USAMVB Timisoara
"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES"
27 November 2020

"Young people and multidisciplinary research in applied life sciences"

Behavior of clonal elites for table grapes, under the influence of climatic conditions of the year 2020, in the ecosystem of the Murfatlar wine center

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Abstract: *Excessive, deficient or untimely reaching of the optimal thermal, light and water thresholds influences the passage of the vegetation phenophases of the varieties, always with negative implications in the quantitative and qualitative grape yield. During the selection process, the research took place between November 2019 and October 2020, for the varieties Bican roz, Moldova, Centennial Seedless and Victoria. From the populations of the four varieties, 10 clonal selections were chosen in the first year of selection, whereas in the following years, five perspective clonal elites of each variety were selected, from which the most valuable elite will be homologated.*

Introduction

Improving the assortment of table grapes in order to have a complex biological resistance is one of the main factors for modernizing viticulture, in order to ensure constant and qualitative grape production. In this context, clonal selection of valuable table grape varieties is one of the main activities of amelioration research.

Material and method

From the current assortment of table grapes, cultivated within the ampelographic collection of the Research Station for Viticulture and Oenology Murfatlar, we followed a number of 4 varieties that were subjected to clonal selection and chose clonal elites that are best framed ecologically, competitively and economically. The elites are multiplied and tested in the comparative field, and will be tested and approved by ISTIS, in order to be promoted in production.

During the selection process, the following were noted: the veraison time, the organoleptic and technological properties and resistance to adverse environmental factors.

The research conducted between November 2019 and October 2020 (wine year 2020) for the varieties Bican roz, Moldova, Centennial Seedless and Victoria. Five perspective clonal elites of each variety were selected, of which the most valuable elite will be homologated. The weather data is recorded at the own weather station.

Table 1 - Length of vegetative growth

Variety/ selection	Clonal elites	Total no. of shoots/trunk	Shoot length, cm		Average shoot length, cm
			Min.	Max.	
Bican roz	**80/10/6**	**18**	**33**	**143**	**82,2 cm**
	Average	16	20,6	117,2	64,16 cm
Moldova	**89/8/3**	**27**	**12**	**106,5**	**31,9 cm**
	Average	23	13,4	77,9	31,72 cm
Centennial Seedless	**48/9/6**	**21**	**28**	**104,5**	**58,6 cm**
	Average	21	18,6	72,1	40,76 cm
Victoria	**57/4/7**	**32**	**18**	**51**	**20,5 cm**
	Average	27	18	51	20,5 cm

Results and discussions

The wine year 2020 started with higher average temperatures, accompanied by lack of rainfall. Temperatures above 30˚C were recorded during 49 days, which along with the prolonged drought that has started since the end of May and lasted up to the first decade of September, affected the development of shoots and grapes. Among the studied clonal elites, 80/10/6 Bican roz, 89/8/3 Moldova, 48/9/6 Centennial Seedless and 57 / 4/7 Victoria are distinguished by a good adaptability to restrictive climatic conditions, with approximately normal growths of shoots. (Table 1)

The phenomenon of grape berry shrivelling was manifested, being caused by the loss of water, which triggered an earlier veraison, starting from the second decade of July.

The grapes of the studied elites were normally developed, having a higher weight than those of the population, while generally speaking, the sugar concentration and the acidity had values specific to those of the variety.

The structure of the grapes is given by the quantitative and numerical ratios between their different component parts and the yields in must, these elements underlying the calculation of the specific technological indices (Table 2). The best values were registered at the elites 80/10/6 Bican roz, 89/8/3 Moldova, 48/9/6 Centennial Seedless and 57/4/7 Victoria.

Regarding the commercial value, all the noted elites have a commercial aspect, fulfilling the market requirements.

Table 2 - Technological indices of the analyzed varieties

Genotype	Clonal elites	Grape structure index	Berry index	Composition index	Yield index
Bican roz	**80/10/6**	**33,27**	**98**	**4,33**	**3,91**
	Average	33,14	97	4,33	3,91
Moldova	**89/8/3**	**25,31**	**36**	**7,80**	**5,70**
	Average	25,31	36	7,77	5,68
Centennial Seedless	**48/9/6**	**21,69**	**50**	**5,41**	**5,42**
	Average	21,73	50	5,42	5,42
Victoria	**57/4/7**	**27,67**	**25**	**4,32**	**3,2**
	Average	27,57	25	4,12	2,6

Conclusions

The noted clonal elites, namely 80/10/6 Bican roz, 89/8/3 Moldova, 48/9/6 Centennial Seedless and 57/4/7 Victoria, proved a good adaptability to drought and high temperatures during the study, in the special climatic conditions of the wine year 2020 during the vegetation period, having an almost normal development, with grape productions reaching the requirements imposed by the market. These elites will be further studied, in order to be registered at ISTIS for testing.