compared to 2015.

In the territory of Nakhchivan, technical crops such as sunflower, tobacco, and sugar beet were cultivated. In 2015, sunflower was grown on a total area of 269 hectares for grain production, yielding 690.2 tons of product. The main production areas were the Kangarli and Babak districts. In 2023, the sunflower cultivation area sharply declined to 13 hectares. Sugar beet has not been grown in the region since 2012 (Hajiyev, 2001).

Viticulture. In ancient Nakhchivan, viticulture has deep historical roots. Archaeological excavations have uncovered fruits, especially grape seeds, as well as large jars used for making and storing wine, indicating that people living in the autonomous republic's territory were engaged in gardening and viticulture even before the Common Era. It is noteworthy that wild grapes are still widely distributed throughout the region. Since ancient times, people here have been producing products from grapes such as raisins, molasses, and pekmez, which were traded with neighboring countries (Babayev, 1999).

More than 120 grape varieties are grown in the territory of the autonomous republic. Nearly 100 of these are cultivated exclusively in the autonomous republic. Grapevine cultivation is considered one of the important agricultural crops both for its nutritional value and economic efficiency. Calculations show that one hectare of vineyard yields 3.9 times more income than cereal crops, 2.7 times more than cotton, 1.5 times more than vegetable crops, 7.5 times more than melon crops, and 2.6 times more than fruit orchards. Although viticulture is a highly labor- and cost-intensive branch of agricultural production, it has the highest yield per hectare (Hajiyev, 2002).

In 2023, the area of vineyards in the Nakhchivan Autonomous Republic was 766.5 hectares, of which 742.4 hectares were productive, bearing fruit. By district, the largest vineyard area was in Babak,

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covering 374.1 hectares, with 363.6 hectares in productive age. The smallest vineyard area was in the Ordubad district, totaling 6.7 hectares, including 5.5 hectares in productive age.

Vegetable and melon crops. In the agriculture of the autonomous republic, growing vegetables and melons is the second most important sector after grain cultivation in ensuring the population's food supply. In 2023, vegetables were planted on 1,595.2 hectares, yielding a total of [amount] tons of produce. The productivity of vegetables was 146.9 centners per hectare. Vegetable cultivation accounted for 3.9% of the total planting area in the autonomous republic (Hasanov, Iskanderova, 2013).

Compared to sales prices and production costs, vegetable production is profitable, making this sector promising for development. Vegetables are grown in almost all administrative districts of the autonomous republic. However, the highest vegetable yields were harvested in the Sharur (17,519.2 tons), Babak (3,354.3 tons), and Sadarak (1,534 tons) districts. The main vegetables grown in the region include cucumber, tomato, eggplant, and pepper. Cabbage, also a vegetable crop, is mainly cultivated in the villages of Ustupu in the Ordubad district and Jahri in the Babak district. Vegetable farming is a labor-intensive sector, requiring a large amount of manual work in both cultivation and harvesting. Therefore, the cost of production is high, which influences the sales price of the produce (East gate, n.d.).

In 2023, melon crops were planted on 7,692.6 hectares in the region, with a productivity of 156.1 centners per hectare. Among melon crops, watermelon and melon are the most widely grown. By production volume, the Babak (6,423.2 tons) and Sharur (467 tons) districts stand out (Hasanov, & Iskanderova, 2015).

Fruit growing. The natural conditions of the autonomous republic have allowed the development of fruit growing, especially stone fruit cultivation, since ancient times. Fruit growing is one of the most profitable sectors of agriculture. The income generated from orchards on the same land area is several times higher compared to annual crops. Orchards are cultivated at elevations ranging from 700 meters to 2000 meters above sea level.

Among pome fruits, apple, pear, and quince lag behind stone fruits both in terms of cultivation area and production volume. The long storage life and ease of transportation of pome fruits create favorable conditions for expanding their cultivation areas (Geography of the Nakhchivan Autonomous Republic, 2017).

In 2023, the total area of orchards in the autonomous republic reached 5,573.8 hectares, and 31,506.9 tons of fruit were harvested from bearing orchards.

In the mountainous villages of the Ordubad, Shahbuz, and Babak districts, nut fruits such as walnut and almond are cultivated. Among them, the walnuts grown in the Ordubad district are distinguished by their high quality. Walnut and almond trees also grow wild in the mid-mountain areas (50th Anniversary of the Nakhchivan ASSR, 1975).

Tobacco Growing. Tobacco cultivation is a technical crop that is well suited to the climate of the Nakhchivan Autonomous Republic and is a profitable sector. The "Guleser" tobacco variety, traditionally grown in the region, is a local tobacco type that was used without industrial processing. Due to land reforms, like many other agricultural sectors, the area under tobacco cultivation has decreased. In 2000, 16 hectares of tobacco were planted in the Nakhchivan AR, mainly in the Sharur district. In 2006, 2007, and 2009, the tobacco planting areas declined to 2 hectares, 2 hectares, and 8 hectares respectively. Tobacco cultivation was practically halted from 2010 until 2017. Production resumed again starting in 2017. In 2023, the tobacco planting area in the autonomous republic was 51.9 hectares, of which 37.1 hectares belonged to the Kangarli district (Let's Discover Nakhchivan, 2017).

Fodder Crops. In the autonomous republic, fodder crops occupy 9,858 hectares, which is 16% of the total planting area. The main fodder crops grown are alfalfa and sainfoin. Among the perennial grasses, alfalfa and orchard grass have the largest planting areas. In terms of the area planted with

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fodder crops, the Sharur, Julfa, and Kangarli districts stand out (Nakhchivan Statistical Committee, n.d.).

Conclusion

During the research, the following results were obtained:

- The sown area of cereals decreased by 17,269 hectares compared to 2015. The main reason for this is the reduction of water resources due to climate warming.
- In the autonomous republic, which is under blockade conditions, sugar beet has not been cultivated since 2012 due to the lack of sugar beet exports and the cessation of operations of sugar production enterprises in the region.
- Since the territories of Ordubad and Shahbuz administrative districts are mountainous, the sown areas are limited.

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