



## **Department of Horticulture Seminar Series**

Hort 509/510

Fall 2020

Thursday, 2:50-3:40 pm

*Presented at the following WSU campuses and Research and Extension Centers: Pullman, Tri-Cities, Mount. Vernon, Prosser, Puyallup, Wenatchee*

### **Machine harvesting comparison and optimization of machine harvest intervals in fresh market blueberry**

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#### **Abstract**

Fresh market blueberry is traditionally hand harvested which is constrained by labor costs and shortages. Machine harvesting can alleviate labor issues but reduces fruit quality. Modifying catcher plates inside machine harvesters is a promising approach to improve fruit quality. However, implementing new harvester technologies requires harvest timing and interval be optimized. The objective of Study 1 was to evaluate harvest efficiency and fruit quality using a modified over-the-row (OTR) harvester compared to hand and traditional machine harvest (control). The objective of Study 2 was to determine optimal harvest intervals for fresh market blueberry harvested using the modified OTR. Experiments in Study 1 were conducted using 'Duke' and 'Draper' in 2019 and 2020. There were few differences between machine harvesting treatments in 2019. In 2020, packout, firmness and bruising among fruits harvested using the modified OTR were improved relative to the machine control, while reduced compared to hand harvesting. In Study 2, 'Liberty' was harvested either by hand or using a modified OTR at 3-, 10-, and 14-day intervals in 2019, and at 7-, 11-, and 14-day intervals in 2020. Hand-harvested 'Liberty' had greater packout, firmness and less bruising. In 2019, machine harvested fruits from the 3-day interval had greater firmness and less bruising, but lower packout and TSS/TA than fruits from the 10- and 14-day intervals. In 2020, the 14-day machine interval resulted in poor packout but without differences in fruit quality. Overall, our research showed the modified OTR harvester was able to maintain an intermediate fresh market berry quality that was less than hand harvested fruit, but greater than conventionally harvested fruit. Machine harvest intervals at 7 to 11 days did not decrease packout and fruit quality and are appropriate harvest intervals for 'Liberty' in northwest Washington.