

Influence of Chemical Thinning on Plum Fruit Weight and Diameter

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Abstract

Fruit quality is becoming of a great importance due to the consumers increasing demand for high quality plums. The quality of the fruits is highly influenced by the morphological and organoleptic characteristics of the fruit (shape, size, background color and coverage, color and consistency of the pulp, juiciness, taste, flavor, etc.), as well as technological, biochemical and nutritional value of them. Fruit size is expressed mostly by the fruit weight and diameter. The current study took place in two fruit tree plantations: Călăcea from Sălaj County and Agroindustrială orchard from Cluj-Napoca. During the experiment 7 plum cultivars were analyzed. Determinations regarding the influence of thinning have been made for these cultivars on fruit weight (g) and fruit diameter (mm). Following the chemical treatments for thinning, the highest percentage of fruit with a diameter bigger than 35 mm, in fruit-growing ecosystem Călăcea-Sălaj County, was obtained for Stanley cultivar, after the treatment with Cosavet, while in Cluj-Napoca at the Agroindustrială orchard, the highest percentage of fruit with a diameter bigger than 35 mm was obtained also for Stanley cultivar, but after the treatment with Ethrel. The highest fruit weight value was recorded for Stanley variety in Călăcea, after applying the treatment with Cosavet products (60.2 g), Sulfomat (49.6 g) and Ethrel (48.28 g); in Cluj-Napoca, the highest value of fruit weight was recorded for Nectarină Roșie variety, after the treatment with Cosavet products (57.8 g) and Sulphur (57.8 g).

Keywords: *diameter, flowers, fruits, quality, thinning*

Introduction

The quality of plum fruit is a very complex feature, as well as productivity, depending both on the hereditary basis of the cultivars and the environmental conditions (Ardelean *et al.*, 2006). For tree farming research and for fruit producers, the increase of fruit production and quality are essential objectives. Thinning may influence both of them, thus, it is a very important part in the technological chain (Wilkie *et al.*, 2008).

Aims and objectives

The aim of this study was to investigate the influence of thinning on fruit diameter and weight, in two different locations.

Materials and methods

The experiment was carried out between 2012 and 2014. The research took place in two different orchards, in different locations: Călăcea-Sălaj County and Agroindustrială-Cluj-Napoca, where 7 plum cultivars were investigated. Determinations regarding the influence of thinning have been made for these cultivars on fruit weight (g) and fruit diameter (mm). Chemical thinning was applied to flowers when 80% of them were already open, with the following products: Ethrel, 0.01% concentration, Cosavet 80 DF, Sulphur 80 WG and Sulfomat 80 PU, all three with the concentration of 5%. From each variety 100 fruits were harvested and analyzed. The data was analyzed using ANOVA Test.

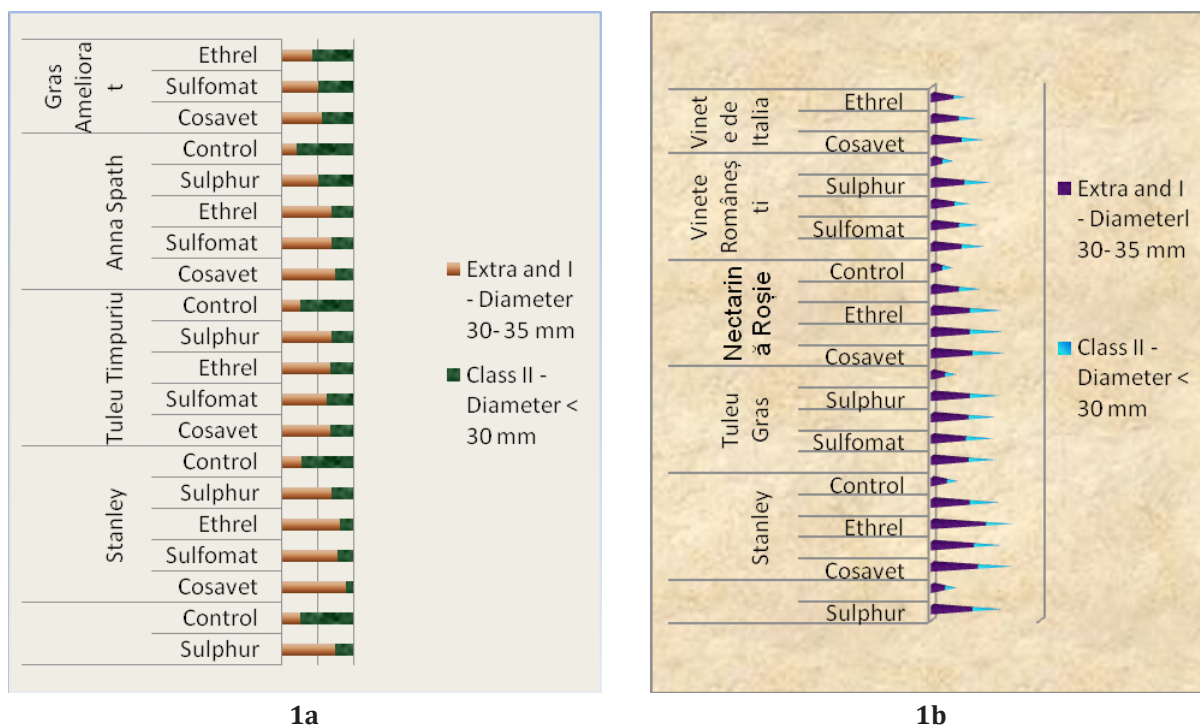


Fig.1. The influence of chemical thinning on fruit diameter of the studied plum cultivars

Results and Discussion

The results of the research show that the highest percentage of fruit with a diameter bigger than 35 mm was obtained for Stanley cultivar, after the treatment applied with Ethrel (90%) in Călăcea orchard (Fig. 1a) whereas the highest percentage of fruit diameter bigger than 35 mm was obtained for Stanley cultivar, after the treatment with Cosavet (85%) in the Agroindustrială orchard (Fig. 1b).

It can be noted that regardless the treatment, in Călăcea orchard the highest value of fruit weight (g) was registered in the case of Stanley variety after the treatment with Cosavet products (60.2 g), Sulfomat (49.6 g) and Ethrel (48.28 g) applied. Nevertheless at Agroindustrială orchard, the highest value for fruit weight was obtained in Nectarină Roșie variety after the treatment with

Cosavet products (57.8 g) and Sulphur (57.8 g) applied.

Conclusion

Analysing the results obtained due to this experiment, it has been found that the fruit weight and diameter are notably influenced by chemical thinning; therefore it is recommended to apply chemical thinning in the orchards to improve fruit quality.

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