

---

**FETEASCA NEAGRA 6 STEFANESTI – A NEW CLONAL SELECTION FOR RED WINES CREATED AT STEFANESTI**

Ion Radulescu, Camelia Popa, Anca P. Onache<sup>1</sup>

*KEY WORD:* variety, clonal selection, such diseases, grapes quality

**ABSTRACT**

*Many grapevine varieties from our day culture do not have economic value, and others degenerate in the same time with their heterogenic multiplication. The Feteasca Neagra variety was cloned for the genetic stabilisation and the fastening of their valuable productivity and quality characteristics. At the National Research and Development Institute for Biotechnology in Horticulture Stefanesti, Arges, was selected the clone Feteasca Neagra 6 St. After it has passed through 3 specific stages of clone selection scheme it was homologated in 2007. This clone proved to be superior from the point of view of the quality and quantity to the base variety*

**INTRODUCTION**

The clone selection, suitable for the vegetative multiplication is the only way to avoid the grapevine degeneration. The variety that was cloned is one of the elements that make the pride of Stefanesti Growing District. This variety is Feteasca Neagra.

For the clone selection there are three important stages:

the selection in the positive field, the selection of the clones in the mother plantation and their fast multiplication; the comparative study of the selected clones regarding the productivity potential, the quality characteristics of the grapes and wines, sanitary testing; the good clones multiplication, their recording at ISTIS and their homologation. As a result of clone selection, a new one - Feteasca Neagra 6, was obtained and homologated in 2007

The clone selection of the vine was a preoccupation for many researchers Hustfeld B. (1942), Breider O. (1968), Bădițescu, Damian, etc. who obtained many clones from the main varieties in the culture of Romania: Sauvignon 24 și 20, Chardonnay 25, Merlot 17, Pinot Noire 35, etc.

**MATERIALS AND METHODS**

The identification, the selection and the making of the valuable selected clones from the varieties that we mentioned before, was made in some plantations of 20 and 25 years old with good fit-sanitary state. Before these tests it was made a very strict positive selection.

The selection was made having recommended foundations: fit-sanitary stare, the power of growing, the grape production and its quality.

---

<sup>1</sup> INCDBH Ștefănești

To compare the selected clone's performance it was used as a witness, the average of the positive selection of every variety. In the 3rd year of the selection the vines that were not productive and did not maintain the quality required were eliminated.

In the same time with the study of the selected clones in the mother plantation was done the multiplication of the best ones by pruning and cuttings for setting up comparative and testing plantations. The three growing districts were set on between 1988 and 1996, on the middle third (1996) and the superior third (1988) of a 10-12% slope south orientated.

The used mother plant for pruning was Kobber 5 BB and the spaces between plants was 2.5m between rows and 0.9m between vines on a single row (4445 vines/ha). The vines were cut Guyot style on semi stem, holed on stakes with 3 double wires. The soil is coluvial brown, sandy-clay, with average quantity of phosphor and potassium, low carbonadoed, with low acid pH (6.2 – 6.4).

The research results were compared with the averages obtained for all the selected clones from the same variety.

The selected clones from the comparative field was multiplied by pruning on the Berlandieri x Riparia Kober 5BB mother plant, giving out 200 pruned vines that were planed on the testing range for the first time. This was the last stage of the clone selection in the Stefanesti Growing District.

## RESULTS AND DISCUSSIONS

**Climatic conditions.** All the obtained results after the determinations were influenced by the climatic conditions between the studied years 2005 – 2007, when the selected clones were studied in the comparative and in the testing plantations. The climatic conditions from these years are characterised by a low quantity of rain, especially in the critical times of growing and maturation of the grapes and by big differences of the temperature during summer and winter time. The heliothermic, hidrothermic and bioclimatic index had good values recorded in the admitted limits for viticulture.

The red wines were studied inside of the improvement lab 20 selected clones, in three comparative fields, in the same time with the testing field of the Feteasca Neagra variety. From their physical and chemical analyses, in the three production years (2005 – 2007) on the testing range, it came out that the superior results of the average had many selected clones, with not too many differences. Thus, the clone 6 St. was homologated.

**The main morphological characteristics.** The rosette is fluffy, red-greenish. The top of the young shoot is light green, with intense anthocyanic pigmentation, general distributed. It has a big density of the smooth hair. The adult leaf is an average size, 5 – lobes, greenish colour, with an open petiole sinuses and the base in a U shape. The upper lateral sinuses are the same. On the inferior part of the limb is smooth hair with an average density. The cluster is big with a conic – cylinder shape, one axial, bi-winged. The grape is small, round, thick peeled, bluish-black colour, covered with a thick bloom. The pulp is colourless, smooth, and juicy, with a specific taste. The vine is elliptical, yellowish.

**Physiological characteristics.** The powers of the vine, the relationship with the mother plant, its behaviour to the attack of the pests are almost the same with the Feteasca Neagra variety. It is free of the main diseases.

The top-notch clone fertility is good, having 60% fertile shoots with absolute fertility values 1.09, and for the relative one of 0.57. The productivity index are superior to the witness having values of 210 for the absolute one and 110 for the relative one.

The average mass of a grape is 193 g (comparing with the witness – 166g), and the mass of 100 grapes is also bigger with 20 g to the witness.

