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Sensory comparison of organically and conventionally produced scab-resistant apples

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The breeding of apple cultivars resistant to scab, one of the main diseases of fruit tree, started 70 years ago. Nonetheless, growers have been slow planting them because of the uncertainty of consumer acceptance linked to their sensory properties. Scab-resistant apples have the advantage to be more easily cultivated in organic farming as offering a higher disease control. Moreover, these kinds of apples produced in sustainable agriculture seem to have potentialities on the market since they meet expectations of ecology-oriented consumers [1-3]. The goal of the present study is to assess the sensory quality of scab-resistant apples cultivated in both organic and conventional farming in order to support their diffusion among local growers.

The study included 3 scab-resistant apple cultivars (Crimson Crisp, Dalinette and Fujion) grown under organic or conventional conditions in different parcels of the same field and in two locations (A-203m and B-656m a.s.l.). Fruits were analysed after two-months of conservation in refrigerated conditions. The samples were evaluated by 18 trained judges using the conventional profile method with a 33-attribute list (odours, texture and flavours). Apple samples were prepared and presented anonymously in a randomised balanced order.

The panel described and differentiated the 3 cultivars: Crimson Crisp is sourer and crunchier, Fuji is sweeter and Dalinette more floury. Results also show that cultivation practices seem to have an effect on Crimson Crisp: organic apples were perceived sweeter and crunchier. Interestingly, the opposite influence on texture attributes was found for Fuji samples. The location effect impacted the texture of all samples (decrease of hardness and crunchiness, increase of flouriness when increasing the altitude) but in a less pronounced manner for Dalinette.

The effects of cultivation practice and location/altitude on sensory profile of scab-resistant apples revealed to be cultivar-dependant. A confirmation of these results with other varieties and different year production is considered as a prospective.

References:

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