



GROWTH CONTROL AND FRUIT QUALITY OF APPLE CULTIVAR 'GALA SCHNIGA' USING ROOT PRUNING TECHNIQUE

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Abstract

The aim of this study was to evaluate influence of different level intensity of root pruning on vigour and fruit quality of apple cultivars 'Gala Schniga'. Root pruning was done two weeks before buds burst, on one (RP1) and both side of rows (RP2), at a distance of 30 cm from the trunk and depth of 40 cm. The study included the following vegetative properties: stem diameter, trunk cross-sectional area, number and length of young shoots, number and length of internodes, while generative traits were included following a number of flowers buds per tree, a number of fruits per tree, return blooming, yield, the mass of fruit, a diameter of fruit, percentage of radish of fruits.

Materials and Methods

The study was carried out at a commercial orchard located at the village Nakovo, near Kikinda city, district of North Banat. The area has a continental climate with an average annual rainfall of 550 mm. The root trees were pruned at the end of the winter period in season 2020 (March 14th). The experiment was conducted by a random field with five repetitions (four trees were taken from a repeat). Physical properties of fruits were determined with four repetitions, and each repetition included 20 fruits. The significant differences between means determined at $P < 0.05$, measured with LSD test.

Results and Discussion

Table 1. Generative properties and fruit quality of 'Gala Schniga'

	Number of flower buds	Number of fruits	Return bloom	Mass of fruits (g)	Diameter of fruits (mm)	% rudish of fruits	Firmness (kg/cm ²)	SSC (%)	Iodine scale (1-10)	SI
RP1	135.5	137.4	112.1	160.2	70.5	65.3	7.4	13.4	6.5	0.08
RP2	145.0	123.9a	142.9	153.3	68.9	68.2	7.9	14.2	7.3	0.08
Control	73.8	102.2	89.0	165.0	73.7	56.3	6.8	13.0	5.9	0.09
lsd 0,05	33.4	20.8	18.3	7.9	3.6	6.1	1.0	0.7		

Table 2. Productivity and percentage of a different class of fruits cultivar 'Gala Schniga'

	Yield (kg)	Harvest I (%)	Harvest II (%)	% of fruits (<65 mm)	% of fruits (65-70 mm)	% of fruits (>70 mm)
RP1	29.2	49.7	50.3	10.6	32.1	57.4
RP2	27.2b	47.8	52.2	15.8	25.5	58.8
Control	22.5	64.4	35.6	7.7	28.6	63.8
lsd 0,05	5.3	13.4	12.6	5.4	4.9	5.0

CONCLUSION

The techniques of root pruning had significant effects to the control of vegetative growth and productivity and fruits quality. Root pruning affected to decrease of TSCA and length of young shoots. Compared to the control trees a root pruning treatments had higher values of flower buds and a positive effect on the return blooming. Only RP2 treatment had effects to decrease of mass and diameter of fruits, and decrease of the percentage of marketable fruits. The moderate root pruning techniques at the end of the winter period could be recommended for successful control of vegetative growth and improved generative properties.