

# BEHAVIOUR OF FETEASCĂ NEAGRĂ, CABERNET SAUVIGNON AND MERLOT VINE VARIETIES IN THE VITICOL CENTER BOHOTIN OF IASI VINEYARD

## COMPORTAREA SOIURILOR FETEASCĂ NEAGRĂ, CABERNET SAUVIGNON ȘI MERLOT ÎN CENTRUL VITICOL BOHOTIN, DIN PODGORIA IAȘI

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**Abstract.** Viticol center Bohotin is located in an area where the vineyard culture is not recommended for red wine varieties, but because of the warming climate in the last period and in the context of the favorable relief conditions of culture is necessary to test behaviour of the red vine varieties in this viticol center. The experiments were carried out at the SC VINIA SA Iasi, on Fetească neagră, Cabernet Sauvignon and Merlot varieties. To determine the behavior of these varieties were studied: the loss of buds in winter, the amount of wood removed at fruiting cuttings, phenophase conduct of vegetation, fertility and productivity of plants, the quantity and quality of grape production.

**Key words:** vine, vineyard, redwines

**Rezumat.** Centrul viticol Bohotin nu este amplasat într-un areal viticol în care este recomandată cultura soiurilor pentru vinuri roșii, dar pe fondul încălzirii climatice din ultima perioadă și în contextul unor condiții favorabile de relief este necesară testarea culturii acestor soiuri în centre viticole noi pentru vinuri roșii, cum este centrul viticol Bohotin. Experiențele au fost efectuate la ferma Isaiia a SC VINIA S.A Iași, la soiurile Fetească neagră, Cabernet Sauvignon și Merlot. Pentru determinarea comportării acestor soiuri au fost studiate: pierderile de muguri pe timpul iernii, cantitatea de lemn eliminată la tăierea de fructificare, desfășurarea fenofazelor de vegetație, fertilitatea și productivitatea butucilor, cantitatea și calitatea producției de struguri.

**Cuvinte cheie:** viță de vie, podgorie, soiuri pentru vinuri roșii

## INTRODUCTION

Increased thermal resources growing areas due to global warming, causes the possibility of extending the culture of vine varieties for red wines to the area north of the country, specializing in crop varieties for white wines. Studies carried out in vineyards such as Husi and Science, showing their suitability for growing vine varieties for red wines (Mursa D., 2004, Irimia L. et al., 2009). This paper is a study on the behavior of vine varieties for wine red wine Bohotin center, in order to diversify its product range varietal.

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## MATERIAL AND METHOD

Experiences were made on the farm Isaiia from VINIA SA, in 2008-2009 and were studied following varieties for red wines: Fetească neagră grafted on rootstock Crăciunel Feteasca 71, Cabernet Sauvignon grafted on rootstock Crăciunel 71, Merlot grafted on rootstock Kober 5 BB. Planting distances were 2.2 / 1.2 m, with a density of 3787 vines / ha; the vine were conducted as semiînalt bilateral cordon; cutting of fructification was Cazenave cordon type. To determine the behavior of these varieties were studied: phenophases of vegetation development, growth and maturation of shoots, fertility and productivity of vine, quantity and quality of grape production.

## RESULTS AND DISCUSSIONS

Conducting phenophases of vegetation is determined by biological characteristics of the varieties studied. Feteasca neagră variety, watered the cooler climate of the north of Moldova is manifested as a variety with short vegetation, of 161 days, and the phenophases of vegetation begin earlier with 3-8 days to 12 days in grapes ripening compared with Cabernet Sauvignon and Merlot (table 1).

*Table 1*

**Conducting vegetation phenophases of Fetească neagră, Cabernet Sauvignon and Merlot, grown in the vine center Bohotin**

Variety	weeping	Unbuding	Flowering	Ripening grapes	During the vegetation (days)
Fetească neagră	27.04	06.05	11.06	05.10	161
Cabernet Sauvignon	24.04	01.05	03.06	17.10	179
Merlot	25.04	01.05	13.06	12.10	174

Parameters of wood elements indicate vine vigor, wood maturation and therefore the ecological adaptability of the variety. The largest number of canes on the vine, 18.6, formed the variety Fetească neagră, fewer canes on the vine of 14.9 and respectively 13.7 Cabernet formed Sauvignon and Merlot. The most vigorous variety was Fetească neagră, with an average length of the cane of 83 cm, immediately followed by Cabernet Sauvignon, with an average cane length of 82 cm. Merlot showed a lower vigor, the average length of the canes was only 69 cm. Wood canes was matured in appropriate proportion, between 75% and 86% Merlot to Cabernet Sauvignon (table 2).

