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The effect of the short pruning on the yield and quality of the fruits at the peach tree

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Abstract: The aim of our research was to determine the effect of short pruning on the productive and vegetative characteristics of peach trees. The research was conducted on two cultivars, 'Redhaven' and 'Fayette'. Three short pruning treatments were applied, with heading of the bearing branches at 20, 30, and 40 cm in length and a control, without heading. The following characteristics were evaluated: the growth of the TCSA, the number of thinned fruitlets, the number of fruit and yield per tree, the average weight of the fruits and the diameter of the fruits. Based on our research, we made several observations: the pruning method did not affect the growth of the TCSA; the number of thinned fruitlets decreased with a reduction in the length of the bearing branches; the number of fruits and yield per tree decreased with a reduction in the length of the bearing branches. A higher average fruit weight and percentage of fruits with a bigger diameter were calculated from the trees with the short pruning, but with a different share depending on the cultivar.

Keywords: *Prunus persica* L.; productivity; tree growth; shoot heading

On a cultivated commercial peach orchard, a range of agro-technical, pomo-technical and plant protection measures are being applied. These measures provide the appropriate conditions for proper growth, development, and fruit quality. For the fresh market, the peach's fruit quality is extremely important, because the size, colour and absence of defects are the main criteria used by consumers while buying fruits (Trevisan et al. 2010). To achieve an adequate quality level, the regular application of agro-technical and pomo-technical measures are necessary, among which pruning is one of the most important (Bulatovič et al. 1996). Peaches have an exceptionally high fruit-bearing potential. Due to the differentiation of many flower buds and expressed self-fertilisation, a peach tree bears many fruits which are small and substandard. To avoid overbearing, thinning the fruits is a cultural practice often adopted in all production regions, aimed at increasing the fruit size and quality, enhancing its value at harvest (Osborne, Robinson 2008; Turk et al. 2014). Dormant pruning is one of the measures which must be applied in a commercial orchard. This measure aims to establish a physiological balance between the vegetative growth and fruit-bearing capacity, keeping the trees in good condition, providing good quality fruits, and prolonging the orchard's period of exploitation. To perform a correct pruning, it is necessary to have good knowledge of the biology and physiology of the peach tree, the specifics regarding the cultivars, the method and intensity of the agro-technical measures, while taking the environmental conditions in the given region into account (Kiprijanovski, Gjamovski 2013).

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The method and intensity of the pruning needs to be adapted to the general vegetative state of the fruit tree, the cultivar characteristics, and the growing system (Medin 1998).

In peach growing, two pruning methods can be used, short and long pruning. While using the long pruning method, the bearing branches are not shortened, they are just more rigorously thinned. This method of pruning provides a greater number of fruits along the branch. During the vegetation period under the weight of the fruits these branches hang lower, the fruits are fully exposed to the sunlight and, in normal conditions, they get good colouration. Lately, in the warmer regions, peach trees have been experiencing negative consequences which have been caused by the direct exposure of the fruits to the strong sunlight in hot summer days (Kiprijanovski, Gjamovski 2013). With the short pruning method, the branches are shortened at a given length. The shortened branches are strengthened, and they do not hang down. In this method, all of the fruits along the branch receive a balanced flow of water and nutrients, they have a more even development and ripen more uniformly. Both pruning methods can be recommended depending on the cultivar, the use of the fruits, the tradition, availability and cost of labour, the environmental conditions, etc. In the growing conditions of the Republic of North Macedonia, going back a long time, the long pruning method has been used almost exclusively. Among the scientific community and among growers, there is often a dilemma, which method of pruning is more suitable to use in the orchard. According to Ristevski (1995), the short pruning method does not fit the biology of the peach, therefore, it should be replaced by the long pruning method, which is accompanied by the stronger thinning of the bearing branches, without heading them. Paunović (1970) states that with the cultivar 'Morettini 1', the biggest fruits and the highest yield are obtained with the use of the short pruning method, without taking the shape of the canopy into consideration. While, Rudić et al. (1972) states that higher yields were achieved in treatments without heading the bearing branches, while the yield declined in the treatments with the short pruning method.

