

CERCETĂRI PRIVIND CREȘTEREA RANDAMENTULUI LA ÎNMULȚIRE A PORTALTOULUI VEGETATIV PENTRU CIREȘ ‘IP-C7’

RESEARCHES ON INCREASING THE PROPAGATION YIELD OF VEGETATIVE ROOTSTOCK FOR CHERRY ‘IP-C7’

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Abstract

‘IP-C7’ is a vegetative cherry rootstock with high resistance to foliar diseases, which adapts easily to different soil types. It is multiplied by softwood cuttings under artificial fog, yielding a multiplication of 85-87%. In the orchard there are induced to grafted varieties, yielding precocity and a high and constant level of production. The studies were carried out at the RIFG Pitești Mărăcineni, in a mother plantation for cuttings with a density of 5,000 plants/ha in the 3rd year of age and in the green house provided with artificial fog. The objective of this study was to increase the production of shoots and, implicitly, of non-rooted cuttings that can be harvested at the surface unit. In the spring severe pruning was made in the mother plantation, at 3 and 5 buds, and in July from the shoots obtained were made cuttings that were rooted. The following indicators were registered: the length of the shoots, the number of shoots, and the number of cuttings per tree, the rooting percentage of the cuttings, the quality of the root system. Between the two variants of pruning, pruning at 5 buds resulted in an increase of the shoots production of 11.6% and of the non-rooted cuttings of 14.03%. Due to the use of the Radistim V2 biostimulator powder, the rooting percentage increased to 97.9 - 98.3%. Pruning mode in the mother plantation did not significantly influence the rooting percentage of the cuttings. By correlating the production of non-rooted cuttings with the percentage of rooted obtained, in the variant where the pruning was done at 5 buds, a 13.56% increase in the rooted cuttings is obtained compared to the variant in which the pruning was done at 3 buds.

Cuvinte cheie: portaltoi cireș, plantație mamă butași, număr lăstari/ha, butași înrădăcinați.

Keywords: cherry rootstocks, mother plantations for cuttings, number of shoots / ha, rooted cuttings.

1. Introduction

The ‘IP-C7’ vegetative cherry rootstock obtained at RIFG Pitești Maracineni, patented in 2013, is distinguished by its good grip on planting, increased resistance to foliar diseases and adaptability to different soil types. Varieties grafted on it do not sucker in the orchard. It is multiplied by softwood cuttings in green house under artificial fog, with a yield of 85-87% (at the time of naming, 2011). In the orchard, induces medium vigor to grafted varieties, yielding precocity and a high and constant level of production.

The aim of this study was to increase the production of shoots in the mother plantation of cuttings and, implicitly, of rooted cuttings that can be obtained at the surface unit.

2. Material and method

The studies were carried out at the RIFG Pitești Maracineni, in a cuttings mother plantation of 5,000 plants/ha (4x0.5m), in the 3rd year after planting. The determinations were made on 10 trees in 3 repetitions for each variant. In spring, the trees were pruned at 3 to 5 buds, and in the beginning of July cuttings of 25 cm length were made, leaving 3-4 leaves/cutting. The cuttings obtained were planted in washed sand substrate at a distance of 10 X 8 cm, in green house provided with artificial fog, using Radistim V2 (naftylacetic acid) biostimulator as powder. Air humidity in green house should be 80-90%. After rooting (2-3 weeks), the amount of water was reduced, and harvest of rooted cuttings was carried out in November when the roots were ripened.

In the mother plantation the following indicators were registered: the length (cm) and the number of shoots, as well as the number of non-rooted cuttings that can be made on the tree. After rooting, in November, when rooted cuttings were harvested, the rooting percentage, the total number and length of the roots per cut, and the length of the cutting rooted area were determined.

3. Results and discussions

In the first variant (3 buds pruning), 41 shoots/tree (205,000 shoots/ha) were obtained, of which 85.56 non-rooted cuttings (427,800 cuttings/ha) can be made, and in the second variant (5 buds pruning) was obtained an average of 45.78 shoots/tree (228,900 shoots / ha) from which 97.56 cuttings (487,800 cuttings / ha) can be made (Fig. 1,2). Thus the variant in which the pruning was carried out at 5 buds, resulted in an increase in shoots production of 11.6%. Since these shoots have the length and thickness required to obtain even 3 segments, this variant produced a 14.03% non-rooted cutting increase compared to the 3 buds pruning.

Regarding the rooting percentage of the cuttings, there were no significant differences between the variants (97.9% for 5 buds and 98.3% for 3 buds) (fig. 2), but due to using of the biostimulator Radistim V2 it is higher than that at the time of naming (85-87%).

By calculating the average yield per hectare of the rooted cuttings according to the rooting percentage, in the second variant (pruning at 5 buds) a production increase of 57.029pcs/ha (13.56%) was obtained compared to the first variant (pruning at 3 buds) (Table 1).

The quality of the root system of rooted cuttings is expressed by the number of roots per cutting, the total length of roots and the length of the rooted portion. The average number of roots per cuttings correlates significantly with their total length and length of the rooted portion, but there are no significant differences between the cuttings obtained in the two variants (Figure 3).

