

## Performance of different apple cultivars in young high density orchard

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The aim of study is to evaluate the suitability of rootstock cultivar combinations for high density orchards in northern climate conditions like in Latvia. In 2009 the trial was established with the rootstocks 'M9' and 'B396' in combination with seven cultivars. The density of trees reached 2500 trees per 1 ha. The yields and the observed yield efficiency of all cultivars during the first four harvests were larger on rootstock 'B396'. Also in average the trunk diameter was a little larger on this rootstock. On both rootstocks intensive type cultivars like 'Gita' and 'Ligol' had larger total yield forming it on the shoots of previous year. These cultivars had more vigorous trunks as well. In such dense orchard on both rootstocks thinner trunks and smaller yields were obtained on cultivars with poor branching which form smaller leaf area like 'White Transparent' and 'Konfetnoe' as well as on cultivars which produce at the end of shoots like cultivar with large fruits — 'Rubin' and on cultivars which produce fruits on fruiting branches of older branch sections like 'Antej' and 'Kovalenkovskoe'. Summer ripening type cultivars like 'Konfetnoe' had comparable smaller size of fruits. The data of young high density orchard mark better performance on rootstock 'B396' and scab resistant cultivar 'Gita'.

**Keywords:** fruit size, *Malus*, rootstocks, scab resistant cultivar, trunk, yield, yield efficiency