The importance of pruning in growing peaches and the diametrically opposite views on the correct method to undertake this very important pomo-technical measure, imposes the need for the research provided in this paper. The aim of our research was to determine the effect of the short compared to the long pruning method on the vegetative growth, yield, and the quality of the fruits on peach trees.

MATERIALS AND METHODS

The research was performed in 2015 on the cultivars 'Redhaven' and 'Fayette' in a commercial orchard (41°27'37.3"N 21°54'34.6"E) in the Rosoman region, the Republic of North Macedonia. In the orchard, the cultivar 'Fayette' was planted in 2006, while 'Redhaven' was planted in 2008, in the early spring planting season in a regosol soil type. The orchard is in a good condition, and the distance of planting is 4 × 3.5 m (714 fruit trees/ha). The scion was grafted on seedlings from a vineyard peach [*P. persica* (L.) Batsch]. The training system used is a modified irregular palmate, the fruit trees are formed at 3.5 m in height. The orchard is grown using standard technologies (drip irrigation, fertigation, grassing between the rows). Up to the moment the trial was set in the orchard, the long pruning method was used, without any clear criteria for the number of bearing branches per tree.

The following treatments during the dormant period were used:

(1) Heading of the bearing branches at a length of 20 cm from the first generative bud from the basal part of the branch;

(2) Heading of the bearing branches at a length of 30 cm from the first generative bud from the basal part of the branch;

(3) Heading of the bearing branches at a length of 40 cm from the first generative bud from the basal part of the branch;

(4) Pruning without heading of the bearing branches – control treatment.

During the pruning, for the treatments with the heading of the branches, it was persisted that near 60 branches are to be left on one fruit tree and for the control treatment 50 branches.

The research was set in 4 repetitions for each treatment. For each repetition, 3 fruit trees were included or a total of 12 fruit trees per treatment were used. The research was set by the two cultivars separately, a total of 96 fruit trees were included in the trial.

During the research, the following parameters were studied:

The growth of the trunk cross-section area (TCSA) – calculated from the measurement of the circumference (measured in February and November) of the trunk at the height of 30 cm for each tree.

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The number of thinned fruitlets per tree - the number of thinned fruits per tree (in the first treatment, 3 fruits per branch were left after the fruit thinning was carried out, in the second and third treatments, 4 fruits and 6–7 fruits were left in the control treatment, respectively) was determined during the fruit thinning, which was performed when the fruitlets were 2 cm in diameter.

The number of fruits per tree – during the harvest, the number of fruits per bearing branch and per tree were determined.

Yield per tree – the fruits were measured on a scale where their total mass, the yield per tree and yield per unit area were determined.

Average weight of the fruits – the average weight was calculated on the basis of the total mass of the collected fruits and the number of collected fruits per tree.

Diameter of the fruits – the fruits were classified according to their diameter in 3 classes: extra class with a diameter of > 80 mm, first-class with a diameter of 70–80 mm, and second class with a diameter of < 70 mm.

The statistical analyses were performed using SPSS (IBM SPSS Statistics 19). The statistical difference was determined using the least significant difference (LSD) test at a degree of freedom of 0.05. Pearson's correlation coefficient was also calculated using SPSS.

RESULTS AND DISCUSSION

Tree growth. The trunk diameter is an integral indicator of the whole vegetative potential of the trees. The higher absorption of the root system helps the organic matter production to increase in the crown, this, in turn, contributes to forming more elements of xylem and phloem, which, at the end, is registered through an increase in the trunk diameter (Kiprijanovski et. al. 2006).

