2023 Drought Resources for B.C. Berry Producers

Prolonged periods of dry weather can impact availability and quality of irrigation water.

In general, the water requirements for berry crops are highest immediately prior to and during harvest. Drought stress during fruit development can cause reduced fruit size and yields. Plant water requirements decrease after harvest. However, drought stress in the post-harvest period can affect vegetative growth and bud development for the following year.

Below are some out-of-province resources that may assist berry producers to make drought-related decisions:

- Managing Perennial Horticultural Crops During Drought (Australia): includes recommendations on how to prioritize blocks, monitor soil moisture, water wisely, reduce moisture loss, and test water quality. This resource includes a chapter specific to blueberries.
- Prepare for Irrigation During Water Shortages (Ontario): includes general recommendations for improving irrigation system efficiency and monitoring water use.
- Drought tip: Crop Salt Tolerance (University of California): Relative susceptibility of crops to soil salinity, which is often exacerbated by drought.

Water Management Resources

- BC Berry Production Guide Supporting Document: Water Management (BCAF): Includes recommendations for drainage and irrigation, including water quality guidelines for irrigation water.
- Irrigation System Assessment Guide (BCAF): How to conduct an irrigation system assessment.
- BC Trickle Irrigation Manual (Irrigation Industry Association of BC): Manual is available for purchase online, provides information on drip irrigation design, system maintenance, water quality and irrigation scheduling.
- Good Agricultural Practices: Water Quality (BCAF): Decision making guidelines to evaluate water quality risks, and links to irrigation water monitoring brochures in English, Punjabi and Chinese.

Raspberry Resources

- Irrigation and Soil Water Monitoring in Blackberry and Raspberry (USDA, Oregon): Presentation showing irrigation requirements and the impact of drip line placement and irrigation levels on yield and fruit size in raspberries in the Pacific Northwest.

- Caneberry Irrigation (Utah State University): Factsheet that outlines how to calculate water needs in summer-bearing raspberries and blackberries.
- Using Drones to Assess Crop Water Limitations and Irrigation Needs of Blueberry and Raspberry (USDA, Oregon): Research presentation on the potential for drones to monitor crop water stress, and the benefits of pulsed drip irrigation in raspberries.

Blueberry Resources

- Irrigation Scheduling: when, where and how much? (USDA, Oregon): Outlines how to estimate evapotranspiration in blueberries, time water applications, and adjust water applications for irrigation system efficiency.
- Irrigation and Moisture Monitoring in Blueberries (Australia): Fundamentals of irrigation in blueberries, how to monitor irrigation and soil moisture and design an irrigation schedule.
- Using Drones to Assess Crop Water Limitations and Irrigation Needs of Blueberry and Raspberry (USDA, Oregon): Research presentation on the potential for drones to monitor crop water stress.
- Crop Evapotranspiration and Irrigation Scheduling in Blueberry (USDA, Oregon): Journal article outlining the water needs of blueberries from May to September in Oregon, and response of blueberry plants to drought.
- Effects of Cultivar and Plant Spacing on the Seasonal Water Requirements of Highbush Blueberry (USDA and OSU, Oregon): Journal article outlining plant water requirements of Duke, Bluecrop and Elliott at low and high density plant spacing.
- Potential of Deficit Irrigation, Irrigation Cutoffs, and Crop Thinning to Maintain Yield and Fruit Quality with Less Water in Northern Highbush Blueberry (OSU and USDA, Oregon). Journal article outlining the potential for deficit irrigation and reduced water at green berry to minimize impact of drought on blueberries.
- Sensitivity of Northern Highbush Blueberry Cultivars to Soil Water Deficits During Various Stages of Fruit Development (OSU and USDA, Oregon): Journal article outlining the impact of withholding water during fruit development in Earliblue, Duke, Bluecrop, Elliott and Aurora.

Cranberry Resources

- Cranberry Irrigation Systems Evaluation (WSU, Washington): Presentation that outlines cranberry water needs and irrigation scheduling.
- Cranberry Water Resource Protection and Enhancement (University of Massachusetts): Recommended practices on cranberry farms to conserve water and protect the environment.
- Assessing Telemetry Components of Soil Moisture Sensing Systems for BC Cranberry Production (Ocean Spray, BC): Research report that compares different soil moisture

sensor options for their reliability, usability, and affordability at the BC Cranberry Research Farm.
- Critically Assessing Available Soil Moisture Sensors for use in BC Cranberry Production (Ocean Spray, BC): Research report that provides a summary of available soil moisture technology tested at the BC Cranberry Research Farm.

Strawberry Resources

- Strawberry Irrigation (Utah State University): A guide to calculate water needs in strawberries based on soil water content, evapotranspiration and irrigation or rainfall.
- Day-neutral Strawberry Production in Central Oregon (OSU, Oregon): General guide to day-neutral production that includes a section on irrigation and outlines water needs and frequency of irrigation in established strawberries.