

ASPECTS OF VEGETATIVE PROPAGATION IN THE FETEASCĂ
NEAGRĂ VARIETY IN GREENHOUSE CONDITIONS

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ABSTRACT

The Fetească Neagră variety is a native vine variety that is part of the varieties for high quality red wines, with high growth power, increased resistance to frost and drought, but sensitive to manna and powdery mildew. This paper presents aspects related to vegetative propagation by cuttings in this grape variety, using several rooting substrates without applying rooting stimulants. The cuttings were harvested from the plantation at the Banu Mărăcine Research Station, and the experiments were placed in the Greenhouse Complex of the "Alexandru Buia" Botanical Garden of the University of Craiova. The following variants were used for rooting the cuttings: water (control), peat (V₁), peat + perlite 2:1 (V₂), sand (V₃), mold leaf (V₄). Sprouts and leaf formation recorded the highest values in the control variant (water), followed by variant V₄ (mold leaf) and variant V₃ (sand).

INTRODUCTION

Viticulture is a branch with an important tradition in the economy of our country, being considered a sector on the rise. Cultivation of the vine is one of the oldest occupations of human, being considered as the most studied cultivated plant. The grapevine, a plant with great ecological values, is cultivated on all continents, in both hemispheres of the Earth, between the average annual isotherm of 9°C in the northern hemisphere and that of the average of 10°C in the southern hemisphere. However, the culture is more developed, with quality products, between the isotherms of 9°C and 25°C, in both hemispheres, being a profitable culture in temperate, subtropical and tropical climates (Olteanu I., 1994). On the basis of some archaeological evidence revealed on the territory of our country, Professor Martin T. (1960) tells us that the vine was cultivated in our parts 700-1000 years BC. both in today's Transylvania and on the vast hills of the southern Subcarpathians. The illustrious historian Xenopol, quoted by Martin T. (1960), stated that the Agatarsi, who lived in parts of Transylvania many centuries before Christ, were skilled winegrowers, stable and good householders. Fetească Neagră variety (Poem of the Black Girl, Swallowtail, Black Bird) is a native variety from which Fetească Albă was derived from ancient times. Due to its rusticity and age, the Fetească Neagră variety can be considered a Dacian variety in culture (Olteanu M., 1980). This variety is one of the top quality red wine varieties with a short growing season (150-160 days) but high growth vigor and resistance to frost (-22°C/-24°C) and drought. It is sensitive to manna and powdery mildew. The leaf is pentalobed and the clusters are cylindrical-

conical, winged, with dense grains. The light green leaf, smooth and glabrous on both sides, is medium in size (16-17 cm long) with an elongated and pointed terminal lobe. The upper lateral sinuses of the leaf are deep, lyre-shaped with a pointed base. The lower sinuses of the leaf are open in the shape of "U", the petiolar sinus is in the shape of "V". The leaf is toothed, with large, sharp teeth and straight edges. The berry is medium-sized, spherical, with a thick skin, dark red in color, with a bluish-black appearance, covered with a lot of pith, juicy flesh (site: vitadevie de masă.ro).

MATERIAL AND METHODS

The purpose of the work is to highlight the potential of vegetative propagation through cuttings and establish the best rooting substrate for the Fetească Neagră variety in greenhouse conditions at an average temperature of 18-22°C. The experiments were performed in the Greenhouse Complex of the "Alexandru Buia" Botanical Garden of the University of Craiova. Vine cuttings from the Banu Mărăcine Research Station were used as the object of study. Several types of rooting substrate were used for rooting the cuttings: water (control), peat (variant V₁), peat + perlite 2:1 (variant V₂), sand (variant V₃), mold leaf (variant V₄). The cuttings were harvested during the dormant period in February and were 10-15 cm long, with 4 nodes, 2 of the nodes being placed in the rooting substrate. The cuttings were planted in pots, in the substrate mixtures, 10 cuttings/variant and kept in greenhouses for a period of 33 days. Watering was moderate, the pots of cuttings being placed on heated parapets, to get the roots before the buds break too much, so that there is a root system to support the new growth when it appears (information/rooting of cuttings) .