According to Jiminez and Diaz (2004) and Wright et al. (2006) the trunk cross section area is the most common measurement for determining tree size and indirectly, the capacity of that tree to produce fruit. In Table 1, we can see the data for the TCSA of the studied cultivars. Both examined cultivars are characterised by moderate vigour. From the data, it can be seen that there are no statistically significant differences in the growth of the TCSA, in both cultivars. Paunović (1970) arrived at similar findings, in the cultivar 'Morettini 1', he did not find any significant difference in the diameter of the trunk caused by the different crown shapes and pruning methods. Besides the measured parameters, the growth of the shoots in each of the treatments was observed during the vegetation period. In the trees in which the heading of the bearing branches was applied, there was a stronger, more vigorous growth in the new proleptic shoots in comparison with the control treatment. In the first treatment, a significant amount of water sprouts growth was also noted. This behaviour was expected, as the vigorous and upright growth of water sprouts is stimulated by heavy pruning (Bussi et al. 2011; DeJong et al. 2012).

Table 1. Trunk cross section area (TCSA, cm^2)

Treatments	Beginning of vegetation	End of vegetation	Growth
	Redhaven		
1	116.5	142.3	25.8[a]
2	116.0	142.4	26.3[a]
3	116.5	142.4	25.9[a]
4	101.7	125.7	24.0[a]
Mean	112.7	137.9	25.2
$LSD_{0.05}$			9.8
	Fayette		
1	169.6	200.0	30.4[a]
2	164.9	191.5	26.6[a]
3	155.5	178.6	23.1[a]
4	157.8	182.6	24.8[a]
Mean	162.0	188.2	26.2
$LSD_{0.05}$			7.4

Values followed by the same letter in the column were not statistically different

Number of thinned fruits. The primary objective of fruit thinning is an increase in the fruit quality by getting larger and more uniform fruits (Reighard, Byers 2009). The peach differs from most fruit species, by its exceptionally high fruit setting degree, which, depending on the cultivar and growing conditions, are between 60–90% (Mratinić et al. 2005). With the treatments in which the bearing branches were headed off, a reduction in a significant portion of the unwanted potential crop can be observed. From Table 2, we can see that the largest number of thinned fruits is found at the control treatment, where the bearing branches are not shortened, 694.9 at the cultivar 'Redhaven' and 783 at the cultivar 'Fayette'. This treatment differs with the statistical significance in comparison with the other treat-

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Table 2. Number of thinned fruits

Treatments	Per tree	Index	Per bearing branch
	Redhaven		
1	310.8^{c}	44.7	5.0^{c}
2	313.2^{c}	45.1	5.3^{c}
3	481.5^{b}	69.3	8.5^{b}
4	694.9^{a}	100.0	13.7^{a}
Mean	450.1		8.1
$LSD_{0.05}$	157.8		2.2
	Fayette		
1	288.8^{c}	36.9	4.5^{c}
2	422.4b^{c}	53.9	6.5^{bc}
3	471.1^{b}	60.2	7.4^{b}
4	783.0^{a}	100.0	15.1^{a}
Mean	491.3		8.4
$LSD_{0.05}$	143.6		2.2

Values followed by the same letter in the column were not statistically different

ments, indicating that this pruning method is more labour intensive for performing the fruit thinning. The smallest number of thinned fruits can be observed in the first treatment, 310.8 in the cultivar 'Redhaven' and 288.8 in the cultivar 'Fayette'. This is expected and confirms the statement of Mitreski (1984) that the number of flowers on a branch, and, therefore, the fruitlets and thinned fruits depends directly on the branch length.

Yield. The number of harvested fruits along with their size determines the yield. Modern fruit growing aims to provide an optimal number of fruits by tree which ensures an ideal fruit size, and, therefore, the optimal yield. As noted in Table 3, the smallest number of fruits is obtained in the first treatment (111.8 fruits in the cultivar 'Redhaven'; 74.2 fruits in the cultivar 'Fayette'). The highest number of fruits by tree was recorded in the fourth treatment, 190.9 fruits in the cultivar 'Redhaven' and 205.6 fruits in the cultivar 'Fayette'.

