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Performance of day-neutral strawberry cultivars in two autumn production systems

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Abstract

Strawberry production in Portugal relies mostly on short day cultivars which produce during the main season from March till June. The extension of the production to autumn and winter period is achieved with the use of day neutral cultivars. These cultivars are photoperiod insensitive in regard to flowering and once floral induction and initiation have occurred, plants produce inflorescences and fruits at regular intervals regardless of photoperiod. However each cultivar has specific temperature/day length combinations during floral bud initiation for good fruit development. Aiming to compare the crop performance, fruit quality and antioxidant capacity of five day-neutral cultivars in two production systems (soil and soilless) for autumn production an experiment was set up at the research farm of INIAV, located in the southwest coastal area of Portugal. Plants of ‘Albion’, ‘San Andreas’, ‘Cristal’, ‘Premier’ and ‘Valor’ were cultivated in raised beds covered with black polythene mulch film in a greenhouse, and in substrate bags under a high multi-tunnel structure. Planting dates were on 21st and 28th July and plant density was 7 and 14 plants per m², respectively for soil and substrate production system. Cultivars had higher yield per plant (g/plant) in the soil system than in substrate system. However, the yield per unit area (kg.m⁻²) was not affected by the production system. The highest productivity was obtained with cvs. Cristal and Valor. Fruits from soil culture were more sweetness and less sourness while fruits from substrate crop were more red and with better commercial quality. There were differences between cultivars in phenolic content and antioxidant capacity of fruits, in both systems.