

## **The effect of sustainable plant protection and apple management for fruit quality**

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Relatively large amounts of pesticides are used to control diseases and pests in modern apple production. The aim of this study was to estimate the effect of reduced plant protection system and integrated apple-growing technology on apple fruit quality. The research was carried out at the Institute of Horticulture in 2011–2013 with apple cultivars ‘Auksis’, ‘Alva’, ‘Connell Red’, ‘Ligol’, ‘Lodel’, ‘Rubin’ and ‘Shampion’. Reduced plant protection system was based on internet supported forecasting system iMETOS®sm. The same active ingredients of plant protection products were used not more than two times and harvest interval was 1.5 times longer than indicated on the label. Plant protection products labelled as "very toxic" and "toxic" were not used. Scab susceptible cultivars ‘Alva’ and ‘Ligol’ on average were sprayed twelve times, when other cultivars — nine times. Reduced plant protection system did not guarantee total scab control; therefore damaged fruits should be thinned manually. High quality fruit yield was on average 39 t ha<sup>-1</sup>, but the yield of ‘Shampion’ and ‘Ligol’ reached 51–56 t ha<sup>-1</sup>. In total 59 % of fruits were 70–80 mm in diameter, and 30 % of fruits more than 85 mm. All tested cultivars had small index of biennial yielding 0.11–0.34.

**Keywords:** apple scab, crop load management, fruit diameter, fruit yield