The fruit tree is the basic unit in fruit growing, and hence the yield is registered through this indicator. The yield per fruit tree varies widely, depending on a number of internal and external factors. Comparing the values in Table 4, it can be noted that the lowest yield can be observed in the first treatment, 24.9 kg in the cultivar 'Redhaven' and 17.7 kg in the cultivar 'Fayette'. The yield from the cultivar 'Fayette', in this treatment, is significantly lower in comparison with the cultivar 'Redhaven'. According to DeJong (1999), the ability of a developing organ to access assimilates during any growth phase is dependent on the supply of carbohydrates as well on the amount of competition for resources from other growing organs. The distribution of resources is determined by the location of the carbohydrate sinks relative to carbohydrate sources as well as the relative "sink strength" of each growing structure (Pavel, DeJong 1993; DeJong 1999). In the cultivar 'Fayette', the vigorous growth of the proleptic shoots and water sprouts, induced by the strong pruning in the first treatment could have more efficiently outcompeted the developing fruitlets resulting in a much smaller yield in comparison with Redhaven. In some instances, flushes of vegetative growth have been known to have a sufficient sink strength to outcompete the fruit (Quinlan, Preston 1971). The greatest yield, with a statistically significant difference to the first treatment was seen in the control, 37.1 kg in the cultivar 'Redhaven' and 45.1 in the cultivar 'Fayette'. Manoj et al. (2010), in their investigations came to similar findings, that by increasing the heading length of the bearing branches, the yield decreases. In the cultivar 'Flordaking', depending on whether the bearing branches were shortened through pruning by 1/4, 1/3 or 1/2 from the upper end, the yield per tree was 27.0 kg, 24.1 kg, and 20.0 kg, respectively. While the yield in the cultivar 'Saharanpur Prab-

Table 3. Quantity of fruits and the number of fruits/ branch

Treatment	No. of fruits per tree	Index	No. of fruits per branch
	Redhaven		
1	111.8^{b}	58.6	1.8^{b}
2	153.3^{ab}	80.3	2.6^{a}
3	176.4^{a}	92.4	3.1^{a}
4	190.9^{a}	100	3.2^{a}
Mean	158.1		2.7
$LSD_{0.05}$	47.2		0.76
	Fayette		
1	74.2^{c}	36.1	1.2^{c}
2	139.8^{b}	68.0	2.2^{b}
3	152.1^{ab}	74.0	2.4^{ab}
4	205.6^{a}	100.0	3.3^{a}
Mean	142.9		2.3
$LSD_{0.05}$	58.0		0.91

Values followed by the same letter in the column were not statistically different

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Table 4. Yield

Treatment	Average mass of the fruits (g)	Index	(kg/tree)	(t/ha)	Index
			Redhaven		
1	223.0[a]	114.9	24.9[b]	17.78[b]	67.1
2	218.0[a]	112.4	33.5[ab]	23.92[ab]	90.3
3	203.0[b]	104.6	35.6[a]	25.42[a]	96.0
4	194.0[b]	100.0	37.1[a]	26.55[a]	100.0
Mean	209.5		32.8	23.40	
$LSD_{0.05}$	13.1		9.5	6.81	
			Fayette		
1	239.0[a]	109.1	17.7[c]	12.64[c]	39.2
2	230.0[ab]	105.0	32.1[b]	22.92[b]	71.2
3	216.0[b]	98.6	32.8[ab]	23.42[ab]	72.7
4	219.0[b]	100.0	45.1[a]	32.20[a]	100.0
Mean	226.0		31.9	22.79	
$LSD_{0.05}$	15.5		12.7	9.09	

Values followed by the same letter in the column were not statistically different

hat', the yield was 15.5 kg, 13.3 kg, and 11.0 kg per tree, respectively. An exception to this dynamic occurred in the cultivar 'Flordasun', where the biggest yield was obtained with the heading of the branches by 1/3, 45.6 kg per tree.

