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## SOIL CLIMATIC CONDITIONS OF THE EXPERIMENTED AREA

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**Abstract:** This article provides detailed information on the Fergana Valley climate and terrain conditions, growing season, weather center data, and the procedure for conducting experiments.

**Keywords:** climate, Ferghana Valley, relief conditions, experience, weather center, farming, economic damage, soils

Fergana province is located in the western part of the valley. It borders with the southern district of Tajikistan in the west, the Andijan region in the east, and the Namangan region in the north. The region is surrounded by mountains, which influence the temperature. The wind blows mainly from the Bekobod gate, known to many as the Kokan wind, and causes deflation processes 17-23 times a year. (Mirzajonov 1981 [1]). The Toshloq district, where the experiment was carried out, is also affected by erosion, which in some years causes economic damage to agriculture and causes replanting of cotton seeds.

The study of regional soils has been ongoing since the beginning of the twentieth century. In particular, V.A. Kovda [2] and Q.M. Mirzajonov [3] did a lot of work. 70% of the total land area is meadow; meadow-worthy, light, and typical grey soil is 21%; meadow tar is 2,7%; and swampy soil is 1,3%.

Regarding the climatic conditions of the research, it should be said that the beginning of the vegetation period in the Ferghana Valley corresponds to the end of March. The average daily temperature above 10 °C lasts for 202-222 days, and the total is 1962-2555 °C.

The climatic conditions of the Fergana region are characterized by a long duration of sunny days, dry and hot summers, and cold winters, as well as significant differences in hydrothermal standards. The distribution of the total amount of precipitation in the region is uneven. Because the region's topography, that is, its

surface structure, height above sea level, and wind direction, have a strong influence. In June, July, and August of the year, precipitation is mostly low, in some areas, it is completely absent. Due to the heat of the climate, a large amount of water evaporates from the surface of the soil, which in turn leads to the use of artificial irrigation in agriculture.

The amount of precipitation in the region increases from west to east. In the western part, the weather is very dry, and about 70-75% of the precipitation falls in the winter and spring months. Because of this, favorable conditions for the growth and development of cotton and other crops are created in the region due to the moderate maintenance of early spring and autumn air temperatures.

On both sides of the Great Fergana Canal, typical gray soils occupy more than 70% of the region, they are of different degrees of salinity, weak salinity-52,1%, average salinity-18,2 %, strong salinity-3,2%.

According to the Fergana weather station, the average temperature is 34 °C, the absolute maximum is +42-44 °C, the minimum is -23-24 °C, the number of frost-free days is 249 days, and the effective temperature sum from April 1 to October 1 reaches 2027-2640 °C. Average rainfall is 350 mm in typical gray soil, 240 mm in pale gray soil, and up to 100 mm in desert zones. Hot air sometimes rises and sometimes falls. In the Toshloq district, where the experiment was conducted, water evaporation from the soil surface is 1274-1570 mm per year, the wind causes this indicator to increase.

It is worth noting that our experiments were conducted in time and season (annually in another field). In 2014, it was planted on flat ground and in various rows. In June of this year, the average air temperature was 26 °C, and the amount of precipitation was 1,5 mm. In July, these indicators were equal to 28,3 °C and 1,5 mm, respectively. In proportion to the months compared to the perennial, the weather was 0,1-0,7 °C less than the months, and the precipitation was 10,3-3,4 mm less. This shows that it is convenient to plant the repeated crops in their time and conduct the

irrigation event. Also, August, September, and October air temperatures and precipitation did not differ much from the perennial.

According to the information obtained on the climatic conditions of 2015, the winter months of this year are warmer than many years, compared to 2014. For example, the cold temperature in January was 2,4 °C higher than in many years. However, it was warmer compared to February (table 2.1.1).

In the spring months, on the contrary, it is characterized by the fact that it is hot compared to perennials. The average monthly air temperature in the autumn months was also higher than the long-term data and was warmer than in 2014. The same situation continued in the autumn months.

Therefore, in field conditions (2015), it was observed that the cotton sown on April 14 received a higher useful temperature of 246 °C compared to perennials until October 1. Another peculiarity of the climate conditions in 2015 is that the amount of precipitation was extremely low. In particular, the least rainfall was recorded in March, June, July, and September.

When the results of the experiment carried out under the conditions of 2016 were studied, the air temperature in April was 17,0 °C, and precipitation was 3,2 mm, which differed from the perennial by -0.8 °C and -23.3 mm, respectively. This created favorable conditions for planting the seed on time. In the summer months (June, July, and August), the air temperature is 26,9; 28.0, and 27,0 °C, and the amount of precipitation is 15,3; it was equal to 22,2 and 0 mm, and it was different or almost equal to +0,8; +0,4 and +1.4 °C and +3,5; +17,3 and -3 mm from perennial. Precipitation in May alone was 62,4 mm, 37.7 mm higher than the annual average, leading to longer irrigation periods. In 2014, the first cotton harvest started on September 14 and ended on October 2, in 2015 it started on September 17 and ended on October 9, and in 2016 it started on September 19 and ended on October 11.

