

## **IT CONSISTS OF STUDYING THE ORIGIN, BOTANICAL, AND AGROBIOLOGICAL CHARACTERISTICS OF VARIETIES OF THE SUGAR SORGHUM (SACCHARATUM) PLANT**

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### **Abstract**

The article studies the botanical and agrobiological characteristics, growth phases, and yield indicators of the sugar sorghum (*Sorghum saccharatum*) plant under local conditions.

**Keywords:** Sakharo camel, grain sorghum, husk, dung broom, milk ripening, drought tolerant, phenological.

### **Introduction**

The Decree of the President of the Republic of Uzbekistan on the "Development Strategy of New Uzbekistan" for 2022-2026 sets the tasks of "developing unused areas, strengthening the livestock feed base by increasing it by 1.5-2 times." In this case, it is relevant to use the ripening of corn plant as a raw material [1].

Currently, extremely hot summer temperatures (45-48°C), decreasing water reserves, and varying degrees of salinization of croplands in the republic are negatively affecting the growth and development of crops that provide the main raw materials for industry. Under such conditions, among agricultural crops, white millet, which is called the "desert camel" and is considered the second homeland of our homeland in terms of origin, shows good results. It is possible to grow white sorghum, a variety belonging to the grain sorghum group, 8-10 tons of grain from its hybrids, 50-120 tons of green mass, a variety belonging to the group of sugar and grass sorghum, from its hybrids [2].

Sorghum is a highly productive crop with a wide range of uses. It is also unmatched in its tolerance to drought, heat, and salt.[5]

Today, our scientists have created high-yielding varieties and hybrids that are resistant to the soil and climatic conditions of the republic.

Karabash variety. Selection variety of the Uzbekistan Maize Research Station Krasnyy Yantar was created through the multi-selection method.

Botanical classification: Sugar corn belongs to the group of grains with a black shell. The weight of 1000 grains is 24.3-25.0 g. The stem is green, juicy, height 220-250 cm. Dung is broom-like, spreading, 24.5-28.0 cm long.

Agrobiological description: The variety is fast growing, the vegetation period is 105-110 days. Resistant to salt and drought

The sugar content of the stem is 16.0%. 1.0-3.0% of the population is affected by blackleg. Farm description: The variety produces 2 harvests when grown as a main crop. Grain is 22.0-24.5 t/ha and silage mass is 350.0-390.0 t/ha.[4]

Oranjevoe 160 variety - All-Union scientific variety of plant science

of the inspection institute N.I. It was created by single selection from a sample brought to the Kuban station named after Vavilov from the USA.

Botanical classification: the variety belongs to the group of sugar corn, belongs to the type Contractum The stem is moderately thick, the plant is 220-300 cm high, rich in water, filled with sweet pulp, well-leaved: the length of the leaf is 55-60 cm, width 6.0-8.0 cm; the petiole is straight, ovate-oblong, length 22-26 cm and width 6.0-8.0 cm, weakly curved, sparsely grained, without knots, orange-red in color, weighing 60.0-90.0 g. The grain is half-shelled, easily crushed, yellow-brown in color, ovate-oblong, small, weight of 1000 grains is 18.0-20.0 g.

Agrobiological classification: The variety is mid-season, the period from planting to ripening is 120-124 days. Resistant to salt, resistant to lodging. Demanding soil and climatic conditions. Susceptible to aphids, spike blight and bacteriosis.

Farm classification: The yield of the first and second harvest is 900.0-1200.0 ts/ha of silage mass. During milk ripening, 16.0-18.0% sugar accumulates in the juice contained in the stem. In the first harvest, it gives 500.0-600.0 t/ha silage mass, 27.0-35.0 t/ha grain. [8]

Uzbekistan 18th variety – a selection variety of the Uzbek Research Institute of Livestock Breeding (Scientific Production Association "Zotdor") It was created through selection from a hybrid of the African Brown variety and the Six-Oil variety. Botanical classification: Belongs to the sugar corn group. The color of the grass is light green, and the stem remains green until fully ripe. Plant height 350.0 cm. The main stem is green, with 16-17 leaves. The leaves are large, lanceolate, 70.0 cm long, consisting of dark green plates and colorless green threads. The stem

is straight, 24.0-26.0 cm long, well-developed. The grain is flat-round, white, with a husk of 30.0-40.0%. The average grain yield is up to 68.5 centners per hectare, the green mass yield is 1000.0 c/ha, 277.3 centners in dry matter, the weight of 1000 grains is 28.3 g.[8]

Agrobiological classification: The variety is late maturing, the vegetation period is 140-150 days. Drought-resistant. The sugar content in the plant sap is 16.0-18.0%. Farm classification: Since 1981, it has been included in the State Register for the production of grain and silage on irrigated lands of the Republic of Karakalpakstan and Tashkent region. [4]

Crops selected for the experiment were planted in 6 plots, 12 meters long, 54 m<sup>2</sup> plot area, 4 rows and 4 repetitions.