The yield per unit area, i.e., the yield per hectare, is the basic unit measure for displaying the production and is an important indicator for the efficiency of the cultivation of the orchard. The yield per unit area depends on the age of the orchard establishment, the cultivar, the number of fruit trees per hectare, the pomo-technical and agro-technical measures, the growing region, etc. From Table 4, we can observe that the yield per unit area varies greatly depending on the treatment. The fourth treatment has the highest yield per unit area, 26.55 t/ha in the cultivar 'Redhaven' and 32.20 t/ha in the cultivar 'Fayette', but without any significant statistical difference with the second and third treatment. The lowest yield can be seen in the first treatment, 17.78 t/ha in the cultivar 'Redhaven' and 12.64 t/ha in the cultivar 'Fayette'. Paunović (1970), in the cultivar 'Morettini 1', obtained the biggest yield per hectare, 27.85 t/ha, with the heading of the bearing branches at 16–18 buds. In the treatment without the heading of the branches, he obtained a similar yield of 27.77 t/ha, while obtaining the lowest yield of 16.39 t/ha when leaving 8–10 buds per bearing branch.

Fruit quality. It is known that the fruit weight is inversely proportional to the number of fruits per tree. A larger number of fruits per tree can reduce the average weight of the fruits. This is particularly noticeable in peaches, which, if fruit thinning is not undertaken, will yield a large number of fruits with a low weight having poor quality characteristics. It is important to emphasise that by conducting only one pomo-technical practice, i.e., thinning, it is not possible to positively influence all the fruit quality factors because there are positive and negative correlation relationships among them (Link 2000). Other factors also influence the weight of the fruits, such as, the cultivar, rootstock, soil and climatic conditions, agro- and pomo-technical conditions, etc.

Analysing the data from Table 4, it can be noted that the average weight of the fruits other than the number of fruits, is also influenced by the pruning method. The fruits had the biggest average mass in the first treatment, where the bearing branches were shortened at the length of 20 cm, 223 g in the cultivar 'Redhaven' and 239 g in the cultivar 'Fayette'. In both cultivars, the average mass of the fruits differed with a statistical significance to the control treatment, which had the lowest values, 194 g in the cultivar 'Redhaven' and 219 g in the cultivar 'Fayette'.

Manoj et al. (2010), in their examination, points out that the average weight of the fruits was significantly increased with an increase in the length of the heading of the bearing branches in two of the three tested cultivars. The pruning method with heading half of the length of the bearing branches gave

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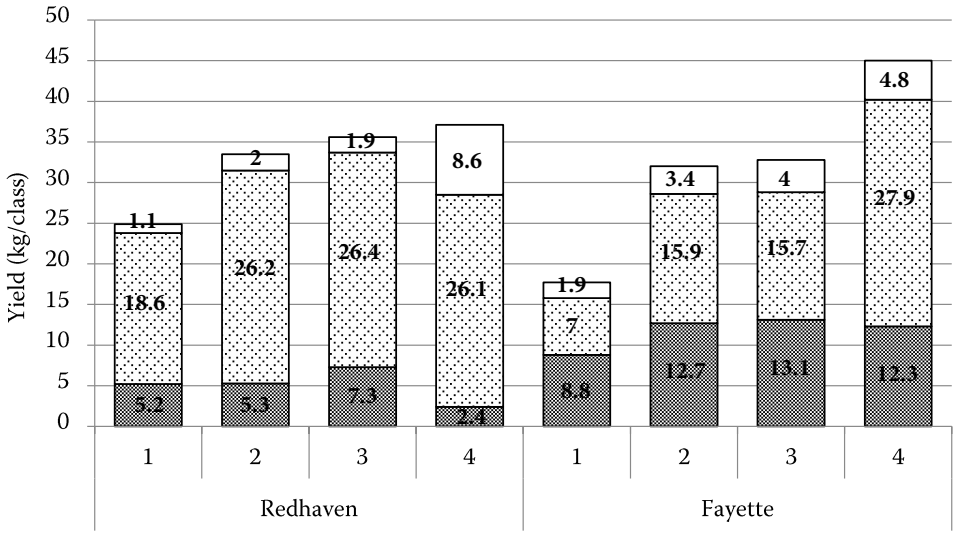

Figure 1. Yield per class

the highest mass and dimensions of the fruits in the cultivar 'Flordasun' (41.1 g) and the cultivar 'Saharanpur Prabhat' (40.2 g), the treatment with the heading of the bearing branches at 1/3 from the upper end had the biggest fruits in the cultivar 'Flordaking'.

