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CLUSTER TEXTURE OF WINE GRAPE VARIETIES AND THEIR PEST INFESTATION RATES

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ABSTRACT

This article outlines mechanical texture of grape cluster: cluster weight, its weight structure, size, fruit flesh and juice, bunch, peel and seeds of wine grape varieties. The criterion of variety conformance for winemaking is sugar content of grape juice. The infestation rates of plants by grapevine mite are described in the article.

KEYWORDS: *wine grape varieties, pest infestation, grapevine mite, leaf rollers, mealybug,*

INTRODUCTION

At present, in developed countries of the world most of vine varieties and hybrids have been created which are resistant to phylloxera, mildew and oidium diseases.

In order to create new vineyards it is required to select the best and prospective varieties for planting considering their unique biological features and farm valuable traits (productivity, fruit quality). The variety type conformance is assigned for planting according to climate conditions of the region.

Newly created grapevine varieties are important in production of high grade wines. These varieties possess superiority of high productivity, sugar content, juice content of fruits. The juice yield of new varieties is 20-25%, though juice yield is low in some varieties due to thick peel and large seeds [3].

MATERIALS AND METHODS

The experiments were carried out on varieties: Saperavi, Rekasetali, Aligote, Caberni sovionon, Record, Muscat VIR, Pino black, Rodina, Tavkveri. In mechanical

texture: juice and flesh, cluster weight were estimated.

The pest infestation rates of plants by grapevine mite, leaf rollers, mealybug were determined. Each experiment repetitions were conducted according to Dospakhov method [2]. Experiment variants were analyzed by Dispersion method. Exactness of all

experiments was achieved by comparing control variants.

RESULTS AND DISCUSSION

There is no relative difference in texture of grape clusters among all wine grape varieties.

In total cluster composition one bunch made 1,9-4,4 %, the highest weight was observed in Aligote, 4,4 %, the lowest one was in Muscat VIR, 1,9%. The mean fruit peel share in all vine varieties was 3,9 %, the lowest parameter was observed in Record, 2,2 %, the highest one was in Pino black, 6,9% (Table 1).

The water loss of grapevine fruits is associated with fruit peel structure, bunch density, chemical content of fruits, infestation with pathogenic microorganisms. The decreasing amount of water in fruits was observed in varieties with thin peel and pulpy fruits.

The fruit juice and flesh weight make up the bulk of cluster weight. The highest juice yield was observed in varieties Record and Tavkveri, 92,7% and 92,6% respectively; the lowest juice yield was revealed in Pino black and Aligote, 85,3% and 87,7 %, respectively.

It should be emphasized that in these studied varieties though the grape clusters present larger sizes, the fruit juice and flesh yield were low in some grapevine varieties. The seeds share in clusters of studied varieties made 2,4%. The highest seeds share (5,9 %) was observed in variety Caberni sovionon, though its cluster size was small.

The lowest seeds share was revealed in variety Record, 2,4 %. Apparently, the seeds number of all

studied varieties ranges from 1 to 4 pieces.

Table 1
The mechanical texture of wine grape varieties

Varieties	Cluster		Composition of cluster weight, %			
	weight,gr	size, cm	flesh and juice	bunch	peel	seed
Saperavi	350	17×11	89,9	3,6	3,8	2,7
Rekasetali	240	22×11	87,3	4,6	4,6	3,5
Aligote	165	15×11	87,7	4,4	4,6	3,3
Caberni sovion	142	18×13	87,9	2,4	5,3	4,4
Record	508	17×14	92,7	2,7	2,2	2,4
Muscat VIR	322	18×13	92,5	1,9	2,6	3,0
Pino black	146	11×8	85,3	3,1	6,9	4,7
Rodina	279	21×14	90,5	2,3	3,6	3,6
Tavkveri	138	19×14	92,6	2,3	2,7	2,4

The sugar content of fruit juice is the important treat among wine grape varieties for wine production. After harvesting, high quality dry dessert and liqueur wines are produced from the yield of grapevine varieties, accumulating high sugar content (20-22,0% and more). Accumulated acid amount of juice of grape bunch is of valuable significance. The grapevine varieties samples with organic acids of a high

concentration are used for making champagne wines, while varieties with organic acids of a low concentration are used for making strong tasty wines.

The climate of Uzbekistan is favorable for propagation of pests damaging vineyards (mealybug – *Pseudococcus* Kuw., grapevine mite – *Eriophyes vitis* Nal., leaf rollers - *Polychrosis botrana*).

Table 2
The pest infestation rates of winy varieties

№	Wine grape varieties	Pests infestation		
		Grapevine mite	Leaf rollers	Mealybug
1	Saperavi	++	-	-
2	Rekasetali	+	+	+
3	Aligote	+	-	-
4	Caberni sovion	+++	-	-
5	Record	+	-	+
6	Muscat VIR	++	+	+
7	Pino black	+++	+	-
8	Rodina	++	+	-
9	Tavkveri	-	++	-

The researches were hold in Samarkand region’s vineyards in 2018 for studying the pest resistance of the grapevine varieties and pest infestation rates of plants.

The high pest infestation rate by mealybug was observed in wine grapevine varieties Caberni sovion and Pino black, the mean pest infestation rate by leaf rollers in variety Tavkveri, the low pest infestation rate in varieties Record and Muscat VIR (Table 2).

The grapevine mite mainly infests local grapevine varieties, some varieties are never influenced by mite. The growth rate, yield quality and amount of grapevine plants are reduced after pest infestation [1].

Integrated protection effectiveness increased to 92% and more basing on regular plant sanitary observations and altering pesticides application in viticulture [5]. The grapevine mite, mealybug, leaf rollers damage the grapevine plants considerably in Uzbekistan climate conditions; the carver bugs, oidium, anthracnose, mildew diseases strongly damage the vineyards in mountain regions and piedmonts [4]. The grapevine mite hibernates behind buds and creeps to

new appeared bud shoot in spring. There is a particular biological grapevine mite species and it damages primary buds, not leaves. The secondary and tertiary buds start to develop after the growth of primary buds is reduced.

CONCLUSION

The fruit juice and flesh weight made up the bulk of cluster weight when the texture of wine grapevine varieties was determined. The highest juice yield was observed in varieties Record and Tavkveri, 92,7% and 92,6% respectively; the lowest juice yield was noted in Pino black and Aligote, 85,3% and 87,7 %, respectively. The highest seeds share (5,9 %) in grape cluster was observed in variety Caberni sovion, though the cluster size was small. The high pest infestation rate by mealybug was observed in grapevine varieties Caberni sovion and Pino black, the mean pest infestation rate by leaf rollers was in variety Tavkveri, the low pest infestation rate in varieties Record and Muscat VIR.

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