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НАУЧНЫЕ ОСНОВЫ ВЫРАЩИВАНИЯ САХАРНОЙ СВЕКЛЫ В ТУРКМЕНИСТАНЕ

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Аннотация: Развитие сахарной промышленности в XVIII–XIX веках потребовало большого количества сахарной свеклы в качестве сырья. В результате все больше людей стали заниматься селекцией и сортировкой свеклы. Проводятся работы со многими сортами с целью улучшения их качества. В настоящее время в научно-исследовательских институтах Туркменистана ведутся научные исследования по созданию местных сортов свеклы из сортов, завезенных из-за рубежа.

Ключевые слова: сахарная свекла, атмосферный воздух, автомобили, анализ почвы, химический анализ.

SCIENTIFIC FOUNDATIONS OF SUGAR BEET CULTIVATION IN TURKMENISTAN

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Abstract: The development of the sugar industry in the 18th and 19th centuries required a large amount of sugar beet as raw material. As a result, more and more people are engaged in beet selection and sort. Many sorts are working to improve the quality of beet. Therefore, at present, scientific research works on the creation of local varieties of beet varieties brought from abroad are being conducted in the scientific research institutes of Turkmenistan.
Keywords: sugar beet, atmospheric air, cars, soil analysis, chemical analysis.

All modern cultivated species of beech are descended from wild species. Sugar beet is one of the (late) cultivated crops after cereals, cabbage, radish, onion, garlic and several other crops. It started to be used in Central Asia, Asia Minor, and the coasts of the Mediterranean Sea in the 3rd millennium BC. The first beetroot was selected from the wild Beta perennis species in Mesopotamia (now Iraq) and used as a vegetable and medicine. The root-fruit beech appeared in the 1st millennium AD, that is, it appeared later (late) than the leafy beech, which also spread in Asian countries. Later, it was cultivated in Western Europe - northern Italy, Germany, and Switzerland in the XIII-XIV centuries [4,6,9]. The edible root is the fruit seed, followed by the herbaceous

seed. It is mainly selected from hybrids of leaf and root beets, cultivated under good conditions [1].

The root of the sugar beet consists mainly of two parts: the tap root and its thick and thin branches. The roots penetrate the soil to a depth of 2-2.5 meters. Spreads up to 40-50 centimeters laterally. Root growth is mainly due to the formation of rings of new, outer vascular complexes and their subsequent growth into the skin of the root fruit. The inner veins of the root grow more weakly. Thus, the youngest veins of the root are located on its outer side. The root system of sugar beech penetrates the soil very quickly and deeply. Beech is a long-day light-loving plant. The duration and intensity of light exposure strongly influence overall growth, growth and sugar accumulation [2,14]. The better the light, the better the synthesis of carbohydrates. Inadequate light reduces yield and sugar content. The lack of light can be caused by the presence of weeds in the field. Therefore, they should be removed from the room in time, and there should be normal speech. The light requirement of sugar beet increases during its sugar accumulation [3,5,7]. It is known that 12 milligrams of sugar are accumulated in 1 hour when 1 square centimeter of leaf is exposed to light. Alternation of sunny and cloudy weather does not affect yield and sugar accumulation. In very hot weather, assimilation is weakened. Water demand. One of the main conditions for growing a high yield of sugar beet in the soil and weather conditions of Turkmenistan is to improve its water supply. When there is a lack of water in the sugar beet, the effect of applied fertilizers on its yield and sugar content is not felt. When mineral fertilizers are used separately from the crop, more precisely, when the crop is not used, the amount of sugar in the crop decreases by 21.1 % percent [1,2].

Thus, when only mineral fertilizers ($N_{200} P_{140} K_{60}$) are used, the amount of sugar in the total yield is reduced by 410 kilograms (4.1 centners per hectare) than in the experiment where 40 tons per hectare were used. When a regular water supply was established, the situation changed dramatically superior results are obtained from the same fertilizers. When a regular water supply is established, the situation changes

dramatically, and higher results are obtained from the same fertilizers used. Sugar beet is a moderately demanding plant. The transpiration coefficient of sugar beet varies from 240 to 400, depending on its growing conditions, lighting, temperature and other conditions, as well as the growing season. Although this crop is a high-water-intensive crop, it achieves high levels of water consumption per hectare because of its high dry matter production during the growing season [1,4,9,13]. When yielding 400-500 centners per hectare, the amount of water used reaches 3200-4000 cubic meters per hectare.

The period of greatest demand for water is from July to August. That is, it occurs during its most powerful growth period. The optimum soil moisture for its growth and high yield is considered to be 65-75 percent [1].







Figure 1. Beet root (Beta vulgaris)

When the soil is too compacted (hard), the rootstock is compressed, becomes a ball or barrel, and branches heavily. As a result, its quality decreases, sugar decreases. Ghent beech does not grow in areas with rich sandy soils or in areas with high salinity near groundwater.

Table 1 - **Fertilizers and irrigation sugarcane are common in wet soil effect on yield and sugar content** (According to S. Gruyev and others, 1974)

Levels of water supply in trials	**No spillage**			**N 90 P 90 + rate 10 t/ha**			**Improve nutrition and irrigation**	
	Root fruit, yield, t/ha	**The amount of sugar in the sugar beets**		Root fruit, yield, t/ha The amount of sugar in the sugar beets	**The amount of sugar in the sugar beets**		**additional yield from corn, s/q**	
		%	**s/c**		**%**	**s/c**	**total**	**since then amount of sugar**
In case of water shortage	341.0	17.3	59.0	383.0	16.6	63.6	42.0	4.6

Soil moisture Not less than 70%	474.0	17.3	82.0	693.6	17.6	121.8	219.6	39.8
Soil moisture Not less than 80%	520.5	16.8	87.5	792.4	17.2	136.2	271.9	48.7

At the same time, sugar beet is distinguished by its tolerance to salinity and is able to give high yields with good sugar in areas with low salinity. When beetroot was planted for two years in the field of training and experimental agriculture of the Turkmen Agricultural University named after S.A.Niyazov on a light clay soil, it was found that there were many root fruits affected by nematode. Also, it should not be replanted in the same field for more than 4 years. When grown in a crop rotation, it should not occupy more than 20 percent of the area. In crop rotation, when it comes after grain and forage crops, it produces a good harvest [1,3,10].

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