

Effect of mechanized (self-propelled or shaker) vs. Hand harvest on fruit quality of blueberries (*Vaccinium corymbosum* L.) in postharvest

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Abstract

This research was carried out during the 2010/11 growing season and was aimed at determining the effect of different types and times of harvest on the quality of fresh blueberries. There were 6 treatments, which combined 3 types of harvest procedures (hand, automotive or shaker) with two times of harvest (morning: am or afternoon: pm). Ten-year-old plants of ‘Brigitta’ and ‘O’Neal’, from a commercial planting in Linares (35°52’ South and 71°37’ West) were used. For each treatment the following were measured: duration of harvest, weight of fruit picked, time needed to sort fruit in packing house and the proportion, in weight, of fruit in the categories: discarded, IQF and pre-size. Firmness was measured with a FirmTech II at five time intervals: initial condition, after 45 d in cold chamber (0°C) plus 1 d at 18°C; after 45 d at 0°C + 3 d at 18°C, after 60 d at 0°C + 1 d at 18°C, and after 60 d at 0°C + 3 d at 18°C. Mechanical damage, dehydration and rotting were measured on evaluations after 3 d at 18°C. Greatest fruit firmness, independent of cultivar and harvest type, was seen with am harvests. In the initial evaluation there were no differences in firmness between “hand pm” and “shaker pm”. Regarding the type of harvest, hand picking had the highest firmness, followed by shaker and automotive. Mechanical fruit damage was similar for hand harvest and shaker in ‘Brigitta’; but not for ‘O’Neal’, where shaking caused greater damage. Dehydration in ‘O’Neal’ was slightly greater than in ‘Brigitta’. In ‘O’Neal’, the lowest dehydration occurred for “hand am” harvest. ‘O’Neal’ had up to 30% greater fruit rotting than ‘Brigitta’. After fruit sorting, the proportion of fruit packed for the fresh fruit market was greater in ‘Brigitta’ than in ‘O’Neal’. Averaging both cultivars “am automotive” harvest produced 76% fruit for the fresh market vs. 92%, on average, for the others. Results from this research indicate a good potential for the use of shakers, but its effects on different cultivars and its cost/benefit ratio need to be studied.