Paunović (1970), the cultivar 'Morettini 1' obtained the biggest fruits through the treatment with the heading of the branches, regardless of the crown shape (101–117 g), and the smallest fruits were noticed in the treatment without the heading of the bearing branches (82.7–86.6 g).

Samira et al. (2014) obtained similar results. At the end of their two-year examination of the cultivar 'Flordaprince', the biggest fruits were obtained from the treatment with 70 bearing branches per tree and heading the bearing branch by 75%, 114.6 and 105.1 g for the two years. While the control treatment without the heading of the branches gave the smallest fruits with a weight of 70.1 and 71.1 g, respectively.

Our research is in conformity with the thesis that the weight of the fruits is inversely proportional to the number of fruits per tree, the calculated correlation coefficient between the number of fruits and their average mass shows a strong negative correlation, –0.87 for the cultivar 'Redhaven' and –0.76 for the cultivar 'Fayette'.

From Figure 1 we can see that the greatest representation of fruits from the extra class for both of the studied cultivars is found in the third treatment, 7.3 kg per tree in the cultivar 'Redhaven' and 13.1 kg per tree in the cultivar 'Fayette'. The lowest fruit yield from the extra class, in the cultivar 'Redhaven', is present in the control treatment, 2.4 kg per tree, while the lowest fruit yield in the cultivar 'Fayette' is present in the first treatment, 8.8 kg per tree.

CONCLUSION

On the basis of our research, we can make several conclusions:

The method of pruning did not show a significant statistical difference in tree growth measured by the trunk cross-section area.

The highest number of thinned fruits were observed in the control treatments in the two cultivars, 694.9 in 'Redhaven' and 783 in 'Fayette'. The lowest number of thinned fruits was observed by the first treatment, 310.8 in 'Redhaven' and 288.8 in 'Fayette'.

In the cultivar 'Redhaven', for the dormant pruning, the 3rd treatment can be recommended. With this method of pruning, we lose a small percentage of the yield (4%) per tree compared to the 4th treatment, but we gain 14% more fruits with a diameter above 80 mm. Also, by using the 3rd treatment, a reduction in the quantity of the second-class fruits by 17.8% is noted, compared to the 4th treatment.

In the cultivar 'Fayette', in the control treatment, there is a significant yield of 32.2 t/ha, which is notably higher (8.8 t/ha) that the most productive treatment where the heading is applied, in treatment 3. That is why we recommend the long pruning method with this cultivar. Future studies with a milder heading of the bearing branches could be beneficial for this cultivar, with the end goal of finding a suitable length of shortening the bearing

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branches, which could potentially increase the percentage of the extra and first-class fruits, without a significant reduction in the total yield.

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REFERENCES

Bulatović S., Mratinić E. (1996): Biotehnološke osnove voćarstva. [Biotechnological bases of fruit growing.] Newslines, Beograd.

Bussi C., Bruchou C., Lescourret F. (2011): Response of waterspout growth to fruit load and intensity of dormant pruning in peach tree. Scientia Horticulturae, 130: 725–731.

DeJong T.M. (1999): Developmental and environmental control of dry-matter partitioning in peach. HortScience, 34: 1037–1040.

DeJong T.M., Negron C. M., Favreau R., Day K.R., Costes E., Lopez G., Guédon Y. (2012): Using concepts of shoot growth and architecture to understand and predict responses of peach trees to pruning. Acta Horticulturae (ISHS), 962: 225–232.

