Southern Region Small Fruit Consortium Progress Report

Title: Evaluation of Floricane-fruiting and Primocane-fruiting Raspberry Varieties for Establishment and Fruit Production in Hot, Humid Conditions.

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Introduction

Louisiana has a small, but viable caneberry industry, which has steadily increased over the last few years. According to the 2018 LSU Ag Summary, Louisiana growers produced blackberries on 106 acres for a gross farm value of \$2.3 million. Raspberry (Rubus idaeus) production in Louisiana is almost non-existent, with the exception of several You-Pick operations growing a few rows. Mississippi growers continue to seek innovative cultural practices and crops to diversify their production systems. Raspberries are receiving increased attention as a potential addition for existing operations, as well as a new crop for up-and-coming farmers. While raspberries have not been a traditional crop for Southern growers, new cultivars may make them a viable product for Mississippi producers. Nevertheless, county agents report that home and commercial caneberry producers ask questions about raspberry production. However, they can only give recommendations from other universities, as Louisiana and Mississippi have not had previous raspberry trials. Raspberry production in Louisiana and Mississippi has historically remained low because of our unfavorable growing environment. However, newer varieties have been released with reported tolerance of warmer more humid conditions. While these new varieties represent opportunities for Deep South caneberry growers to improve fruit quality, increase production or to sell in more profitable market windows, none of the newer cultivars have been adequately tested in either Louisiana or Mississippi. Recommendations are generally extrapolated from varieties listed in surrounding states.

Materials and Methods

Our first object was to **e**stablish and maintain new plantings of raspberries in southern and northern Louisiana and southern Mississippi. We were going to collect data including plant survival rate and quarterly plant growth measurements. Once established we were going to have a county agent training on raspberries for both Mississippi and Louisiana county agents.

We ordered raspberry plants several sets of raspberry plants from various nurseries.

The first set was from Krieger's Nursery including varieties such as Caroline, Heritage and Prelude raspberries. Our second set was from Agri Start nursery including varieties such as Fall Gold, Mysore, and Caroline raspberries.

All plants came either as bareroot plants or tissue cultured plugs. Tissue cultured plug plants were potted into 1-gallon black containers and placed on a can yard in Louisiana. Containers were watered twice daily with overhead irrigation. More than 80% of all tissue cultured raspberries died within a month of planting. The remaining plants were donated to Dr. David Picha for use in his raspberry planting.

The bare root plants were divided into two groups, some sent to Mississippi for planting and some remaining in Baton Rouge, LA. Co-PI Christine Coker in Mississippi potted the bare root plants into 1-gallon black pots and kept them in a high tunnel, over 80% never leafed out. The bare root plants in Louisiana were planted into 20-gallon containers and placed on a can yard with Dr. David Picha's raspberry plants. These were all hand watered daily (7 days a week by K. Fontenot, D. Picha and graduate students rotating schedules. About 90% of the bareroot plants from Kriger's Nursery never leafed out. The plants were ordered during the COVID pandemic. Transportation issues occurred. For one of our shipments, we were informed a train derailment occurred and did not receive plants until 2 weeks after leaving from the original nursery. The other shipments came in on time but died almost immediately. We are very certain the plants left the nurseries in good quality and shipping delays dried out bare root plants to the point that they were dead upon arrival.





The image below is of bare root plants potted into 20-gallon containers a few weeks after shipment gradually declining or never leafing out over several months. Note the number of trunks in containers with no foliage.



In the image above, note most of the plants on the left side of the photo never leafed out. The right side is a combination of primocane blackberries and some raspberries doing much better than the raspberries for this trial. All treated the same, same media, same irrigation schedule same weather conditions.



The photo below shows where D. Picha replanted many of the containers to have new plantlets for his study. We have given several tours of this planting. However, we do not have sufficient growing information to ask county agents to come out an learn how to grow these as of yet.



The photo below shows members from a local nursey organization enjoying fruit from D. Picha's raspberry and blackberry cultivars that have survived and are doing well.



Future Plans

We plan to help Dr. David Picha grow his raspberry planting larger and add a few more cultivars to it. Through another grant, we have secured funding for a high tunnel and will place a subset of his raspberries into the high tunnel, pending survivability of the raspberry planting we hope to still meet Objective 2 of this grant and invite county agents from both Louisiana and Mississippi to come and visit the planting site and learn more about growing raspberries in the deep south.