

Agronomical and Sensory Characteristics of Some Apple Scab Resistant Varieties

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Abstract

*Plant health is one of the main problems in organic production. Pests and diseases need to be controlled, but organic farmers have fewer tools than conventional ones. Apple scab (*Venturia inaequalis* (Cooke)) is one of the most important apple diseases that can be managed by applications of copper compounds. Although its use is allowed (Council Regulation (EEC) N° 2092/91), this kind of fungicide is not friendly with the environment. In addition, it can cause russet and they can only be effective when they are sprayed within 24-48 hours after the risk of infection. Another option to manage this disease is the use of resistant varieties. In fact, there are more than 150 apple scab resistant varieties that have been obtained in breeding programs, most of them from the north of Europe, America, and New Zealand. These regions are more humid and less warm than the south of Europe, so when these varieties are cultivated in the Mediterranean area they are likely to be damaged by apple powdery mildew (*Podosphaera leucotricha* (Ell. & Ev.) Salm). For this reason, in the last decade some new cultivars resistant to both apple scab and apple powdery mildew have been obtained. Furthermore, some of these new varieties look like and taste different from traditional ones, and they could be rejected by the consumers.*

*A trial was conducted from 2004 to 2006 in an organic apple orchard and in an IPM apple orchard of IRTA- Lleida Experiment Station (Spain) to evaluate the sensibility to powdery mildew of seven apple scab resistant varieties ('Ariane',[®] 'Condessa,' 'Dalinbel',[®] 'Dalinred',[®] 'Goldrush',[®] 'Juliet',[®] and 'Topaz'[®]) and two tolerant apple scab varieties ('Pilot' and 'Corail'[®]) under Mediterranean climate conditions. The susceptibility to the rosy apple aphid (*Dysaphis plantaginea* (Pass.)), yield, quality and consumer satisfaction were also evaluated.*

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'Dalinbel[®]' and 'Goldrush[®]' were the most susceptible varieties to apple powdery mildew; in contrast, 'Condessa' was the least susceptible. With regard to susceptibility to rosy apple aphid, 'Ariane[®]' and 'Topaz[®]' were the most injured in 2005. In 2006, there were not statistical differences among varieties, although similar tendencies were observed. The date of harvest varied according to the variety: 'Condessa' and 'Dalinbel[®]' were harvested at the second week of August, 'Ariane[®]', 'Corail[®]', 'Dalinbel[®]', 'Modi[®]' and 'Topaz[®]' in September, and 'Dalinred[®]', 'Juliet[®]' and 'Goldrush[®]' in October. 'Condessa,' 'Dalinred[®]' and 'Corail[®]' were the most productive varieties (mean higher than 20 kg·tree⁻¹), and 'Modi[®]', 'Goldrush[®]' and 'Dalinbel[®]' were the least (mean lower than 20 kg·tree⁻¹).

Consumer satisfaction was medium (4-6) for taste, texture, and aspects in all tasted varieties, except for 'Dalinbel[®]' and 'Condessa'. 'Dalinred[®]' and 'Ariane[®]' were considered the tastiest varieties.