RESULTS AND DISCUSSIONS

From the analysis of the obtained results, we notice that in terms of the percentage of rooting, very good results were obtained for all variants, which is 92%. In variant V₁ (peat), the rooting percentage obtained was 100%, followed by the control variant (water), variant V₂ (peat + sand 2:1), variant V₃ (sand) and variant V₄ (mold leaf). In all these variants the percentage of rooting was 90%. The number of formed roots showed average values between 18.6 for the V₂ variant, followed by the V₁ variant with 17 formed roots, then the control variant with 15.3 formed roots. The worst results were obtained with the V₃ variant with 8.4 formed roots, respectively the V₄ variant with 6.49 formed roots. Regarding the average length of the roots formed per variant, it varies between 4.74 cm long for the V₂ variant, 4.21 cm long for the V₁ variant, 3.99 cm long for the V₃ variant, 2.65 cm long for the V₄ variant, the control variant having the smallest root length, 1.81 cm. The cuttings placed on the above-mentioned rooting substrates formed sprouts which, at the time of the measurements, presented an average number of sprouts per variant between 1.9 for the control variant, 1.7 sprouts for the V₄ variant, 1.6 sprouts for the V₃ variant , 1.4 sprouts in the V₂ variant and 1.2 sprouts in the V₁ variant. The average length of the sprouts varied between 7.84 cm in the control variant, followed by the V₄ variant with 4.25 cm, the V₂ variant with a length of 3.97 cm, a slower growth of the sprouts being recorded in the V₁ variant with 3.37 cm length and the V₃ variant with 3.31 cm length. The number of leaves developed on the sprouts of the rooted cuttings was 3.4 in the control variant, 2.4 in the V₂ variant, 2.3 in the V₁ variant, 1.95 in the V₄ variant and 1.1 in the V₃ variant.

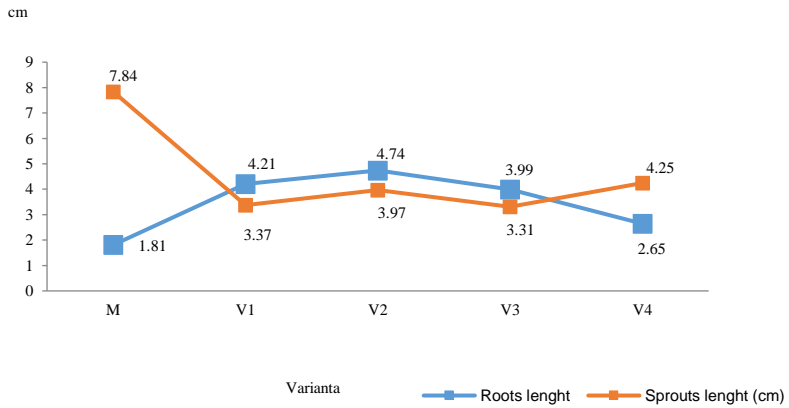


Figure 1 Variation of roots and sprouts length for each type of substrate

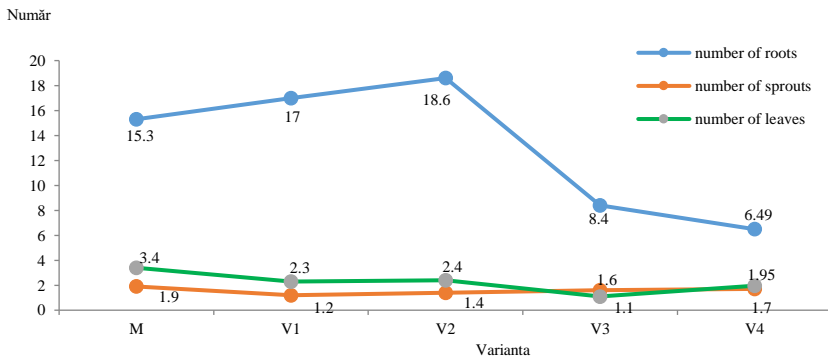


Figure 2 Variation of number of roots, sprouts and leaves for each type of substrate