4. Conclusions

- In mother plantation for cuttings it is recommended to prune at 5 buds resulting an increase in shoots production of 11.6% and 14.03% in the non-rooted cuttings compared to the 3 buds pruning.
- The pruning mode in the mother plantation does not significantly influence the quality and percentage of rooting.
- By correlating the production of non-rooted cuttings with the percentage of rooting obtained, in the variant where the pruning was done at 5 buds, an increase in the rooted cuttings of 13.56% is obtained compared to the variant in which the pruning was done at 3 buds (higher yield of shoots to 5 buds variant).

References

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Tables and Figures

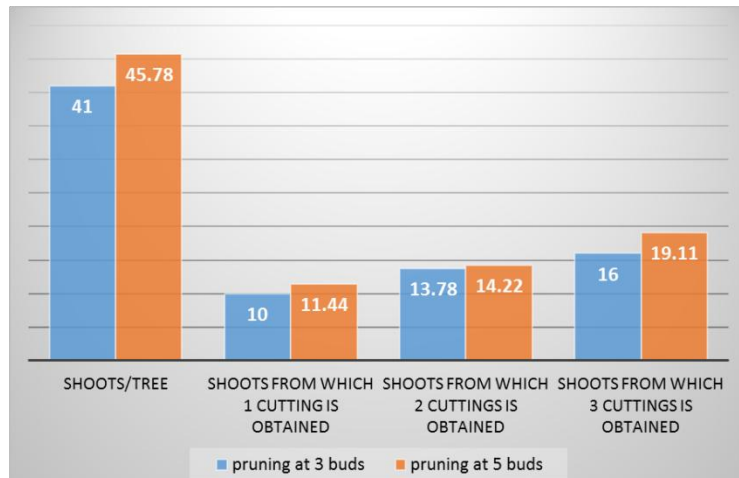


Fig.1. The average number of shoots obtained on the tree depending on the pruning mode in the mother plantation of the cuttings

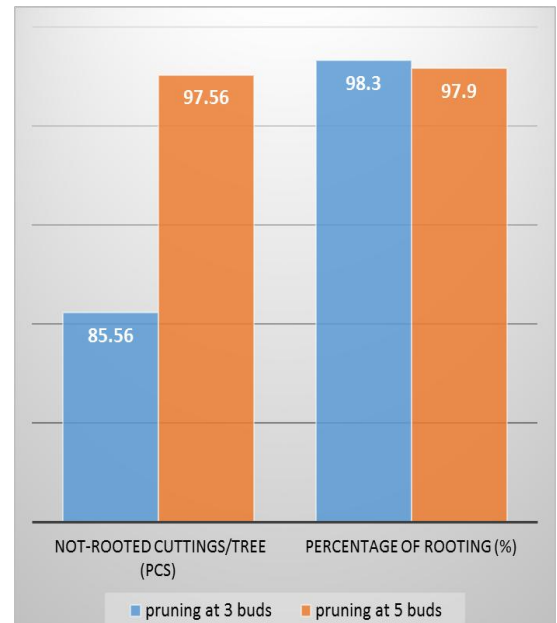


Fig. 2. The average number of non-rooted cuttings that can be obtained on the tree and its rooting percentage

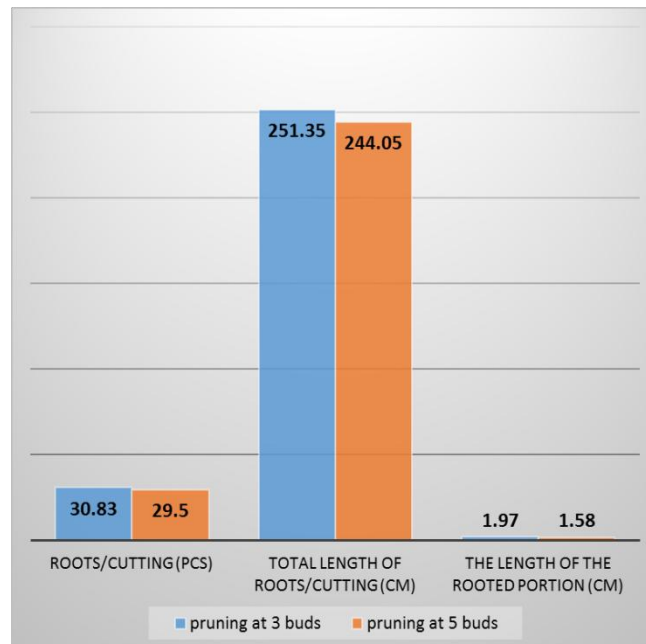


Fig. 3. Root quality of the rooted cuttings according to the pruning mode in the mother plantation

Table 1. The production of cuttings obtained per surface unit according to the pruning mode in the mother plantation of cuttings

| Variant | Not-rooted cuttings/ha (pcs.) | Percentage of rooting (%) | Production of rooted cuttings / ha (pcs.) |
|-------------------|--------------------------------------|----------------------------------|--|
| pruning at 3 buds | 427800 | 98,3 | 420527 |
| pruning at 5 buds | 487800 | 97,9 | 477556 |



IP-C7 Mother plantation of the cuttings



Propagation by softwood cuttings under artificial fog conditions



IP-C7 – Rooted cuttings