



## Soil-Climatic Conditions and Morphological Structure of Cauliflower Soils

Sh. Z. Yormamatov<sup>1</sup>, G. U. Khamroeva<sup>2</sup>

<sup>1</sup> Master of Samarkand State University named after Sharof Rashidov

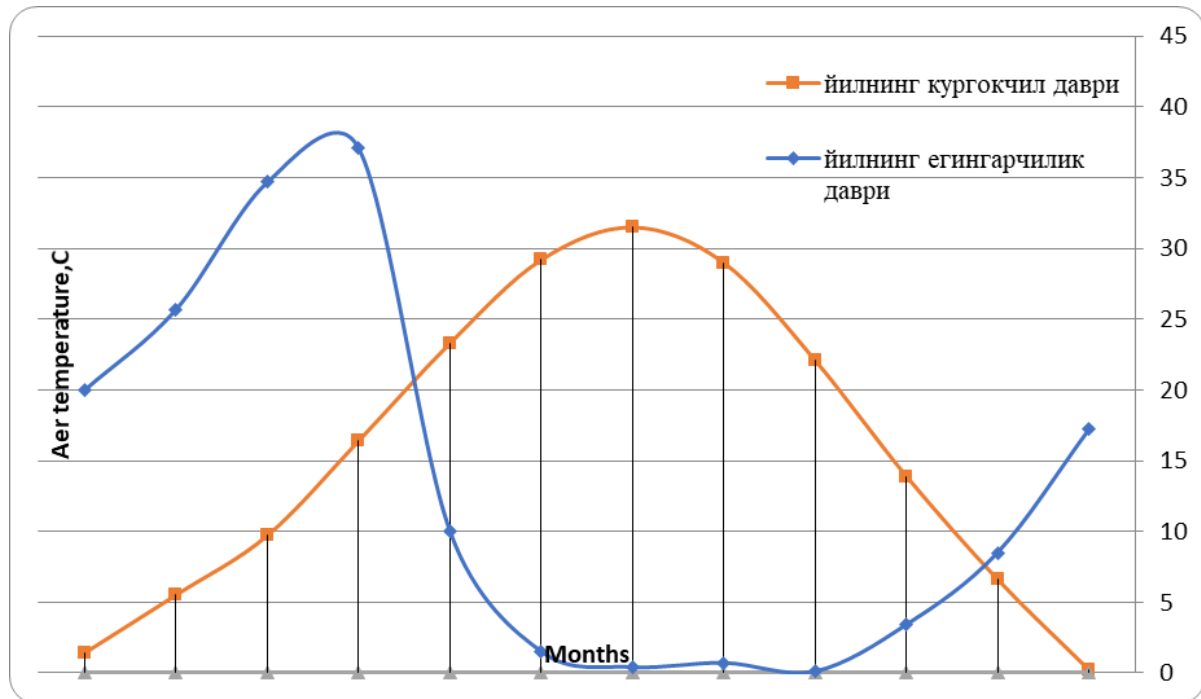
<sup>2</sup> Scientific-research institute of cattle breeding and desert ecology

**Abstract:** The article will contain information on the water and physical characteristics, mechanical and mineral conditions, soils, mechanical and mineralogical conditions, soils, chemical and vegetable cover.

**Keywords:** The essentials of soil, soil, relief, soil paves, pants, gypsum, gypsum, ephemeral plants.

Karnabchol is located 310 m above sea level in the southern part of the Zirabulok Mountains on the left bank of the Zarafshan River. In scientific literature, this area is referred to as "Karnabskaya Steppe". According to climate indicators, Karnabchol, like all Central Asian deserts, is distinguished by its aridity and sharp continentality. The climate diagram based on the data of the Mubarak meteorological station (see Figure 2 and Appendix 1) provides complete information about this.