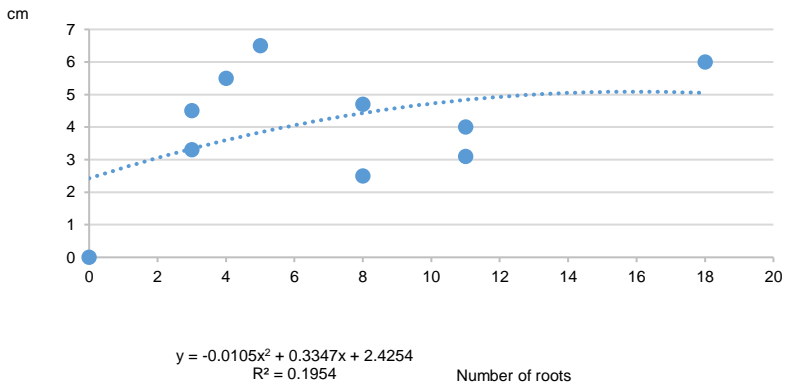


Figure 3 The correlation between the number of roots formed and their length (cm) in the Control variant

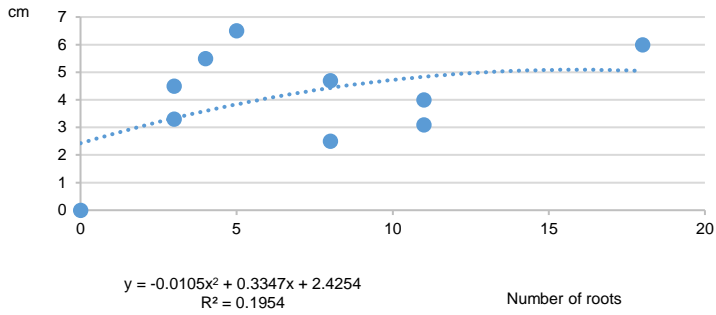


Figure 4 The correlation between the number of roots formed and their length (cm) in the V₁ variant

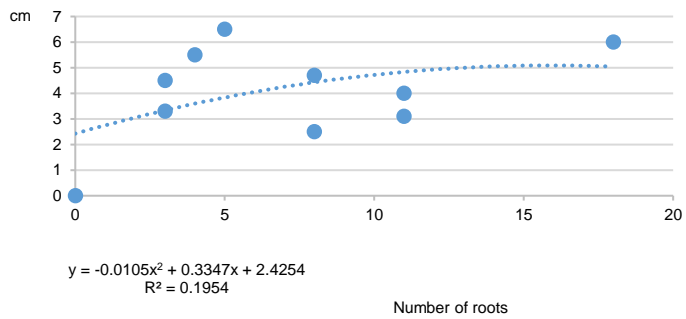


Figure 5 The correlation between the number of roots formed and their length (cm) in the V₂ variant

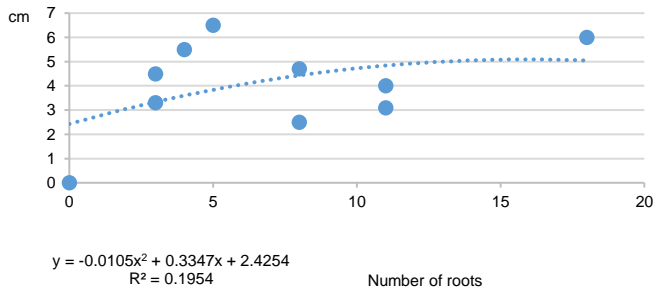


Figure 6 The correlation between the number of roots formed and their length (cm) in the V₃ variant

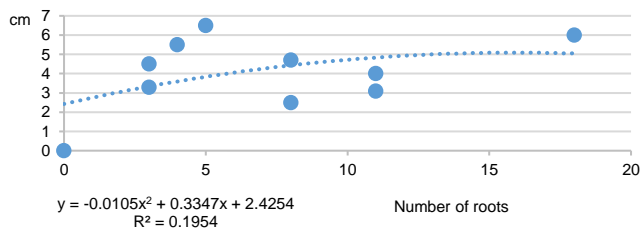


Figure 7 The correlation between the number of roots formed and their length (cm) in the V₄ variant

