



## Mechanical Characteristics and Chemical Composition of the Grape Head and Cluster of Wine Grapes

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**Annotation:** In the article, the mechanical characteristics and chemical composition of grape vines are studied. The grapes of Muscat desert, Muscat early black, Muscat oriental, Muscat VIRA, Aromatny, Muscat Susana, Charos Muscat, Bayan Sherry, Mayskiy Black and Rangdor grape varieties are described.

**Keywords:** grape, new, grape head, shingle, cluster, dry substance, sugariness, polluting substance, acidity.

**Introduction.** The value of the new wine varieties grown in the conditions of Uzbekistan is primarily determined by the mechanical properties and chemical composition of the bunch of grape heads. A detailed knowledge of the mechanical composition and properties of the head and stem of each newly created grape variety determines its consumption characteristics and allows for their effective use in the technological processes of processing. Because, first of all, the processing qualities of wine grapes depend on the size of the cluster of grapes, the consistency of the flesh, the amount of sugar in the content, secondly, in technical varieties, the juice extracted for wine is separated in several stages according to the mechanical composition of the grape cluster, and the quality of the product directly depends on the mechanical properties and sugar content of the grape cluster [4; 53-57; 5; 5-24] .

**Scientific research method.** Experiments conducted according to the recommendations and methods given in methodological literature "Methodology of calculations and phenological observations during experiments with fruit and berry-bearing plants" developed by Kh. Ch. Boriev, N. Sh. Enileev and others (2014), M.A. Lazarevsky "Methods of botanical description and agrobiological study of grape varieties" (1946), N.N. Prostoserdov "Study of grapes to determine its use" (1963), V.F. Moiseichenko "Methodology of censuses and observations in experiments with fruit and berry crops" (1967).

The research was carried out in 2020-2022 in the scientific experimental vineyard collection of the Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzaev.

The purpose of the study is to determine the mechanical properties and chemical composition of grape heads and bunches of wine-making grape varieties created by foreign and domestic selection methods.

As an object of research, the wine grape varieties - Muskat desertnyy, Muskat rannyy chernnyy, Muskat vostochnyy, Muskat VIRa, Aromatnyy, Muskat susana, Charos muscatnyy, Bayan sheri, Maiskiy chernyy, Rangdor were taken.

**Research results.** The mechanical properties and chemical composition of the grape head cluster of wine grape varieties in our experiment were analyzed. The analyzes show that the largest grape heads were found in Muscat rannyy chernnyy (335.0 g), Aromatnyy (378.2 g), and Muscat desertnyy (338.6 g) varieties (Table 1).

**Table 1 Wine varieties of grapes, mechanical composition and weight of the grape head**

o/n	Varieties	Average weight of grape head, g	The average weight of grape on the grape head, g	The average weight of grape on the head of grapes, g	The average number of grapes per grape head, pcs	The size of a grape head	
						length, cm	width, cm
1.	Muskat dessertny	338,6	6,2	332,5	147,0	20,0	123
2.	Muskat rannyy chernnyy	335,0	9,2	589,9	138,5	24,3	11,7
3.	Muskat vostochnyi	260,6	3,9	172,8	165,0	13,4	10,1
4.	Muskat VIRa	345,8	5,2	400,7	228,6	22,3	12,5
5.	Aromatny	378,2	4,4	473,9	225,0	19,4	12,5
6.	Muskat susana	365,4	5,2	252,3	177,3	22,4	10,2
7.	Charos muskatny	316,0	5,6	278,5	146,6	14,6	11,2
8.	Bayan Sheri	362,0	4,4	241,7	217,0	12,0	18,0
9.	Maiskiy chernyy	269,7	4,1	262,7	144,2	17,6	9,6
10.	Rangdor	340,3	4,9	253,5	264,3	23,3	12,0

Total sugar content also differed by variety. With its high sugar content (23.4-25.2%), Charos muscatny, Muscat desertny and Muscat susana varieties of grapes were distinguished. Bayan sheri, Muscat vostochnyy and Maiskiy chernyy grape varieties had the lowest sugar content (17.1-18.2%). The amount of sugar in the heads of the remaining varieties was 20.3-23.0%. The highest glucose content (11.7-12.9%) was found in Rangdor, Muscat desert and Muscat susana grape varieties (Table 2).

**Table 2 The chemical composition of the juice of grape heads of wine-making varieties of grapes**

o/n	Varieties	Dry matter,%	Sugar content, %			Emulsifier, %	Acidity, g/l
			General	From this			
				glucose	fructose		
1.	Muskat dessertny	22,8	21,6	12,7	11,6	0,0990	4,4
2.	Muskat rannyy	20,2	22,1	11,4	10,7	0,0909	4,8

	chernnyy						
3.	Muskat vostochnyi	18,2	17,3	9,1	8,2	0,0576	5,4
4.	Muskat VIRA	17,1	21,8	11,0	10,8	0,0502	3,9
5.	Aromatny	19,9	17,3	9,7	10,6	0,0495	5,0
6.	Muskat susana	15,8	16,2	12,9	12,3	0,0811	4,1
7.	Charos muscatny	14,2	18,4	11,8	11,6	0,0660	4,0
8.	Bayan Sheri	16,3	17,1	8,4	8,7	0,0579	5,2
9.	Maisky chernnyy	18,7	18,2	9,6	8,6	0,0822	5,1
10.	Rangdor	19,6	15,0	11,7	11,3	0,0418	4,8

### Summary

1. The largest grape heads are in Muscat rany chernnyy (335.0 g), Aromatnyy (378.2 g), Muskat desertnyy (338.6 g), and small grape heads are in Muskat vostochnyy variety (176.6 g), the rest average grape heads (246-284 g) are recorded in varieties.
2. With high sugar content (23.4-25.2%), Charos muskatny, Muskat dessertny and Muskat susana grape varieties were distinguished. Bayan shery, Muskat vostochnyy and Maisky chernnyy grape varieties had the lowest sugar content (17.1-18.2%). The amount of sugar in the clusters of the remaining varieties was 20.3-23.0%. The highest glucose content (11.7-12.9%) was found in Rangdor, Muskat desertny and Muskat susana grape varieties.

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