In terms of climate, Karnabchol is typical of the Mediterranean climate type. The topography of Karnabchol generally decreases from east to west and is flat, and only the northern part, that is, on the mountain slopes, is undulating, divided by many streams and temporary waterways. The long-term average annual temperature is 18.10 C. The hottest air temperature is observed in June-July, and in the shade this indicator is +40+470C. The coldest air temperature is observed in December-February, sometimes it is 20-300C. The average annual relative humidity is 30%, and in the summer season this indicator often does not exceed 10-20%. The climate diagram (Figure 1) clearly shows the dry and wet seasons of the year. The main part of precipitation falls on November-April. Average annual precipitation ranges from 81.9–297.4 mm, with a long-term average of 162.0 mm. The average annual temperature is 17.1 0C, and this indicator varies from 16.2 0C to 17.9 0C in different years. Most of the precipitation falls between November and April, and the average precipitation varies from 100.1 mm to 299.7 mm in different years.



Amount of precipitation - 167.1 mm; Average air temperature - 17.10C; Relative air humidity - 30%

Figure 1. Climatogram of the experiment area

(According to Mubarak weather station 2014-2018)

**Morphological structure of soils.** Cauliflower soils are light gray soils. On average, 200-300 mm of rain falls during the year in the zone of pale gray soils. Saline salts in the upper layer of the soil are not washed well, at a certain depth, approximately 40-60 cm, sometimes 1-2 m below, a saline layer can be found. Light-colored ice soils are considered to be low in organic matter compared to other regional soils according to their mechanical composition. The plow layer contains 0.5 to 1.5 percent humus. A large part of the deserts of newly irrigated land areas (Mirzachul, Jizzakh, Karshi) consists of pale gray soils. Pale gray soils make up 10 percent of the total dry land (supplied dry land) and 18 percent of the total irrigated areas in the region. Therefore, on slightly sloping lands, light-colored ice soils are desalinated as a result of washing, but on relief plains, under the influence of excessive irrigation and other factors, saline rises to the surface of the soil together with groundwater, causing re-salination. In order to reduce the level of stormwater, the collector needs to dig trenches, wash the soil salt, strictly regulate the regime of crop irrigation, level the land, introduce crop rotation, establish hedgerows and other measures. Soils in the region of gray soils are low in humus, nitrogen and phosphorus, and organic substances are quickly mineralized.

**Mechanical and mineralogical composition.** Due to the fact that gray-brown soils are formed from parent rocks of different composition, their mechanical composition is also different, and more sandy and light loam types are distributed. E. V. According to Lobova's researches, most of the soils of Karnabchol consist of pale yellow-brown soils. The upper layers of the soil are characterized by the presence of fine sand and large dust fractions, and in the illuvial horizon there is a large amount (11–18%) of turbid particles smaller than 0.001 mm. Gypsum salinity in these soils is quite high (at a depth of 50-60 cm) and the amount of humus is quite high - 1.17%. The main part of carbonates lies at a depth of 10–20 cm. In terms of mechanical composition, the soils of Karnabchol are divided into the following types: sandy-loamy light gray-brown soils, deluvial-proluvial soils with saline layers, gypsum-sandy light-grey-brown soils, etc. All types of soils are characterized by layer-by-layer arrangement in terms of density, mechanical structure and salt content. L. I. Safonova and O. S. Long-term research conducted by Lobko indicates that the mechanical composition of gray-brown and brown soils is different. Light cloudy layer alternates with medium cloudy, sand and other layers. In some layers, the amount of turbidity with a size of 0.001 mm reaches 21%. (see Appendix 4).

**Water-physical properties of experimental field soils.** The water-physical and agrochemical properties of the gray-brown soils are quite unfavorable, due to the abundance and proximity of gypsum in the soil and parent rocks, as well as the complexity of the relief, the development of these soils is very difficult. With a total porosity of up to 48%, aerated soil porosity varies from 32% to 45%, and maximum hygroscopicity varies from 10.4% to 2.2%. Specific volume density of soil particles varies from 1.72 to 1.37 g/cm<sup>3</sup>, which indicates their different origin. The density of the driving layer is 1.45-1.50 g/cm<sup>3</sup>, the density of the lower layers where rock fragments are more common is 1.72 g/cm<sup>3</sup>.

