SWEET POTATO (IPOMOEA BATATAS) CULTIVATION

UDK: 633.492

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Annotation: Development of agrotechnology for the cultivation of the sweet potato plant, to satisfy the population's demand for quality food products by increasing the product. Development and implementation of agrotechnology of sweet potato cultivation in Uzbekistan, the requirements for climatic factors, water and soil environment, on a more perfect scientific basis, and organization of production of highquality food and secondary products.

Abstract: Development of agrotechnology for the cultivation of the sweet potato plant, to satisfy the population's demand for quality food products by increasing the product. Development and implementation of agrotechnology of sweet potato cultivation in Uzbekistan, the requirements for climatic factors, water and soil environment, on a more perfect scientific basis, and organization of production of highquality food and secondary products.

Keywords: Sweet potato, orange skin and flesh, pink skin and orange flesh, yellow skin and white flesh, purple skin and white flesh, skin and flesh violet, biology, breeding methods, soil and climatic conditions, maintenance.

Introduction. Sweet potatoes are a root crop and, despite their name, are not considered to be members of the same biological family as ordinary potatoes. There are several types of sweet potatoes with different colors and varieties: orange skin and flesh, pink skin and orange flesh, yellow skin and white flesh, purple skin and white flesh, and purple skin and flesh. At the same time, other orange-fleshed varieties of sweet potatoes, such as Orleans and Evangeline, are also widely sold in Europe. The sweet potato variety with flesh is widespread only in traditional markets. Purple varieties are sold in very small quantities in Europe. Yellow and orange varieties of sweet potatoes are rich in beta-carotene (provitamin A), and the indicator exceeds the amount contained in carrots. Purple and black varieties of sweet potatoes contain anthocyanins, which are preserved

both during heat treatment and in light. Therefore, they have antioxidant properties and are recommended for use in a healthy diet. Sweet potatoes are widely used in the prevention of cancer, ulcers, cardiovascular diseases and age-related eye diseases. Sweet potato tubers are widely used in industry to produce starch, alcohol and sugar. After the plant matures, its stems and leaves are used to feed livestock. In the food industry, the root tubers are boiled, stewed and fried. In processing, it is used to make beer, produce chips, alcohol and sugar, and in the production of bread and confectionery products. In animal husbandry, the leaves, stems and tubers are used as feed.

Biology. Sweet potato is a thermophilic plant, the optimal temperature for the growth and development of the plant is +30-35 ° C. When the temperature rises to 45 ° C, the growth of sweet potato accelerates again. When the temperature drops to +10 ° C, the plant stops growing. The leaves are considered intolerant to cold temperatures of 0°C, the stem to -2-3°C, and the tuber to 2-4°C, and they quickly die. Early varieties of sweet potatoes are ready for harvest in 100-120 days, and late varieties in 140-180 days. The stem of the plant grows along the ground and spreads (1-5 m), its height is 15-18 cm, the leaves are heart-shaped, claw-shaped, green. Sweet potato tubers are large, weighing from 200 grams to 3 kilograms or more. The tuber flesh is white, yellow, purple, and black, and purple and black ones are used as valuable raw materials in industry. The growth and development of our plant, vegetation periods are suitable for cultivation in fertile, water-rich areas with grassy soil in the central and southern regions of Uzbekistan.

Reproduction methods. In the cultivation of sweet potato plants, it is propagated from seedlings and cuttings. When preparing sweet potato seedlings, tubers are planted in a designated place in a nursery prepared according to agrotechnical requirements, in a place mixed with sandy soil or humus with a thickness of 8-10 cm. The tubers should be half in the soil and should not touch each other. After the plants grown from the tubers reach a height of 5-6 cm., a 3-4 cm layer of soil mixed with humus is placed on the tubers. The main goal is to ensure good development of the seedling's root system. After the tubers are placed in the nursery, seedlings begin to appear 2-3 weeks later, and within 1-1.5 months, the seedlings reach a height of 18-20 cm and are ready for planting in the

field. Up to 20-25 thousand seedlings are obtained from 100 kg of tubers. When sweet potato seedlings are planted in a 70x30 cm planting pattern, 150-200 kg of tubers are required to prepare 57.1 thousand seedlings or cuttings per hectare. Educational Innovation and Integration http://web-journal.ru/ 17-son_1-to'plam_March -2024 103 ISSN: 3030-3621

Requirements for soil climatic conditions. Sweet potatoes are not very demanding on the soil. Their well-developed roots are able to easily absorb nutrients from the lower layers of the soil. Light loamy soils are distinguished by their fertility for sweet potatoes. On heavy, loamy soils, nodules develop evenly. Soil with a pH of 5 in the field for sweet potatoes gives good results. Optimally acidic soil (pN=5.2-6.7) is considered optimal conditions for the growth and development of sweet potatoes. Cucumbers, melons, cabbage, cereals, legumes, cotton, corn and peanuts are good predecessors for sweet potatoes. Growing sweet potatoes after lettuce, rutabaga, radish, turnip, radish, horseradish and sorrel does not give good results, leads to a decrease in yield.

