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## **PLANT PROTECTION IN SUSTAINABLE STRAWBERRY PRODUCTION**

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## THE EFFECT OF IRRIGATION METHOD ON THE QUALITY AND SHELF-LIFE OF STRAWBERRY FRUIT IN ORGANIC PRODUCTION

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Organic production of strawberry was investigated at MTT Agrifood Research Finland during 2000-2002. Research topics included irrigation method and its effect on fruit quality. Organically produced cultivars 'Jonsok' and 'Bounty' were planted in black plastic mulch in double rows, 20 plants per plot in four replicates at MTT Plant Protection in Jokioinen. The area was fertilized before planting and no fertilizer was added during the production years. The field was divided into two areas: drip irrigation and no drip irrigation after start of flowering. Half of the area without drip irrigation was irrigated with sprinklers and the other half was left with natural rain only. Drip irrigation, and in 2002 sprinkler irrigation, was given according to tensiometer measurements. No fungicides or organic products were used to control grey mould and other diseases. One plot of both 'Jonsok' and 'Bounty' was covered with a small open plastic tunnel from the beginning of flowering to the end of harvest to investigate grey mould infection in a covered crop. The fruits were harvested three times a week. To determine the shelf-life of the fruit, berries of marketable quality were placed in plastic Jiffy pots on trays and covered with moist tissue paper. The trays were stored in room temperature (+22-24°C) in black plastic bags. The berries were checked every day for grey mould and the infested ones were removed.

The amount of grey mould in fruit was quite low in 2001 on both cultivars. Drip irrigation did not reduce grey mould in the harvested fruit in 2001 in 'Jonsok' and in 2002 it seemed to increase the amount of infested fruit as compared to sprinkler irrigation. 'Bounty' showed minor reduction of grey mould in 2001. The fruit from plots covered with plastic tunnels showed a very low grey mould infestation rate. The shelf-life of strawberry fruit in room temperature was dependent on the weather conditions during harvest. During rainy periods more than 50% of the fruits were spoiled in two days, in 2002 in some pickings more than 30% were discarded after one day. During dry periods the spoilage was delayed by a day or two. In general, 'Jonsok' had a shorter shelf-life than 'Bounty' and the shelf-life was longest for the fruit from plastic tunnels. If less than 40% of the fruit in these tests are discarded before the third day, the quality and storage properties in normal cool storage temperatures can be considered good. The irrigation method did not affect either the shelf-life or the quality of fruit. In organic strawberry production grey mould is a major problem. Strawberry varieties differ from each other in disease susceptibility and the quality and shelf-life of the fruit is affected more by their properties and weather conditions than by the irrigation method.

### References

-Woodford, J.T.A., Williamson, B. and Gordon, S.C. 2002. Raspberry Beetle Damage Decreases Shelf-Life of Raspberries also Infected with *Botrytis cinerea*. *Acta Horticulturae* 585: 423-427.

*This poster has previously been presented at NJF 22<sup>th</sup> Congress, July 1 to 4, Turku, Finland and at the COST 836 Final Workshop October 9 to 11, 2003 Ancona, Italy.*