

Effect of Cultivar and Crown Size on Yield and Quality of Strawberry Fresh Bare Root Plants in Sicily

D'Anna, G. Caracciolo, A. Moncada and F. Vetrano
Dipartimento di Agronomia Ambientale e Territoriale Sez. di Orticoltura e Floricoltura
Università degli Studi di Palermo
Italy

Keywords: 'Candonga', 'Nora', starch content, crown diameter

Abstract

In the southern regions of Mediterranean areas the plantations with fresh plants (winter planting system) have almost completely replaced those with cold stored plants (summer planting system). Particularly, fresh bare root plants produced in high elevation nurseries located in Spain and Poland and, in experimental phase, in the southern of Italy (in the mountains of Sicily, Calabria, Basilicata) are the most used. Such type of plant usually has a crown diameter from 8 to 14 mm, but the smallest plants should be (<8 mm) discarded in phase of selection and packing. Objective of this study was to investigate the influence of the different crown diameter on the earliness, productivity and quality of two new cultivars of strawberry. The research was carried out in 2007/08 in the experimental plots located in Palermo. Three typologies of fresh bare-root plants (small plants: crown diameter 6-8 mm; medium plants: 8.1-11 mm and large plants 11.1-14 mm) and two cultivars ('Candonga' and 'Nora') were compared. The experimental design was a split-plot with 3 replication and individual experimental plot of 4.6 m². The plantation was established the 22nd of October in a plastic greenhouse of 600 m², on two-row beds and at a plants density of 9.1 plant/m². The production started in January and finished in May. The medium plants (crown diameter 8.1-11 mm) were earlier than the others types. The marketable production during the whole harvesting period was influenced by crown diameter. Large and medium plants (crown diameter 8.1-14 mm) produced more than small plants (crown diameter 6-8 mm) (respectively 590 and 551 g/plant). 'Candonga' (586.8 g/plant) produced more than 'Nora' (567.9 g/plant). The average strawberry weight wasn't statistically influenced by the typology of plant but by the cultivar; 'Candonga' produced the biggest fruits. The crown diameter of fresh plants influenced earliness and productivity of strawberries. To ensure high production it should be use medium and large fresh plant with a crown diameter from 8.1 to 14 mm.

INTRODUCTION

In Sicily the largest strawberry production area is located near Marsala (Trapani) and covers about 380 hectares. The productivity increase of cold stored plants is carried out by a loss of earliness and quality of the fruit (size, shape) (Hennion et al., 1997). In the last decade, cold stored plant have been almost completely replaced by fresh bare root plant which require less management (with these plant can be avoid the old runner removal) and less input (as water and fertilizer), which give more interesting performance because of a very long fruiting season (from December to May) and an earlier and greater total fruit production (Moncada et al., 2009). For every strawberry cultivation system, several factors are cited to justify that successful production depends on a supply of high quality plants (Johnson et al., 2005): little plants will perform poorly in the production field, early modification in the first vegetative phase can impact fruit yield, strong and robust plants establish more quickly and easily. It was verified that plant size is important because flower number increases with increased daughter plant crown diameter (Jemmali and Boxus, 1993) and that crown diameter is linked not only to size and number of flower trusses but to the inflorescence initiation too (Mason, 1987). Fresh bare root plants are produced in nursery field where variability in plant size can occur because of the