Jimenez C.M., Diaz J.B.R. (2004): Statistical model estimates potential yields in 'Golden Delicious' and 'Royal Gala' apples before bloom. Journal of American Society of Horticultural Science, 129: 20–25.

Kiprijanovski M., Gjamovski V. (2013): Merki za adaptacija na ovostarstvoto kon klimatskite promeni. [Measures to adapt fruit growing to climate change.] USAID, RDN of RM-Skopje.

Kiprijanovski M., Arsov T., Gjamovski V. (2006): Evaluation of rootstock for peach in orchard. Yearbook of the Faculty of Agicultural sciences and food, Skopje, 51: 29–40.

Link H. (2000): Significance of flower and fruit thinning on fruit quality. Plant Growth Regulation, 31: 17–26.

Manoj K., Vidyawati R., Rawat J.M.S., Tomar Y.K. (2010): Effect of pruning intensity on peach yield and fruit quality. Scientia Horticulturae, 125: 218–221.

Medin A. (1998): Breskva suvremena proizvodnja. [Modern peach production.] Alfa, Zagreb.

Mitrevski Z. (1984): Prilog proučavanju mešovitih rodnih grančica u nekih sorti bresaka. [Contribution to the study of mixed fruiting branches in some peach cultivars] Jugoslovensko voćarstvo, 1: 39–44.

Mratinić E., Milatović D., Đurović, D. (2005): Osobine industrijskih sorti breskve u beogradskom rejonu. [Characteristics of indistrial peach cultivars in the Belgrade region.] Jugoslovensko voćarstvo, 39: 285–293.

Osborne J.L., Robinson T. (2008): Chemical peach thinning: understanding the relationship between crop load and crop value. New York Fruit Quarterly, 16: 19–23.

Paunović S.A. (1970): Proučavanje oblika krune i nekih načina orezivanja breskve sorte Morettini 1. [Study of crown shape and some ways of pruning the peach cultivar Morettini 1.] Jugoslovensko voćarstvo, 13: 27–36.

Pavel E.W., DeJong T.M. (1993): Source- and sink-limited growth periods of developing peach fruits indicated by relative growth rate analysis. Journal of American Society of Horticultural Science, 118: 820–824.

Quinlan J.D., Preston A.P. (1971): The influence of shoot competition on fruit retention and cropping of apple trees. Journal of Horticultural Science, 46: 525–534.

Reighard G. L., Byers R. E. (2009): Peach thinning. University of Georgia. Available at www.ent.uga.edu/peach/peach-hbk/cultural/thinning.pdf

Ristevski B. (1995): Podigane i odgleduvane na ovoshni nasadi. [Establishing and cultivation of fruit orchards.] BIGGOS, Skopje.

Rudić M., Radović V., Jevremović V. (1972): Uticaj načina rezidba bresaka na prinos, težinu plodova i vegetativni porast. [The influence of the peach pruning way on the yield, fruit weight and vegetative growth.] Jugoslovensko voćarstvo, 1: 563–567.

Samira M., Mohamed T.A., Fayed A.M. Hussein, Safaa M.M. (2014): Effect of some pruning applications on leaf to fruit ratio, yield and fruit quality of Florda Prince trees. Journal of Horticultural Science & Ornamental Plants, 6: 18–26.

Trevisan R., Piana C.F. de B., Treptow R. de O., Goçalves E.D., Antunes L.E.C. (2010): Profile and preferences of peach consumers in different regions of Rio Grande do Sol. Revista Brasileira de Fruticultura, 32: 90–100.

Turk B.A., Fajt N., Stopar M. (2014): Tergitol as a possible thinning agent for peach cv. Redhaven. Horticultural Science, 41: 49–54.

Wright H., Nichols D., Embree C. (2006): Evaluating the accountability of trunk size and canopy volume models for determining apple tree production potential across diverse management regimes. Acta Horticulturae (ISHS), 707: 237–243.

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