**Table 2.1.1**

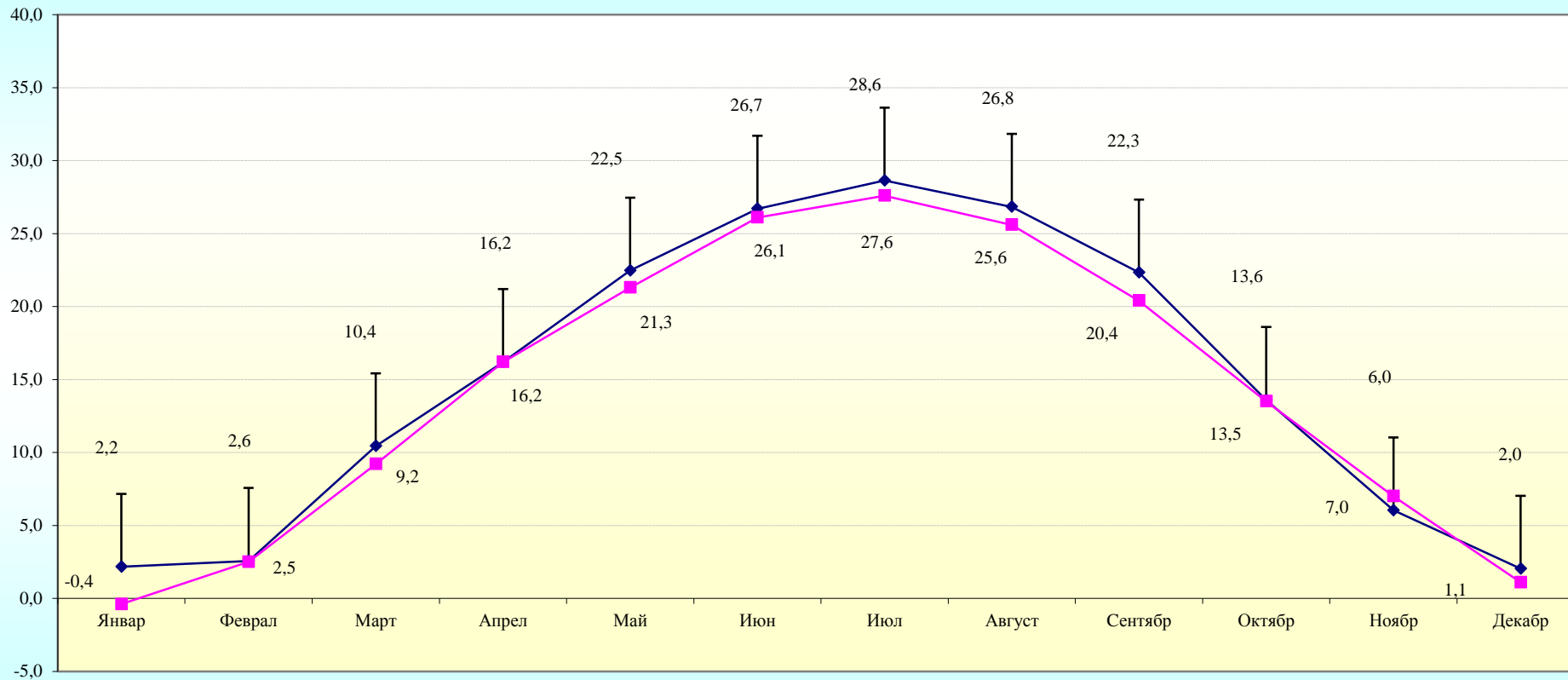
**Climate conditions of 2014-2016 (data from the Fergana Weather Center)**

Indicators	Years	Months											
		January	February	March	April	May	June	July	August	September	October	November	December
Average air temperature, °C	Perennial	-0,4	2,5	9,2	16,2	21,3	26,1	27,6	25,6	20,4	13,5	7,0	1,1
	2014	1,0	-3,1	8,8	15,0	23,8	26,0	28,3	27,1	22,3	13,7	5,8	0,8
	2015	1,9	4,9	8,6	16,6	21,7	27,2	29,6	26,4	20,7	14,7	7,3	2,4
	2016	3,6	5,9	13,9	17,0	21,9	26,9	28,0	27,0	24,0	12,4	5,0	2,9
Precipitation, mm	Perennial	22,9	30,6	34,0	26,5	24,7	11,8	4,9	3,0	4,0	22,0	28,2	34,2
	2014	13,4	32,0	16,0	23,8	1,5	30,9	1,5	10,4	0,0	18	29,1	1,5
	2015	10,2	19,6	56,4	16,4	34,1	3,4	2,7	7,0	3,1	30,7	28,4	4,6
	2016	10,8	8,4	18,9	3,2	62,4	15,3	22,2	0,0	0,0	19,5	18,1	46,1

The sum of beneficial temperatures that cotton received when the seed was planted on April 1:

- perennial - 2590 °C
- 2014 year - 2500 °C
- 2015 year - 2649 °C
- 2016 year- 2673 °C

2014-2016 air temperature in °C  
(Fergana region agrometeorological station information)



—◆— 2014-2016 йй ўртачаси      —■— ўртача кўп йиллик



Figure 1. 2014-2016 air temperature in °C (Fergana region agrometeorological station information). Figure 2. Annual rainfall in 2014-2016, mm (Fergana region agrometeorological station information)



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