The Behaviour of some Grape Hybrid Elite Varieties Obtained at Research Station for Viticulture and Enology Blaj, in 2014-2015

Anca Cristina BABEŞ^{1*}, Maria ILIESCU^{2*}, Liliana Lucia Tomoiaga²

¹Faculty of Horticulture, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, 3-5 Mănăştur Street, 400372, Romania.

²Research Station for Viticulture and Enology Blaj, 2 Gh. Baritiu Street, Blaj, 515400, Romania

^{*}Corresponding author, e-mail: babesanca@yahoo.com / marina_iliescu@yahoo.com

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Abstract

At Research Station for Viticulture and Enology Blaj (SCDVV Blaj), is a continuous process to improve and to obtain the new grapevine varieties, by sexual crossbreeding and clonal selection, varieties with high sugar accumulation and with equilibrate acidity, which could ensure high quality wines. During 2014-2015 period, the hybrid elite varieties: 5-26 and 6-110 were compared to the control 'Pink Traminer 60 Bl.' and 'Feteasca Regala 21 Bl.' As a study result, the elite varieties, 5-26 and 6-110, stood out by sugar/acidity balance, with good resistance to pests and diseases.

Keywords: *grapevine variety, hybrid elite varieties, must acidity, sugar content.*

Introduction

Productivity and quality of grapevine varieties are very complex features (Sestras, 2004), which depend on the genetic traits of each variety, on the environmental conditions and on the interaction between genotype and environment (Călugăr *et al.*, 2014). Creating, through genetic improvement works, of varieties capable of providing higher quality grape production, appears as a real alternative to increase the profitability of grapevine culture (Popescu *et al.*, 2014). At Research Station for Viticulture and Enology Blaj is a tradition and has continuity the improvement of vine varieties.

Aims and objectives

The aim of this paper is a study regarding the qualitative and productive potential of two hybrid elite (5-26 and 6-110) compared to the varieties 'Pink Traminer 60 Bl.' and 'Feteasca Regala 21 Bl.'

Materials and methods

Two elites obtained, at S.C.D.V.V. Blaj, through sexual crossbreeding have been studied, during 2014-2015 period, compared to 2 cloning elites taken as control samples 'Pink Traminer 60 Bl.', 'Feteasca Regala 21 Bl.'. The elite variety 5-26, was ob-

tained after the sexual crossbreeding of two elites, 8-33-44 ('Iordana' x 'Pink Traminer') x 51-19 ('Raisin de Saint Pierre' x 'Perla de Csaba') and the elite 6-110 resulted from hybridization between others two elite varieties 9-35-10 ('Pink Traminer' x 'Iordana') and 51-19 ('Raisin de Saint Pierre' x 'Perla de Csaba'). It should be noted that elite variety 9-35-10 ('Pink Traminer' x 'Iordana') has a great crop yield with very modest accumulation of sugar and the 51-19 elite variety has a lower but early yield, with high levels of sugar in the must. The variety 6-110 was studied according to the experimental technical standards, and was compared with the basic variety from the Târnave Vineyard, 'Feteasca Regala-21 Bl.'. In order to establish the value of the hybrid elite varieties were performed observations and measurements to determine the ampelographic characteristics, the agro-biological characteristics, as well as quantity and quality of the grapes yield (Țârdea and Rotaru, 2003). Production and grape harvest quality was calculated based on fertility coefficient and productivity index, the average weight of bunch grapes, grape production per vine, sugar content and the total acidity of must.

Tab. 1. The fertility and productivity of at the hybrid elites, in years 2014-2015

Year Genotypes	Fertility coefficient				Productivity index			
	Relative		Absolute		Relative		Absolute	
	2014	2015	2014	2015	2014	2015	2014	2015
Hybrid elite 5-26	0.90	0.84	1.54	1.40	76	84	162	153
'Pink Traminer 60 Bl. control'	0.86	0.72	1.54	1.39	59	65	105	113
Hybrid elite 6-110	1.0	0.9	1.3	1.4	170	182	221	248
'Feteasca Regala 21 Bl. control'	1.3	1.2	1.8	1.5	126	151	174	203

Tab. 2. Production and quality of must at the hybrid elites, in years 2014-2015

Year Genotypes	No. of grapevine bunches on vine		Grape average weight (g)		Yield (kg/vine)		Sugar content (g/L)		Acidity of must (g/L H ₂ SO ₄)	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Hybrid elite 5-26	24	23	97	124	2.41	2.71	204	191	4.61	5.74
'Pink Traminer 60 Bl. control'	28	26	78	96	2.27	2.45	234	219	4.40	5.15
Hybrid elite 6-110	22	20	236	254	3.23	3.42	222	199	5.57	6.12
'Feteasca Regala 21 Bl. control'	29	25	214	234	2.82	3.04	187	168	4.95	5.68

Results and discussion

The shoots of the elite variety 5-26 are brown with small, brown inflorescences and well developed tendrils, with a slower vegetative growth like 'Pink Traminer-60 Bl.' (control). The leaf is medium size with reddish veins, embossed, dark metallic green, with prominent teeth and less clear lobes. The elite variety 6-110 is growth strong; the growing shoots are erect with long internodes. The leaves have long stalks, red as the main veins, with dark green sharp teeth. The grapes are large with semi-compact berries placed on the rachis which is reddish, long, and branched. The berries are thick but not compact, spherical, translucent with a thin skin and pleasant taste especially at veraison. The grapes greatly resemble the 'Feteasca Regala 21 Bl.' (control sample), but they enter veraison earlier and have higher sugar concentration.

The relative fertility coefficient (Tab.1) ranged from 0.72 recorded in 2015 at 'Pink Traminer 60 Bl.' (control sample for the elite variety 5-26) to 1.3 in 2014 for the variety 'Feteasca Regala 21 Bl.', taken as control sample for the white elite varieties (6-110).

In 2015 the weight of a grape cluster from the elite variety 5-26 was 124 g and the sample control 'Pink Traminer 60 Bl.' registered 96 g (Tab.2). In 2014, at elite variety 6-110 recorded concentration of sugars was 222 g/L, concentration higher than

187 g/L at 'Feteasca Regala 21 Bl.'. In both years the elite variety 5-26 exceeded the production of grapes of 'Pink Traminer 60Bl.' (control), but exhibited a lower sugar concentration.

Conclusion

Both elites have potential to be used for development of cultivars for white wines of superior quality. The elite varieties (5-26, 6-110) studied are potential new varieties of grapes with a high yield and high quality. As a result of the study, it was found that these elite varieties, 5-26 and 6-110, stood out by a good sugar/acidity balance and in conclusion, can be proposed for homologation.

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