

Title Prediction of the optimum harvest date for three apple (*Malus domestica* Borkh.) cultivars in Jordan

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Abstract

A study was carried out at AI-Shoubak Center for Agricultural Research and Technology Transfer to predict the optimum harvest date (OHD) for three apple (*Malus domestica* Borkh.) cultivars. Starch conversion chart was used as a major maturity index for predicting the OHD for 'Royal Gala', 'Golden Delicious 972' and 'Red Miracle' apples. Other quality parameters were used as additional maturity indices including starch analysis, total soluble solids (TSS), flesh firmness, fruit size, fruit fresh weight, and seed color. An increase in fruit diameter and fresh weight in 'Royal Gala' and 'Golden Delicious 972' apples but with some fluctuation were observed. Considerable fluctuations, however, were observed in the same parameters in 'Red Miracle'. A steady decrease in flesh firmness, and an increase in TSS were also noticed in 'Royal Gala', while a pronounced variation in the same parameters were observed in 'Golden Delicious 972' and 'Red Miracle' apples. Seed color development was more reliable in 'Royal Gala' than in 'Golden Delicious 972' apples. Different staining patterns between the three cultivars were observed, with the most accurate being for 'Royal Gala' followed by 'Golden Delicious 972'. 'Red Miracle' apples showed imprecise matching between the staining pattern and the harvest date. A starch prediction chart was established as a major maturity index to determine the OHD for 'Royal Gala' and 'Golden Delicious 972' apples, whereas a more deep investigation is needed for 'Red Miracle' apples.