

SORGHUM (SORGHUM L) FOOD, NUTRITION, TECHNICAL SIGNIFICANCE, CULTIVATION STATUS AND PROSPECTS

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Abstract. This thesis presents an analysis of the data presented in scientific sources on the importance of sorghum (*Sorghum L*) belonging to the group of millet crops in the national economy, the state of cultivation in the countries of the world and in Uzbekistan, the area of cultivation, productivity, and the different aspects of the species.

Keywords: sorghum, seed, grain, animal feed, growth, development, nutritional value, productivity.



INTRODUCTION: THE SIGNIFICANCE OF SORGHUM (SORGHUM L) AS FOOD, NUTRITION, TECHNICAL.

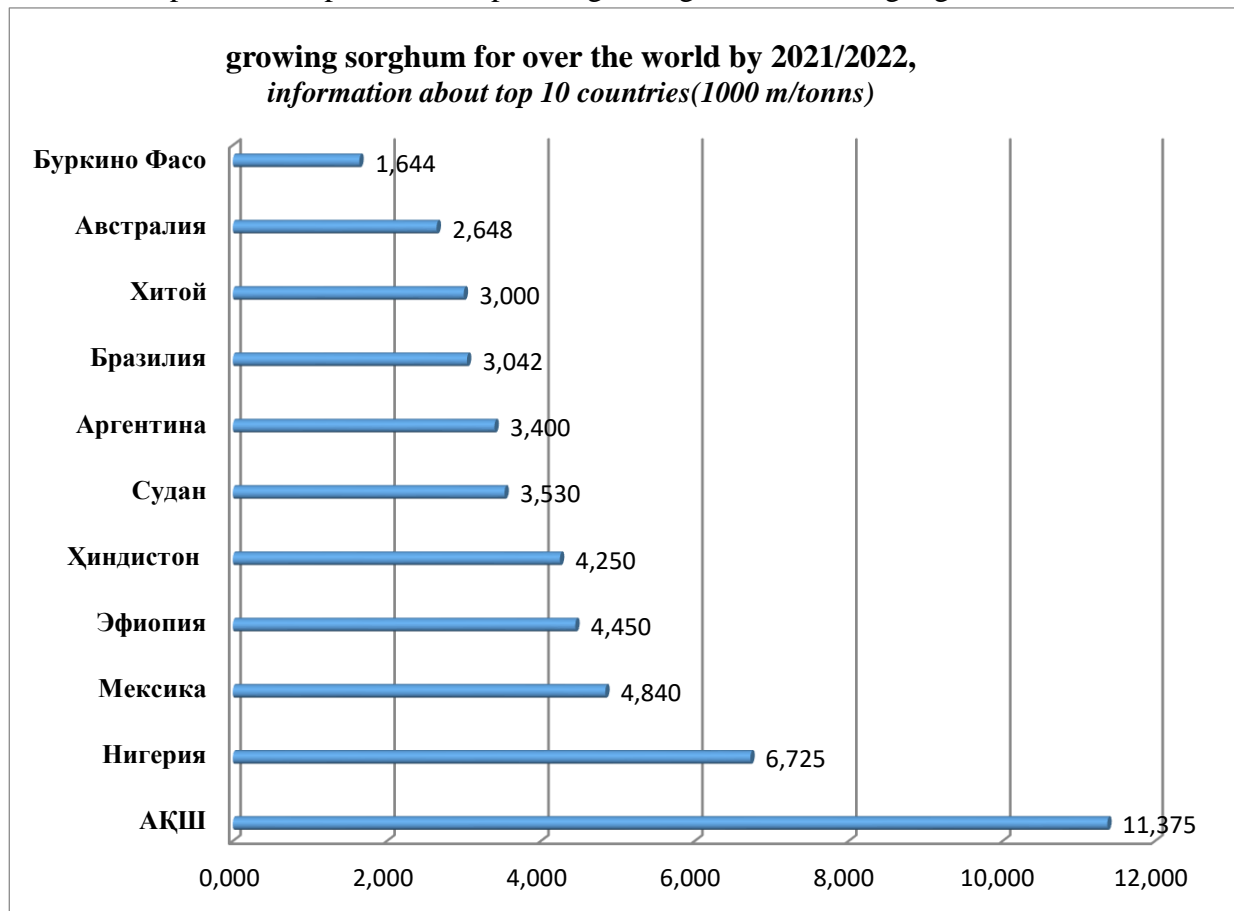
Oatmeal is a high-value, nutritious, technical crop. Oat grains and greens are widely used for feeding farm animals and poultry, as evidenced by the information of foreign and our own scientists. Oatmeal is successfully used to feed young chickens in the direction of laying eggs and broilers. Residents of the Central Asian countries have long been preparing local, national dishes by using locally cultivated varieties of corn to make semolina and flour.