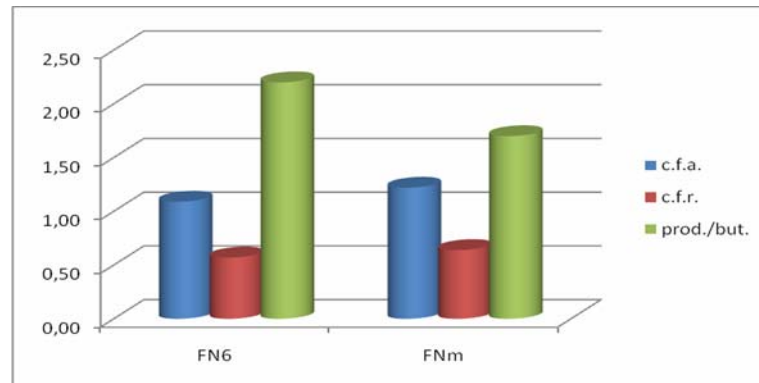


Fig. 1 - Diagram1. Physiological characteristics of the Feteasca-Neagra 6 St. Top-notch clone

**The average production of grapes of the Feteasca Neagra 6 St Selected Clone.**

For the years 2006 -2008, the clone outruns the witness Feteasca Neagra with 70% making 2.2 kg/vine (comparing to 1.7kg.vine for the witness) and a production of 10 tones/ha.

The sugar content and the acidity of the must, the structure index, the composition index and the efficiency index of the grape are almost the same to the Feteasca Neagra variety (diagram1).

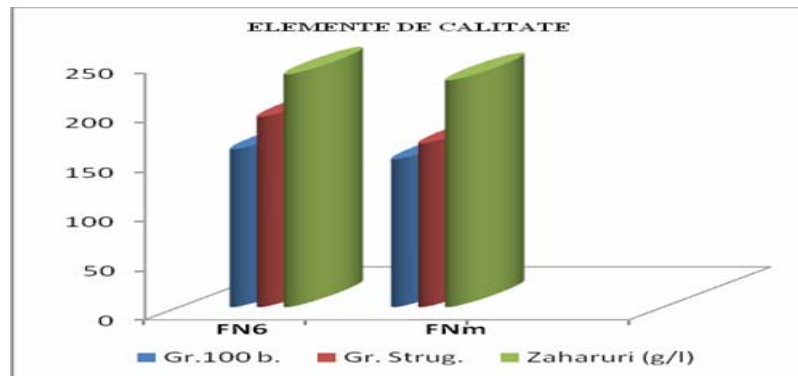


Fig. 2 - Quality elements.

**Physical-chemical characteristics of the obtained wines from the Feteasca Neagra 6St. selection.**

Comparing to the climatic conditions of the production years, from the Feteasca Neagra were obtained red wines, with origin controlled type with alcoholic potential of 14.8%volume. In the years with favourable climate (2006), the wines were well balanced, reach in extract.

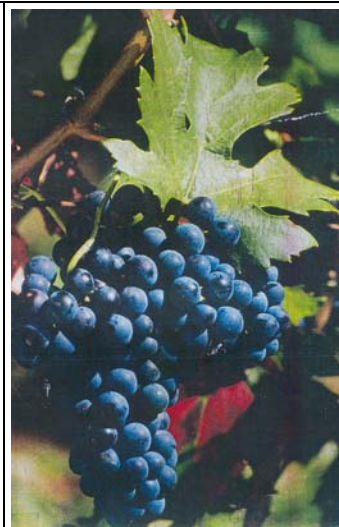
Tabel 1

The main composition characteristics of the wines

No.	Clone selection	Alcool %vol.	Total acidity (g/l)	pH	Unreduction extract	Colour intensity
1.	Feteasca Neagra 6 St.	11,5	4,9	3,5	29,0	8,5
2.	Witness	10,9	5,5	3,5	28,3	5,9

### CONCLUSIONS

1. From quality and quantity point of view, the selected clone proved to be superior to the variety that was selected from.
2. The sugar accumulation potential corresponds to the quality varieties.
3. The selected clones can replace successfully the Feteasca Neagra variety.
4. The obtained wine after the vinification of the selected clone Feteasca Neagra 6 St. meets all the characteristics of a quality wine, fact that can lead to the vinification of this one in big quantities.



### BIBLIOGRAPHY

1. Tebeica V, Popa Camelia, 2005 – *Results regarding the clone selection of the Sauvignon variety*, Societatea Romana a Horticultorilor, ed. “Ion Ionescu de la Brad”, Iasi, Anul XLLVIII vol 1 (48) I.S.S.N. 1454-7376
2. Elena Heroiu, Georgeta Savulescu, Irina Dinu. Carmen Constantinescu 2004-- *The stud regarding the evolution of some macromolecular compounds during the grapes maturation*. Analele ICDVV Valea-Calugareasca, vol. XVII, Bucuresti, Ed. Ceres, ISSN 0257-8298.
3. Popa Camelia, Baditescu Margareta, Heroiu Elena, 2004 – *Cabernet Sauvignon 131 St – A new clone selection for red wines obtained at SCDVV Stefanesti- Arges*, Analele ICDVV Valea-Calugareasca, vol. XVII, Bucuresti, Ed. Ceres, ISSN 0257-8298
4. Cotea V., Pomohaci N., Gheorghita M.,1982 – *Oenology*, Ed. Didactica si Pedagogica, Bucuresti
5. Pomohaci N., Stoian V., Namolosanu I. si col., 2000 – *Oenology, vol. I – tThe grape prossesion and wine making* – Ed. Ceres, Bucuresti.