

INFLUENCE OF TEMPERATURE ON THE STORAGE OF GRAPE FRUITS

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Abstract. The article examines the impact of pre-storage measures on the storability of late-ripening grape varieties cultivated in the conditions of the Karakalpakstan region. The study presents the conditions for grape cultivation and ensuring the quality of grape clusters, as well as the processes of sorting and calibration.

Keywords. Grapes, fruits, varieties, initial processing, storage, temperature, relative humidity.

Introduction. Freshly harvested grapes are considered a food product due to the abundance of wine, lemon, sorrel, formic and other organic acids necessary for human health, mineral salts such as potassium, calcium, phosphorus, sodium, coloring substances in the fruit skin, tannins and vitamins A, C, PP, B₁, B₂, B₆, B₁₂. In the conditions of our republic, through the development of horticulture and viticulture, the possibility of providing the population with these crops throughout the year will be high. In this regard, in January-September 2025, all categories of farms in the republic produced about 1.5 million tons of grapes, which is 7.7% more than last year. Grapes are not only consumed fresh but are also widely used in the production of juices, raisins, wines, and other products. However, as grapes are a delicate product, they spoil quickly after harvesting. Therefore, implementing proper and effective storage methods is of great importance.

Research methods. Organoleptic quality indicators of grapes before and after storage were determined according to the methods of E.P.Shirokov, V.I.Polegaev (1982), R.Oripov, I.Sulaymanov, E.Umurzakov (1991), storage methods were carried out in accordance with the requirements of GOST-50522-93.

Research results. In our research, the preservation properties of grapes, that is, the late-ripening varieties Husayni and Toifi, were selected. The observation and experimental plot was carried out on a grape-growing farm in the Nukus district. Proper harvesting of grapes was organized before storage. The grapes were harvested fully ripe, healthy, and undamaged. Rotten, crushed, or diseased clusters are removed and not placed in storage. The grapes selected for storage must be placed in a dry, clean, and cooled place. In our experiment, fruits suitable for storage were selected from the Husayni and Toifi grape varieties. In this case, the average weight of 10 fruit heads of the Husayni variety was 980 grams, the number of fruits was 186, the weight of one fruit was 4.6 grams, while in the Toyfi variety, the weight of 10 fruit heads was 1060 grams, the number of fruits was 190, the weight of one fruit was 6.4 grams. By measuring and determining the weight of grape clusters, uniformity is required when placing them in special containers.

In our research, in the process of cultivating the Husayni and Toifi varieties in field conditions, which have high storability, it is necessary to collect the blocking leaves during the

growing season to ensure proper sunlight exposure. Basically, this work is organized in the vineyards of the experimental plot 25-30 days before the ripening of fruits. By placing grapes in boxes weighing 7-8 kg, they were placed in naturally ventilated warehouses starting from October. In this case, the grapes were cut in two different ways, and in one of our variants, the grapes were cut with annual branches and placed in containers with water inside the box. In the second variant, the grapes were placed wrapped in paper. The sugar content before storage was 19.7% for the Husayni variety and 21.4% for the Toifi variety. When conducting our observations in October, November, and December, the sugar content and natural decrease in products were determined. During this period, the air temperature of the warehouse was also measured. Depending on the external weather conditions, natural ventilation was carried out in the warehouse. In the conditions of the region, according to two variants, the sugar content in the Husayni variety during these months was 19.3%, 19.1%, 18.5%, while in the Toifi variety it was 19.9%, 19.5%, 19.3%. It can be seen that during storage, sugar content decreases faster in the Husayni variety and slower in the Toifi variety.

The natural decrease in grape varieties was observed less in the fruits of grapes placed in water, and more in the fruits of grapes wrapped in paper. At the same time, the average storage period for the Husayni variety was 8-9%, and for the Toifi variety - 5.6%. During this storage period, it was established that the air temperature in the warehouse where grapes were stored was 4-6°C in the first days and 1-3°C in December. Thus, in this research work, it was established that the Toifi grape variety has high storability, and the sugar content and natural decrease processes occur slowly. In naturally ventilated warehouses, maintaining an air temperature of 1-3°C is of great importance.

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