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Pulsed Drip Irrigation- a Promising Method for Improving Production in Red Raspberries

Jesse Carroll & Dave Bryla

OSU PhD student, Jesse Carroll, measuring fruit quality in raspberries

Soil at the study site is a sandy loam

Pulsed drip irrigation is the practice of applying water multiple times a day, until the total amount of water required by a crop has been met. When managed properly, pulsing can reduce deep percolation and runoff and supply water and nutrients at an optimum rate for plant uptake. Currently, we are evaluating whether pulsed drip is beneficial in raspberries.

We are conducting the study in a commercial field of 'Wakefield' raspberries in Lynden, Washington. Treatments were applied for two growing seasons (2018-19) and included pulsed and standard irrigation. Pulsing was programmed to operate for thirty minutes every two hours, up to eight times per day. Standard irrigation was applied once a day for up to four hours using the same amount of water as applied to the pulsed treatment. In both cases, plants were irrigated using a single line of drip tape in each row.

Pulsed irrigation increased soil water availability relative to standard irrigation and, by the second year, increased total production by 7%, or over 1,000 pounds of fruit per acre. Based on recent market prices for processed raspberries (2015-19), this increase was equivalent to an average of $905 per acre. Most of this increase occurred during the final three weeks of the harvest season and was due primarily to larger berries with pulsed drip. Pulsing also increased canopy cover at the end of the second year by nearly 12%.

We are continuing the project this summer and will present the final results at berry grower meetings this winter. We are also investigating the use of pulsed drip in blueberry, which is looking promising.

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Any questions or suggestion, please contact us at David.Bryla@ars.usda.gov. David Bryla is a Research Horticulturist with the USDA-ARS HCRU.

Raspberries ready for harvest!

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