STUDY ON PROPAGATING TECHNOLOGY FOR SOUR AND SWEET CHERRY VARIETIES IN AREA RADUCANENI IASI

STUDIU PRIVIND TEHNOLOGIA PRODUCERII MATERIALULUI SĂDITOR LA CIREŞ ŞI VIŞIN, IN ZONA RADUCANENI IASI

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Abstract: *The production of horticultural planting material is a very profitable industry and market opening to competition, has as result the appearance of a complete range conveyer. Since the material provided until recently have the first destination establishment of intensive orchards or super intensive is appreciated that some producers began to refer also to the market share, so far ignored, represented by the gardens of the population. Grafting trees on seedling rootstock's will lead to an increase in the number of trees sold and thus in the next few years, an increasing amount of fruit to be marketed in peasant markets. For reasons mentioned above we have allowed a limited study of commercial planting offered by some private companies, benefiting in this respect by the material support of SC Vinifruct-Copou, Raducaneni Nursery.*
Key words: private nursery, planting material, seedling rootstock.

Rezumat: *Producerea materialului săditor pomicol este un segment horticol deosebit de profitabil, iar decahiderea pietei libere a avut ca efect aparitia unui conveer diversificat. Daca pana acum materialul de plantat avea ca primă destinatie înfiițarea de livezi intensive şi superintensive, este de apreciat ca o parte din producători au inceput să se adreseze segmentului, pana acum ignoarat, reprezentat de gradinile populației. Altoirea pomilor pe portaltoi franc va conduce la cresterea numarului de pomi valorificati şi de asemenea, la creşterea cantității de fructe ce va fi valorificată pe piață.*
Cuvinte cheie: pepinere private, material de plantat, portaltoi franc

INTRODUCTION

Production of fruit-growing seedlings in Romania is not limited by law only to state, in recent years, besides nurseries research stations converted former company, there are other licensed nurseries, especially on the production profile and less decorative material fruit-growing as an adaptation to current market requirements

The latter, however occupy small areas, and some traders dealing permitted only seed and planting material (especially ornamental) imported.

Given the fluctuating demand and planting new orchards more than amateurs trade system, but does not provide an increase significant quantity of fruit-growing seedlings in the coming years.

MATERIAL AND METHOD

The material studied is made up of two cherry varieties namely Schattenmorelle, Crişana 2 grafted on mahaleb and two varieties of cherry: Stella, Van grafted on cherry rootstock.

The aim is to research and develop technology for improving a functional way to define parameters in fields I and II of the school of trees in Iasi County - Raducaneni district.

Intended purpose was achieved by studying the trees STAS biometric indicators aiming at: The diameter of the graft area and over the graft area, in the area of first ramification, tree height,the length of annual growth; the number of buds on trees, root length and main pivot.

RESULTS AND DISCUSSIONS

A. Biometric data regarding on sour cherry

Analysing Table 1 can be seen as the sour cherry species, lower density of trees has resulted in a more pronounced compared with other graft rod variables considered in the study. To witness, the variety Schattenmorelle separately recorded significant positive difference density of 0.21 m at 58 800 plants / ha. Variety Crisana 2 recorded a significant negative difference from the control (mean) of -0.23 m.

In table 2 on tree diameter in the grafting point it appears that both varieties, lower density resulted in a graft diameter in the engrafting point about variety Crisana 2 40.9 mm, respectively 34.61 mm in Schattenmorelle variety.

The same phenomenon continues along the entire graft yards so that tests carried out at 25 cm from the grafting point values recorded was 17.63 mm Crisana 2 variety and 16.89 mm to variety Schattenmorelle. In the area of first ramification (about 70 cm from the point of grafting), extreme values ranged from 11.15 mm for the density of 87,700 plants / ha and 13.16 mm for the density of 58,800 plants / ha in variety Schattenmorelle.

Regarding the average length of annual growth can be seen that the lower density of both species resulted in the formation of annual growth and more vigorous variety Schattenmorelle namely 68 cm and 60 cm Crisana 2 variety and higher density resulted decrease of this indicator (table 3)

Studying the total number of buds per tree is highlighted that the variety Crisana 2 presents a number of 96-97 pcs / tree, and variety Schattenmorelle a number of 135-137 pieces / tree. From the control values recorded very significant variety Schattenmorelle positive difference +19 - 21 pieces and the variety it ranks Crişana2 negative significant differences -19 - 20 pcs.

To obtain concludent results on behaviour in nursery seedlings were analysed Raducaneni aspects about rootstock biometric system on the tree.

Studying pivot length can be seen that mahaleb rootstock had the greatest length of this indicator for grafting the variety Crisana 2 and at Schattenmorelle variety values obtained were low.