The total experimental area for each variety was 216 m<sup>2</sup>, with a 1.5-meter aisle after each row, a protection zone on all four sides, and maize of the Uzbekistan 601 ESV hybrid was planted in the protection zone.

Irrigation ditches and ditches have been removed. There are no houses or trees around the crop field. The experimental area was plowed to a depth of 30-35 cm. Before plowing, generally recommended 90 kg of phosphorus and 60 kg of potassium fertilizers were given. In the spring, when the soil was ripe, it was harrowed to a depth of 12-15 cm with a toothed harrow and then troweled. For irrigation, planting beds and trenches were dug with a tractor. Manual planting was carried out to achieve the desired seedling densities in the experimental plots.

Once the plants had fully emerged, the rows were tilled, the experimental field was harrowed, cultivated with a tractor, hand-weeded, and irrigated 5 times. All agrotechnical measures in the experimental field were carried out based on the model technological map "For the care and production of agricultural crops" [7]. Recommendations were also used in conducting agrotechnical activities Before planting, the experimental field was plowed to a depth of 28-30 cm The experimental field was applied to the soil (R90 Kb0) kg/ha at the expense of the active substance of mineral fertilizers before plowing. The first feeding was done when the plants were 5-6 leaves out, and the second was 10-12 leaves out, nitrogen fertilizer was applied at 100 kg/ha [3]

Calculations were made based on biological and phenological observations in the experimental field on the growth periods.

Based on the data identified in the study, namely germination, the initial development period, and the most important indicators, such as tillering, flowering, and grain ripening, the varieties were analyzed in depth. The valuable aspects of the 3 studied varieties were shown in the following: the period of fruiting was 65-90 days, the period of flowering was 74-98 days, and the period of milk ripening was 88-123 days.

**Table 1 Duration of the growing season of sorghum varieties.**

| № | Varietal name of specimens | From germination, in days: |                 |                     |
|---|----------------------------|----------------------------|-----------------|---------------------|
|   |                            | until fertilization        | until flowering | milk-wax until ripe |
| 1 | Qorabosh                   | 63                         | 70              | 82                  |
| 2 | Oranjevoe 160              | 77                         | 84              | 95                  |
| 3 | O'zbekiston 18             | 90                         | 98              | 124                 |

These indicators are fertilization 63, flowering 70, milk-wax ripening 82 days in the Karabash variety, fertilization 77, flowering 84, milk-wax ripening 95 days in the Oranjevoe variety 160, fertilization 90 in the Uzbekistan 18 variety, flowering 98, milk-wax ripening 124 days, ( Table 1).

When studying the biometric indicators of johori varieties, the highest plant height indicators were determined in the Karabash and Uzbekistan 18 varieties. The remaining varieties were 41.7-154.9 cm lower than them (Table 2). The length of the tiller was 31.3 cm in the Karabash variety, 29.6 cm in the Uzbek Pekanasi variety, 25.0-25.3 cm in the Uzbek 18 and Uzbek 5 varieties.

The diameter of the stem was the highest among the 18 varieties from Uzbekistan, reaching 2.29 - 2.95 cm.

**Table 2 Biometric indicators of sorghum cultivars during milk ripening**

| “№ | Varietal name of specimens | Plant height, cm | Porch length, cm | Stem diameter, cm | Number of leaves, pcs. |
|----|----------------------------|------------------|------------------|-------------------|------------------------|
| 21 | Qorabosh                   | 269,2            | 31,3             | 1,64              | 11                     |
| 42 | Oranjevoe 160              | 227,5            | 23,5             | 1,90              | 12                     |
| 53 | O'zbekiston 18             | 242,0            | 25,3             | 2,34              | 15                     |

n terms of leaf number, the number of leaves during the milky-wax ripening period in the Karabash variety was 11, in the Orange 160 variety it was 12, and in the Uzbekistan 18 variety it was 15. (Table 2).

**Table 3 Indicators of green and dry mass productivity of sorghum samples (during milk-wax ripening).**

| № | Varietal name of specimens | Number of leaves, pcs. | Dry mass yield, t/ha |
|---|----------------------------|------------------------|----------------------|
| 1 | Qorabosh                   | 33,9                   | 11,2                 |
| 2 | Oranjevoe 160              | 67,2                   | 20,8                 |
| 3 | O'zbekiston 18             | 79,2                   | 29,0                 |

As can be seen from the table, the late ripening Uzbek 18 variety with the highest green mass yield is 79.2 t/ha, the mid-ripening Oranjevoe 160 variety is 67.2 t/ha, and the Karabash variety is 33.9 t/ha.

### Conclusion:

Considering that maize is a food and industrial crop, its tolerance to saline soils and drought tolerance, its processing and use as a raw material in the feed industry for livestock, poultry, and fish, and its mass cultivation of early maturing varieties as a secondary crop in our Republic are considered expedient.

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