

REPORT TO NCCC212, 2020

Utah State University

Brent Black (brent.black@usu.edu)



Objective 2. Develop production practices tailored to climatic and market needs:

Sub-objective: Develop improved management strategies for high tunnel berry production in a high-elevation arid climate.

- Raspberry.

Work continues to fine tune management practices for primocane raspberries in protected cultivation (HT and LT). Utah growers are interested in this system to advance primocane production for reliable fall yields before fall frost). We have plots at the campus research farm and at 4 commercial farms ranging from Bear Lake in the north to Enterprise in the south, all with the cultivar Polka. Plots are equipped with temperature sensors to revisit a possible heat unit model for primocane raspberry.

A raspberry cultivar trial was carried out at the Kaysville research farm from 2011 to 2015. Results from the primocane-cultivar comparison have been included in a manuscript that is currently under review for publication in the International Journal of Fruit Science. Results from the floricanne cultivar comparison have been included in an expanded cultivar selection fact sheet that is currently under review by USU Extension.

Sub-objective: Develop alternative crops for diversification opportunities.

- Elderberry. Our first wild selection of blue elderberry (*Sambucus cerulea*) officially released in 2019 as 'AggieBlue™ Rendezvous' was found to be free of known viruses (USDA, Bob Martin). Plants are available for distribution to nurseries, with several Utah native plant nurseries and one Oregon nursery now licensed to propagate. We continue to collect and evaluate additional selections, and plan to release the best ones as part of an "AggieBlue™" series.
- Chokecherry. We have several promising fruiting selections of chokecherry collected from the wild that have been difficult to propagate on their own roots. Tissue culture methods are slow, expensive, and getting TC plants to establish ex vitro is prohibitively slow. We had excellent results in 2019-2020 with a vertical rooting technique. We have been making selections from our seedling fields, as well as seed propagating from some red-fruited wild selections. Stock plants of our best selections tested negative for Western X in 2020.

Publications – research

Black, B.L., T. Maughan, C. Nolasco and B. Christensen. 2019. High tunnels advance primocane raspberry production in a high elevation cold climate. HortScience 54(3): 476-479.

Hansen, S., B. Black, D. Alston T. Lindstrom and S. Olsen. A comparison of nine primocane-fruited raspberry cultivars for suitability in a high elevation arid climate. Intl. J. Fruit Science. *In review*

Publications - Extension (at <http://utahpests.usu.edu>, <http://fruit.usu.edu>, <http://tunnel.usu.edu>).

Hansen, S., B. Black, D. Alston, T. Lindstrom, T. Maughan and S. Olsen. Selecting summer-bearing raspberry cultivars for Northern Utah. USU Extension - *In review*.

Schumm, Z.R., M. C. Holthouse, D. Alston and L. Spears. 2019. Common Stink Bugs of Utah, USU Extension, pub. ENT-209-19.

Schumm, Z.R., M. C. Holthouse, Y. Mizuno, D. Alston and L. Spears. 2019. Parasitoid Wasps of the Invasive Brown Marmorated Stink Bug in Utah USU Extension, pub. ENT-198-19.

Maughan, T., B. Black, S. Yao and R. Flynn. 2019. Strawberry cultivars for the Intermountain West – research report. USU Extension, Horticulture/Fruit/2019-01.

Maughan, T., B. Black and D. Rowley. 2019. High tunnel strawberry production for early spring harvest. USU Extension, Horticulture/HighTunnel/2019-01pr.

Black, B. and T. Maughan. 2019. High tunnels for earlier production of fall (primocane) raspberries. USU Extension, Horticulture/HighTunnel/2019-02pr.

Maughan, T., B. Black and D. Rowley. 2019. High tunnel strawberry production for late fall harvest. USU Extension, Horticulture/HighTunnel/2019-03.