Table 1

Biometrical data on sour cherry varieties growth

Variants	Seeding density (plants/ha)	Scion high (cm)	Signification	Difference to the control (m)	Grafting success percentage (%)
Crisana2/ *Prunus mahaleb*	58800	152.10	XX	0.05	83
	87700	124.03	OOO	-0.23	90
Schattenmorelle / *Prunus mahaleb*	58800	168.02	XXX	0.21	84
	87700	144.12	O	-0.03	91
Average (Control)		147.20			

DL 5 %= 0.34 m DL 1%= 0.52 m DL0,1%=0.82 m

Table 3

Biometrical data on sour cherry varieties growth

Variants	Seeding density (plants/ha)	Annual growth length (cm)	Signif.	Diff. to control (cm)	Total number of buds per tree (pcs.)	Signif.	Diff. to control (pcs.)
Crisana2/ *Prunus mahaleb*	87700	48.75	O	-6.37	96	O	-20
	58800	60	X	4.88	97	O	-19
Schattenmorelle /*Prunus mahaleb*	87700	43.75	OO	-11.37	135	XX	19
	58800	68	XXX	12.88	137	XX	21
Average (Control)		55.12			116		

DL 5 %= 4.82 cm DL 5 %= 2.49 pieces
DL 1%= 7.23 cm DL 1%= 3.78 pieces
DL 0.1%= 11.61 cm DL 0.1%= 6.07 pieces

The total length of roots was 425 cm between the density of 87,700 plants/ha and 445 cm at lower density in variety Schattenmorelle and respectively 166 cm in density higher than 225 cm if the density of 58,800 plants / ha in variety Crisana 2

B:Biometric data regarding on sweet cherry

Analysing table 7 can be seen as the cherry species, trees lower density resulted in higher growth of grafted rod compared with other variables considered in the study. To witness the variety Van recorded a significant positive difference of 0.19 meters separate the density of 58,800 plants / ha. Stella variety recorded a significant negative distinct difference from the control (average) of 0.20 m

In table 5 regarding on tree diameter in the grafting point can be seen that the density of smaller diameter resulted in the grafting point of about 33.92 mm Stella variety with a distinct difference from the control significant positive and 33.27mm in Van variety. Measured by tree diameter at 25 cm from the grafting point highlighted that higher densities of both species have produced a rod thickness by 16.62 mm at Stella variety and 14.27 mm for Van varieties. Lower densities were obtained distinct differences from control significant negative.

Table 2

Biometrical data on sour cherry varieties

Variety/ rootstock	Planting density (plants/ha)	Scion offshoot diameter at sour cherry varieties								
		Diameter in the grafting area (mm)	Signif.	Difference to the control	Diameter above the grafting area (mm)	Signif.	Difference to the control	Diameter in the area of first ramifications (mm)	Signif.	Difference to the control
Crisana2/*Prunus mahaleb*	87700	33.61	-	-1.59	16.73	-	0.13	11.38	-	-0.57
	58800	40.92	XXX	5.71	17.63	-	1.03	12.10	-	0.15
Schattenmorelle/*Prunus mahaleb*	87700	31.68	OO	-3.52	15.12	O	-1.48	11.15	-	-0.82
	58800	34.61	-	-0.59	16.89	-	0.29	13.16	X	1.21
Average (Control)		35.20			16.60			11.95		

DL 5 %= 1.83 mm
DL1%=2.73mm
DL 0.1%=4.33 mm

DL 5 %= 1.01 mm
DL1%=1.52mm
DL 0.1%= 2.43 mm

DL 5 %= 1.02 mm
DL1%= 1.54 mm
DL 0.1%= 2.52 mm

Table 5

Biometrical data on sweet cherry varieties

Variety/ rootstock	Planting density (plants/ha)	Scion offshoot diameter at sweet cherry varieties								
		Diameter in the grafting area (mm)	Signif.	Difference to the control	Diameter above the grafting area (mm)	Signif.	Difference to the control	Diameter in the area of first ramifications (mm)	Signif.	Difference to the control
Stella/Seedling sweet cherry	87700	29,48	OO	-3,46	16,62	OOO	-0,35	7,36	OOO	-2,81
	58800	38,92	XXX	5,98	19,66	XXX	2,69	13,26	XXX	3,09
Van/ Seedling sweet cherry	87700	30,11	O	-2,83	14,27	OOO	-2,7	9,32	OO	-0,85
	58800	33,27	-	0,33	17,34	XXX	0,37	10,76	X	0,59
Average (Control)		32,94			16,97			10,17		