High-sugar varieties of sorghum from the world collection of ITI of plant genetic resources served as a source of sugar, which was obtained in a semi-industrial facility in Namangan region (18-22% sugar in stem juice). When the world collection of corn was studied in 30 countries for 6 years, the amount of protein in corn grain is from 7 to 26% of the total amount of protein, lysine - 0.5-3.8%, threonine - 2.8-5.5%, tryptophan - 0.34 -4.51%, isoleucine - 3.26-5.51% and leucine - 9.5-17.1%. Oat grain protein mainly consists of prolamin, glutelin and globulin. The nutritional value of one centner of grain is 122 nutritional units, and the nutritional value of 1 centner of greens is equal to 22-24 nutritional units.

THE HISTORY OF SORGHUM

According to the history of the origin of the sorghum, it originated in Equatorial Africa, where a large number of different species grow. Oats have been cultivated in India for 3,000 years, in Syria,

Palestine, on the coast of the Red Sea, and for many years in China. The antiquity of sorghum has made it a staple food crop in Africa, spreading throughout all farming regions.



When analyzing the state of corn cultivation in the countries of the world, the USA, Nigeria, Mexico, Ethiopia, India, Sudan, Argentina, Brazil, China, Australia occupy the top 10 places. Also, a total of 16 countries achieved a gross yield of more than one million tons of sorghum (<https://www.statista.com/statistics/1134651/global-sorghum-production-by-country>).

Ranking Of Countries That Produce The Most Sorghum (2020 йил) - The total amount of the total harvest in 66 corn-growing countries listed on the website was 62,018,000 tons. (<https://beef2live.com/story-ranking-countries-produce-sorghum-0-212853>).

SYSTEMATICS.

Sorghum belongs to the brown-headed family, *Sorghum* (*Sorghum* Moench) genus, which includes more than 30 species.

Common ones in Uzbekistan:

1. *Sorghum cernuum* Host.

Dung is bent, very dense, broadly ovoid, 8-12 cm long and 6-10 cm wide. Spikelets are 5-9 mm long. The height of the plant is from 120 to 300 cm, the grain is white. The middle of the stem is porous, fibrous and has a small amount of juice. The most cultivated local varieties of this species are Katta-bosh, Boy-dzhugara, Matkair, Uchoylik, Tortoylik, Altioylik, Huraki, selective varieties of Uzbekistan - Chillaki, Tashkent white grain.

It grows well in Central Asia: Uzbekistan, Tajikistan, Turkmenistan, as well as in India, Afghanistan, Iran, Pakistan.

1. *S. saccharatum* (L.). Differs in erect, dense or sparse trunk 15-25 cm long, 5-6 cm wide with twisted lateral branches. The grain is fully or partially covered with spiked husks. The height

of the plant is 2-3 m. The middle of the stem is dense, juicy, the juice of the stem contains 16-20% sugar. Very good hay is obtained, it differs in that it has the ability to grow after mowing. It is widely used in the preparation of fodder and for silage.

There are the following selective varieties:

Sanzar, Uzbekistan 18, Shirin 91, Kantlik-djughara, Asal-bagh.

2. *S. vulgare* Pers. – Simple oat. The stem is straight and strong, 2-3 m high, the trunk is straight, dense or porous, 12-20 cm long, 7-8 cm wide. White grain is used for food. Stems are fodder for livestock. Local variety: Naiman is found in the northern regions of Uzbekistan.

3. *S. Technicum* (Koern.) – Technical oats. It differs from other forms in the structure of its trunk: the trunk is short, the side branches are thick, long, straight, directed upwards at an acute angle: the trunk is inverted - pyramidal, slightly bent to one side, 7-20 cm long. The length of the blade is 6-10 mm. The grain is painted, surrounded by shells. It is planted everywhere to make broom.

4. *S. sudanese* (Piper) - Sudan grass. Branched from the base of the stem, hairless, smooth, up to 1.5 m tall, 5-10 mm in diameter. The length of the leaf blade is hairless and smooth, 2.5 mm, cut. The leaves are broad-striped, 4-5 cm wide, hairless and smooth, with rough edges. The trunk is straight, wide pyramidal ovate, the branches are more curved. The length of the spikes is 5-7 mm wide-lanceolate or lanceolate-ovate. The tips of spikelets are sharp, the shoulder is glabrous, shiny. In dry farming, it is used as a field crop, and in irrigated farming, it is sown alone or mixed with alfalfa and harvested 3-4 times for green fodder. Selective varieties: Chimboy-8, Chimboy-yubiley [1; 2].

GROUPING OF SORGHUM BY USING AND PRODUCTS OBTAINED

Oats are divided into three groups according to their use and product. Cereal, sweet and broom oats.

1. Grain sorghum is grown mainly for grain. But it is also planted to make silage from the stem. Cereal sorghum plants vary in height, with tall and short varieties. It usually does not clump, forming a single stem. The grain is bare, easily crushed, and the varieties used for food are white in color.

