

Evaluating and Updating Raspberry Cultivars Suitable for North Carolina Markets

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Justification:

Currently the raspberry industry in North Carolina is primarily concentrated on direct market sales and is a high value crop for diversified farms. Production restraints that have kept the raspberry industry relatively small include a lack of high yielding, heat tolerant varieties with adequate fruit shelf life. When asked, raspberry growers identified the desirable traits for expanding their raspberry production: heat tolerance and plant longevity, durable berry, large berry size, excellent flavor and disease tolerance. One of Extension's major roles is to provide current, research-based information to growers so they do not have to take on the personal risk of trying out new and untested cultivars. The overall objective of this project is to help farmers identify the best genetics for the environmental and market conditions in NC, more specifically identify cultivars with excellent yield, shelf-life and plant vigor through an on-farm raspberry cultivar trial using new raspberry breeding lines from Cornell University, USDA-ARS/Oregon State University Cooperative, and NC State University.

Objectives:

- On-farm Raspberry Cultivar Trial to Identify Cultivars with Excellent Yield, Shelf-life, and Plant Vigor
- Collect Direct Market Suitability Data through Cultivar Taste Test at Local Farmers' Markets
- Outreach: Agent and Grower Outreach through Various Media Sources and Provide a Half Day Training on Raspberry Production and Field Day at the On-farm Trial Site

Outline of Outcomes:

- Eight new raspberry breeding lines and cultivars were successfully planted on a farm in Henderson County, NC on June 1, 2022 (Table 1). Two advanced selections (NC 760 &

NC 763) are currently undergoing virus screening and tissue culture propagation at the NC State Micropropagation and Repository Unit in Raleigh, NC. Both NC 760 and NC 763 will be planted and added to the on-farm trial in the spring of 2023.

- A 150 ft raised bed was prepared on May 18th and the plants were installed two weeks later. Plants were set 2 feet apart with 5 plants per plots and plots are approximately 12 feet in length. Drip irrigation was installed immediately after planting and transplants were watered in. The trellis and wire were installed June 16, 2022. Pesticide, fertilizer, and cultural practices are consistent across all plots and adhere to standard commercial practices.
- Data collection will take place during the 2023 growing season and will include key phenological stages, yield estimates, and fruit quality measurements. Pictures of plants and fruit will be taken at least once during the season.
- Cultivar taste test data collection will occur during the summer of 2023 at two local farmers’ markets, Mills River Farm Market and Hendersonville Farmers Market.
- Grower comments on each of the cultivars fruit attributes and plant performance will be collected through the season.
- Updated raspberry cultivar information will be made available over a variety of media sources at the conclusion of the on-farm trial in the winter of 2023 or 2024.
- Half-day training on raspberry production and field day at on-farm trial site will take place in July 2023.

Table 1. Raspberry Cultivars for NC Trial.

Cultivar	Breeding Program
Nantahala (Control)	NCSU
Heritage (Standard)	Cornell University
Crimson Treasure	Cornell University
Crimson Night	Cornell University
Crimson Giant	Cornell University
Double Gold	Cornell University
Vintage	USDA-OSU
Kokanee	USDA-OSU
Advanced Breeding Line (NC 760)	NCSU
Advanced Breeding Line (NC 763)	NCSU



June 1, 2022 Eight of the ten raspberry cultivars were planted



(L) July 7, 2022 trellises, irrigation, and landscape fabric installed (R) August 23, 2022 growth and establishment of trial plants

Potential Impact:

Providing growers and extension agents with updated raspberry cultivar information over a variety of media sources: Southern Region Caneberry Production On-line Guide (<https://content.ces.ncsu.edu/southeast-regional-caneberry-production-guide>), NC State's Rubus Portal (<https://rubus.ces.ncsu.edu/>) and on the NC Commercial Blackberry and Raspberry Growers Association Grower-Specialist Zoom Calls. Provide a half day in-service training on raspberry production and cultivar selection at the on-farm trial site in July 2023.