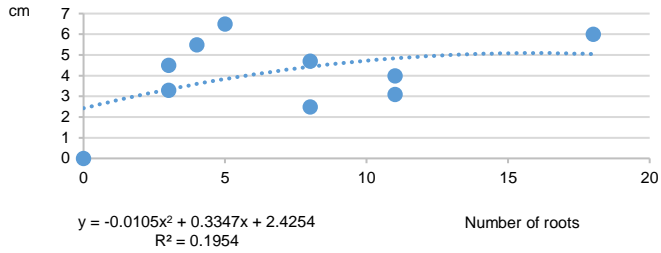


Figure 8 The correlation between the number of roots formed and the sprouts length (cm) in the Control variant

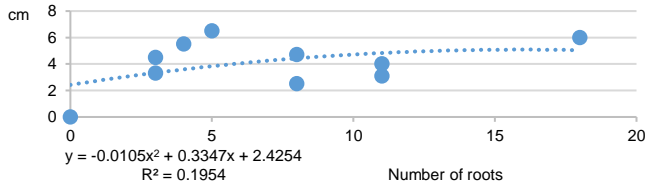


Figure 9 The correlation between the number of roots formed and the sprouts length (cm) in the V₁ variant

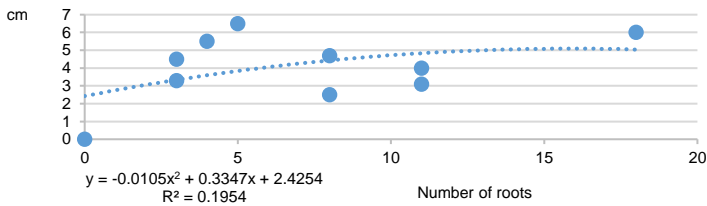


Figure 10 The correlation between the number of roots formed and the sprouts length (cm) in the V₂ variant

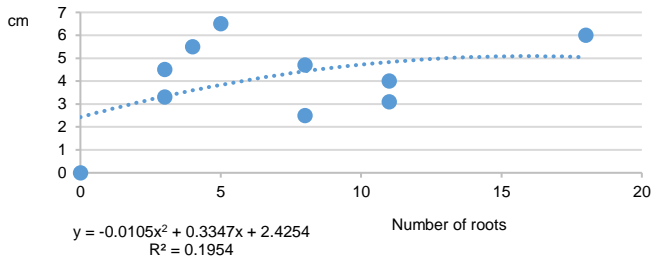


Figure 11 The correlation between the number of roots formed and the sprouts length (cm) in the V₃ variant

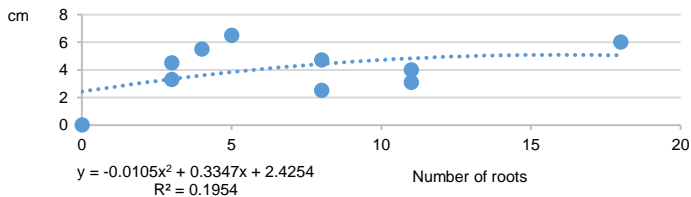


Figure 12 The correlation between the number of roots formed and the sprouts length (cm) in the V₃ variant

CONCLUSIONS

Vegetative propagation has the advantage that several fragments of sprouts taken from a single vine can be used, propagated at the same time and allows the production of several plants simultaneously;

Following the study we found that in terms of rooting percentage, the best results were obtained on the peat substrate (variant V₁), the percentage being 100%;

The development of the formed roots recorded the best values in variants V₁ (peat) and V₂ (peat + perlite 2:1);

The formation of sprouts and leaves developed on rooted sprouts had a good evolution in the control variant (water), followed by variant V₄ (mold leaf) and variant V₃ (sand);

This type of vine propagation is the simplest and most economical way of multiplication, obtaining identical plants from a generative point of view.

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