**Chemical composition.** The chemical composition of cauliflower soil is given in Appendix 5. As can be seen, the soil is almost not saline up to a depth of 100 cm, and accumulation of salts is observed in a much deeper layer (solid residue up to 1.2%). The amount of gypsum in the soil varies from 0.52 to 12.0 depending on the layers (see Appendix 5). The amount of humus in the upper layer is up to 0.8%, and as it goes deeper, its amount decreases to 0.17%. The solid residue in this layer consists mainly of NaCl and CaSO<sub>4</sub> salts, and the upper layers have sulfate-chloride and chloride-chloride-sulfate salinity.

Plant cover. E.P. Korovin divided the vegetation cover of the desert region into the following types: 1. Hypsophilous-semi-shrub vegetation; 2. Succulent-halophilous plant; 3. Psammophilous tree-shrub plant; 4. Ephemeral-herbaceous plants; 5. Forest with shrubs and trees and herbaceous plants; 6. Hydrophilic plants; 7. Sour herb. From the point of view of this classification, the vegetation cover of Cauliflower is typical of the gypsophilic-semi-shrub plant type. According to L.S. Gaevskaya and E.S. Krasnopolin, in the vegetation cover of Cauliflower, together with the group of wormwood-ephemeral plants, there are also groups consisting of only ephemeral grasses. The reason for this is the chemical and mechanical properties of the soil. But, Karna

For example, according to the researches of S.M. Mavlonov, 238 types of flowering plants were recorded in the flora of Karnabchol. These plant species belong to 138 genera, of which 216 species are herbaceous plants (90.8%), 12 species are semi-shrubs (5.0%) and 10 species (4.2%) are shrubs. The following species can be found in the vegetation cover of the Karnab Desert: Wormwood-Artemisia diffusa, Krasch. ex Poljak, A. turanica Krasch, Salsola orientalis S. Gmel., Halothamnus subaphulla (G.A. May), Carex pachystulis L., Gade stritata Merkel. ex Bunge; Ferula assa foetida (Bunge) Regel, Anisantha tectorum (L). Nevski, Bromus danthanige Trin, Malcolmia turkestanica Litv., Trigonella noeana Boiss., Leptaleum filefolim (Willd) DS., types of barley-Eremopyrum orientale (L.) Gaub. l Spach, E. hirsutum (Bertel.) Nevski and others are found in abundance. In the natural flora of Karnabchol, one-year salt grasses such as seta-Salsola scleranta, fish-eye-Climacoptera lanata, hare-Halocharis hispida, and coarse-stemmed plants are found. Wormwood - ephemeral Cauliflower pastures are fed by wormwood, and only 15-20% of ephemeral grasses make up 40-50% of Karakol sheep's diet in the spring season. Especially in the autumn and winter seasons, there is a shortage of food, and the importance of creating high-yielding autumn-winter pastures increases even more.

### List of used literature

1. Gaevskaya L.S., Krasnopolin E.S. Pastbishcha Samarkandskoy oblasti i ix ispolzovanie v ovtsevodstve.// Voprosy selskogo hozyyastva Zeravshanskogo pooleina. Tashkent: Iz-vo AN UzSSR, 1957.-p. 246-252.
2. Korovin E. P. Rastitelnost Sredney Azii i Yuzhnogo Kazakhstan. Tashkent, Izd-vo AN Uz SSR, book 1, 1961.-432 p.
3. Lobova V.V. Pochvy pustynnoy zony SSSR –M: Izd-vo AN SSSR. 1960.-364 p.
4. Mavlyanov S. M. Ekologo-phytosenologicheskaya characteristicsika ephemeroidnogo-polynnika Karnabchulya v svyazi s proizvodstvennostyu pastbishch. Autoref. diss. sugar b. science Samarkand, 1973. -27 p.
5. Safonova L.I., Lobko O.S. Sero-burye pochvy Karnabchulya//. Trudy VNIK. Vyp.7.-Tashkent, 1977.-S. 142-152.