DL 5 %= 2.01mm
DL 5 %= 0.11 mm
DL 5 %= 0.53 mm

DL 1%= 3.21 mm
DL 1%= 0.12 mm
DL 1%= 0.74 mm

DL 0.1%= 4.93 mm
DL 0.1%= 0.23 mm
DL 0.1%= 1.13 mm

Table 4

Biometrical data on sour cherry varieties growth

Variants	Seeding density (plants/ha)	Pivot length (cm)	Signif.	Difference to control (cm)	Main roots length (cm)	Signif.	Difference to control (cm)
Crisana2 / *Prunus mahaleb*	87700	27	OO	-6.67	166	OOO	-144
	58800	30	-	-3.76	205	OOO	-105
Schattenmorelle / *Prunus mahaleb*	87700	37	XX	3.24	425	XXX	115
	58800	41	XXX	7.24	445	XXX	135
Average (Control)		33.76			310		

DL 5 %= 1.14 cm
DL 1%= 1.73 cm
DL 0.1%= 2.78 cm

DL 5 %= 19.8 cm
DL 1%= 29.6 cm
DL 0.1%= 47.5 cm

Table 6

Biometrical data on sweet cherry varieties growth

Variants	Seeding density (plants/ha)	Scion high (cm)	Significati on	Diff. to control (m)	Grafting success percentage (%)
***Stella/* PF.Pietroase negre**	58800	179,15	-	0,03	58
	87700	156,09	OOO	-0,2	64
***Van /* PF.Pietroase negre**	58800	195,22	XXX	0,19	59
	87700	174,14	O	-0,02	65
Average (Control)		176,00			

DL 5 %= 0,12 m DL 1%= 0,16 m DL0,1%=0,21m

The diameter in the area of first ramification (about 70 cm from the point of grafting), extreme values ranged from 13.26 mm for the density of 58,800 plants / ha and 7.36 mm for the density of 87,700 plants / ha was obtained for variety Stella. Variety Van recorded intermediate values between those obtained by variety Stella.

Table 7

Biometrical data on sweet cherry varieties growth

Variants	Seeding density (plants/ ha)	Annual growth length (cm)	Signif.	Difference to control (cm)	Total number of buds per tree (pcs.)	Signif.	Difference to control (pcs.)
***Stella*/ Cireş franc**	87700	45,5	-	-0,53	44	OOO	-35
	58800	50,3	XXX	4	96	XX	17
***Van* / Cireş franc**	87700	42	OO	-4,03	76	-	-3
	58800	46,3	-	0,27	101	XX	22
Average (Control)		46,39			79		

DL 5 %= 1,72 cm
DL 1%= 2,64 cm
DL 0,1%= 4,25 cm

DL 5 %= 10,21 buc
DL 1%= 15,54 buc
DL 0,1%= 24,92 buc

Regarding the average length of annual increases can be seen that the lower density of both species resulted in the formation of annual growth more vigorous that is 50.3 cm at Stella.

Studying the total number of buds per tree to show that Stella has a number of varieties from 44 to 96 pcs. / tree and in Van variety 76-101 pieces / tree. Stella variety recorded values very positive with significant differences.

Studying pivot length (table 9) can be seen that cherry rootstock recorded longest of this indicator for the variety Van with grafting density of 58,800 plants / ha, and when Stella variety appreciation of the lowest density was obtained at 87 700 plants / ha (31 cm)(table 8).

Table 8

Biometrical data on sour cherry varieties growth

Variants	Seeding density (plants/ha)	Pivot length (cm)	Signif.	Difference to the control (cm)	Main roots length (cm)	Signif.	Difference to control (cm)
***Stella*/ Cireş franc**	87700	31	O	-3,48	272	-	26,70
	58800	35	XX	0,52	295	XX	49,71
***Van* / Cireş franc**	87700	34	-	-0,48	177	OO	-68,31
	58800	38	XX	3,52	237	-	-8,32
Average (Control)		34,48			245,3		

DL 5 %= 1,22 cm
DL 1%= 1,84 cm
DL 0,1%= 2,96 cm

DL 5 %= 31,92 cm
DL 1%= 48,37 cm
DL 0,1%= 77,65 cm

CONCLUSIONS

1. Using high density, the percentage of bud grafting was caught in higher, due to lower growth vigour of seedlings that meet the technical conditions optimal for grafting as described in the literature.

2 Quality technical conditions of grafted trees (1 year) revealed that trees obtained are fit in the limits of quality seedlings for cherries fruit-growing species.

3. Research on graft and rootstock in nursery Raducaneni revealed that between symbiont are influences still from the early stages.

4. The analysis results can be concluded that in the nursery, varieties described as being more vigorous like Stella and Crisana 2 shows a less vigour in growth.

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