Dung grows erect or drooping. The core of the stem is juicy, slightly juicy. The longitudinal middle vein of the leaf is yellowish-white or white. Joint intervals will be shorter. Varieties of corn that are cultivated for grain are widely distributed in Uzbekistan.

2. Sweet sorghum. It is grown to obtain molasses from the stem of the marsh, but mainly for the preparation of fodder and for the preparation of juicy silage. Varieties belonging to this group have a tall, juicy stem, a sweet core, and are well packed. The grain is shelled or semi-shelled, hard to crush. The main vein of the leaf is green, gray, green or flowing. The joints of the stem are long, the stem grows upright, and it is often branched.

3. Broom sorghum. Dung is used to make household brooms and brushes. The length of the stem is different, the core is dry. The grain is always husky and difficult to crush. The main vein of the leaf is white, the petiole is long (40-90 cm) bent to one side, the main axis is absent or very short [2; 3].

THE VARIETIES OF SORGHUM IN UZBEKISTAN

Varieties of sorghum differ from each other in a number of characteristics characteristic of the stem, rind, and grain. The most important characteristics of the varieties are as follows: The

length of the plant is measured from the tip of the upright plants, to the end of the upper leaf sheath of the curved plants.

The condition of the trunk - the trunk grows erect, more horizontal, twisted and bent. Burrow density - can be sparse, dense, scattered. The color of the shell of spikes ranges from white to red to black. A description of whether the grain is bare or shelled and the color of the grain. To give a description of the varieties, we will give a description of several varieties as an example.

“Sweet sorghum”, “Uzbekistan’s small”, “Uzbekistan -5”, “Uzbekistan-18”, “Shirin-91” and others are planted in Uzbekistan. A description of some varieties of corn is given in the article.

SWEET SORGHUM - The selection variety of the "DON" Scientific Production Association of the Cereal Research Institute. The variety Oranjevoe-160 was created by crossing it with hybrid 696 and by multiple selection.

Authors: Oleynik P.P., Kamalova N.K.

Since 1981, it has been included in the State Register for silage in the arid lands of Jizzakh, Kashkadarya, and Navoi Samarkand regions. The height of the plant is 140-160 sm. The stem is resistant to breakage, thick, juicy and sweet. 15-16 joints, 14-15 leaves appear on the main stem. The leaf is dull green, hairless, leaves and stem retain their juice and green color in all phases of the life cycle.

The stem is upright, poniform, cylindrical, compact, resistant to shedding, 22-24 cm long, floret 27-28 sm, the spike is thin, egg-shaped, without a stalk. The husk of the ear is black, the skin is thick, up to 1/3 of the grain. The grain is ovoid, brown, semi-skinned. The grain is well ground.

Early morning, the validity period is up to 100 days. Greens contain 10.8-11.4% protein, the sugar content of stem juice is 18-20%. Resistant to drought, suitable for mechanical harvesting. Resistant to diseases and pests.

UZBEKISTAN’S SMALL. Breeding variety of the livestock breeding institute of Uzbekistan. Made from a single selection of local evening primrose.

Authors - Kadamov S.K., Massino I.V.

Since 1974, it has been included in the State Register for grain and silage in the irrigated lands of Andijan, Bukhara, Jizzakh, Namangan, Navoi, Samarkand, Syrdarya, Tashkent, and Fergana regions.

The height of the plant is 100-123 cm. Dung is ovoid, long, poniform, white, hairy, 21 sm long. The grain is round, concave on both sides, without white skin. The weight of 1000 grains is 23 g. The digestibility is good - up to 77%. The average grain yield is 82.2 tons/ha. Average, validity period 130-150 days. Drought, lodging and shedding resistant. Suitable for mechanical mowing. Grain contains 9.2% protein and 80.7% starch. Resistant to diseases and pests.

SHIRIN. Selection variety of the Donchilik ITI of Uzbekistan. Oranjevyy-160x Oranjevyy 160 hybrid was created by multiple selection.

Authors - Oleynik P.P., Ergashev N.E.

Since 1998, it has been included in the State Register for grain and silage in the Republic of Karakalpakstan. The variety belongs to the South African sorghum group, type contractum. Sugar corn. The plant is 300 cm tall. Dung erect, pyramidal, red-yellow. The length of the flower band is 32-34 cm. The grain is oblong. Brownish brown. The grain is ground well. Average yield of dry matter is 268.5 tons/ha, grain yield is 62.4 tons/ha. The variety ripens late, the period of validity is 120 days, 138-140 days until full ripening. The variety is branched, so it is deciduous, the juice of the stem contains 18.7-19% sugar. Resistant to drought and salt. Suitable for

mechanical mowing. It is not affected by diseases and pests. Due to the abundance of sugar in the stem juice, the variety is recommended for obtaining sugary nutritious products.

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