Care. The best time to plant sweet potatoes is from April 15 to May 10. Seedlings grown in greenhouses are planted in the field in a 70x30-40 cm pattern when the night air temperature is not lower than 10 ° C and the soil warms up sufficiently during the day. After planting sweet potatoes, the first agrotechnical work is carried out 1-1.5 months later, and they are harrowed, cleaned of weeds and weeded. During the growing season, sweet potatoes are harrowed 4 times and cleaned of weeds. Cultivated three times, and the rows are loosened. Later, when the sweet potato grows and develops, it completely covers the plot, and weeds cannot develop on their own, shading it. Sweet potatoes are very demanding on potassium fertilizers. They require less phosphorus, and nitrogen fertilizers are even less than other fertilizers. During the growth and development of the plant, it is advisable to apply 45-60 kg of nitrogen, 90-120 kg of phosphorus and 120-160 kg of potassium per hectare. 100 percent of the planned phosphorus is applied before plowing. If 2/3 of the annual amount of nitrogen fertilizers is applied before plowing the land and 1/3 during the growing season, before the first cutting, the plant will develop well and the desired yield will be achieved. The planted

seedlings are watered every 10-12 days, 14-15 times during the growing season when the groundwater is deep, and 7-8 times when the groundwater is shallow, at an amount of 600-700 m. Excessive watering of sweet potatoes during the harvest period leads to rotting of the tubers. But if the soil is too dry, the tubers harden, become rough, and do not store well, which leads to a decrease in the price of the product and economic losses. The ripening of the root tubers of the sweet potato plant occurs in September-October. 40-100 tons of yield can be obtained from the sweet potato plant per hectare. Educational Innovation and Integration http://web-journal.ru/ 17-son_1-to'plam_March -2024 105 ISSN: 3030-3621 Educational Innovation and Integration http://web-journal.ru/ 17-son_1-to'plam_March -2024 106 ISSN: 3030-3621

Conclusions. Based on the above information, it can be said that the sweet potato plant is a plant resistant to the climatic conditions of Uzbekistan. The results of planting sweet potato varieties in the irrigated lands of the Karaganda district in 2023-2024 prove this.

Educational innovation and integration http://web-journal.ru/ 17-son_1-to'plam_March -2024 107 ISSN: 3030-3621 In the experiment, the following varieties of sweet potato (sweet potato): Khazina, Sochakinur, Filial, Toyloqi varieties were used, the theoretical data provided were compared in practice. The selected varieties were planted in one hole with 1.2 and 3 plants according to the 70x25 and 90x20 cm scheme with a row spacing of 70 and 90 cm. It should also be remembered that the fact that sweet potato plants are larger than potatoes and the weight of their harvest means that they are a better source of income than potatoes.

List of used literature

1. Ostonakulov, T., Alimardonov, O., Amanturdiev, I., & Shamsiev, A. (2021). Management of Agrophysical Soil Properties, Plant Growth and the Formation of a Potato Yield with Early and Double-yielding Culture by Optimizing Row Spacing and Maintenance Measures in Southern UZBEKISTAN. Annals of the Romanian Society for Cell Biology, 11907-11916.

2. Ostonakulov, T. E., Shamsiev, A. A., Amanturdiev, I. Kh., & Tursunov, G. S. (2022).

3. Ostonakulov, T., Alimardonov, O., Amanturdiev, I., & Shamsiev, A. (2021). Management of Agrophysical Soil Properties, Plant Growth and the Formation of a Potato Yield with Early and Double-yielding Culture by Optimizing Row Spacing and Maintenance Measures in Southern UZBEKISTAN. Annals of the Romanian Society for Cell Biology, 11907-11916.

4. Islam, S. (2006). Sweetpotato (Ipomoea batatas L.) leaf: its potential effect on human health and nutrition. Journal of Food Science, 71(2), R13-R121.

5. Campos, H., Caligari, P. D., Mwanga, R. O., Andrade, M. I., Carey, E. E., Low, J. W., ... & Grüneberg, W. J. (2017). Sweetpotato (Ipomoea batatas l.). Genetic improvement of tropical crops, 181-218.