Fertility, expressed in particular by the number of inflorescences formed on the vine, showed significant differences between varieties; the most fertile variety was Merlot with an average of 26.5 inflorescences on the vine, with distinct differences significantly positive to control, the lowest fertility, with an average number of inflorescences on the vine of 20.8 and negative significant differences compared to the control registered Fetească neagră variety. Cabernet Sauvignon variety formed on average of 22.3, inflorescences on the vine, with minor differences to the control (table 3).

Table 2

**Woody elements formed on the block parameters to Feteasca neagră,  
Cabernet Sauvignon and Merlot, grown in the viticol center Bohotin**

Variety	Number of canes on vine	Diameter of canes (mm)	Length of canes (cm)	Length sweeping wood (%)
Fetească neagră	18,6	7,7	83	78,1
Cabernet Sauvignon	16,9	7,6	82	86,0
Merlot	22,7	6,7	69	75,0
Media/Control	19,4	7,3	78	79,7

Table 3

**Fertility of Fetească neagră, Cabernet Sauvignon and Merlot  
grown in viticol center Bohotin**

Variety	Nr. of shoots on vine	Of which:		Nr. of inflorescences on vine	differences to control	Semnif.
		Fertile	%			
Fetească neagră	21,3	16,0	75,1	20,8	-2,4	00
Cabernet Sauvignon	19,9	14,0	70,3	22,3	-0,9	-
Merlot	24,1	18,0	71,8	26,5	+3,3	xx
Media/Control	19,7	14,3	72,4	23,2		

DL 5%=1,5 infloresc.

DL 1%=2,3 infloresc.

DL 0,1%=4,1 infloresc.

The average number of grapes on the vine trained directly correlated with the number of inflorescences, the largest number of grapes per vine were formed Merlot followed by Cabernet Sauvignon and the lowest number of grapes per vine were formed Feteasca the black variety (table 4).

Table 4

**Productivity of Fetească neagră, Cabernet Sauvignon and Merlot,  
grown in viticol center Bohotin**

Variety	Nr. of grapes on vine	The average weight of grapes (g)
Fetească neagră	20,7	104,4
Cabernet Sauvignon	22,4	90,1
Merlot	25,8	100,5
Media/Control	22,9	98,3

Grape production ranged between 7.6 and 9.8 t / ha, the largest production of grapes, 9.8 t / ha, has been the variety Merlot. Positive significant differences

compared to the control and lowest in Cabernet Sauvignon, with significant differences; to the negative control (table 4).

Quality grape production was appropriate to variety potential; the sugar content was over 200 g/l in all varieties studied, the highest sugar content of 221 g/l was found to Feteasca neagră variety (table 5).

*Table 5*

**Grape production and quality of Feteasca neagră, Cabernet Sauvignon and Merlot, grown in viticol center Bohotin**

Variety	Grape production		Diff. control (t/ha)	Signif.	quality of grapes			
	kg/but	t/ha			Sugar (g/l)	Diff. martor	Signif.	Acidity g/l H <sub>2</sub> SO <sub>4</sub>
Feteasca neagră	2,16	8,2	-0,3	-	221	+11	x	5,70
Cabernet Sauvignon	2,02	7,6	-1,3	0	209	-2	-	7,26
Merlot	2,59	9,8	+1,3	x	203	-8	0	6,75
Media/ Control	2,25	8,5			211			6,57

DL 5%=0,8 t/ha  
DL 1%=1,1 t/ha  
DL 0,1%=2,7 t/ha

DL 5%=7,6 g/l  
DL 5%=12,1 g/l  
DL 5%=19,5 g/l

## CONCLUSIONS

1. Feteasca neagră, Cabernet Sauvignon and Merlot have shown good behavior in the viticol center Bohotin, both in terms of browsing vegetation phenophases, growth and maturation of wood and grape production and quality.

2. Feteasca neagră variety was manifested as a variety with vigorous growth with good ripening of the wood, a faster progresses of vegetation phenophases, an earlier maturation of the grapes and high quality production. Cabernet Sauvignon grew vigorous, very good wood maturation, a late ripening grapes, but good quality production. Merlot showed moderate growth, good wood maturation, and the largest grape and its good quality.

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