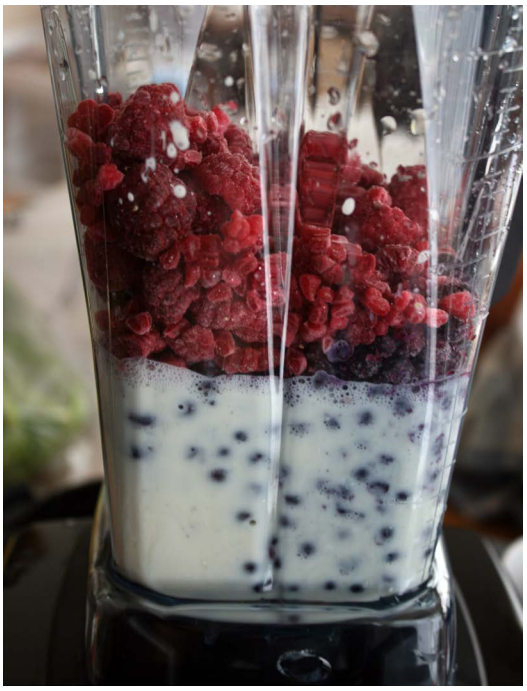
Small Fruit and Viticulture Research

This project exchanged new germplasm for commercially viable, high-quality small fruits, provided improved small fruit production and marketing practices, and explored the health benefits of small fruits.

Who cares and why?

Small fruits, including strawberries, blueberries, grapes, blackberries, raspberries, cranberries, and currants, are high-value horticultural crops used in both fresh and processed fruit markets. In addition, growers can achieve high profits with small plantings and relatively small investment inputs, making small fruits a suitable venture for many small farms. Over the last five years, medical research has indicated that small fruits may have superior health benefits, in addition to those previously documented for vitamin C, calcium, and dietary fiber. As a result, interest in the consumption and production of small fruits has increased markedly. Though small fruit production is widespread, production is often limited in local areas due to site-specific diseases, insect pests, and climatic differences among regions of the U.S. Therefore, specialized plant selection and management strategies and are often required for successful small fruit production.



Research has discovered many health benefits of berries, prompting increased production and consumption. Photo by Quinn Dombrowski.

What has the project done so far?

Collaborations among NCCC-22 breeders have facilitated parallel experiments and screenings and produced site-specific management practices for diverse growing areas and conditions. As a result, the NCCC-22 team has cultivated and introduced small fruit varieties for market use that are more productive, nutritious, water efficient, and pest resistant. Scientists have evaluated specific traits and exchanged germplasm for strawberries that are cold hardy, have an extended growing season in the mid-South, or are adapted to mild, short-day environments; red raspberries that are adapted to the warm, humid climate of the Southeast; blueberries that are cold tolerant; and wild blackberries that are diease resistant and have high fruit quality and vigor. NCCC-22 scientists have also released new berry cultivars including "Cascade Bounty" and "Nantahala" raspberry breeds and a new thornless blackberry, "Natchez." The team has also investigated the bioactive potential of cultivated berry varieties for antioxidant capacity, dietary fiber, and other nutrition factors. In addition, cooperation and coordination among members continue to facilitate the extension of information on state-of-the-art production techniques, germplasm adoption, and best management practices to growers. Project members have published numerous scientific articles and book chapters and led many successful regional and international symposia on small fruit crop germplasm, breeding, genomics, sustainable production practices, and pest management.

Wild blackberries. Photo by Liz West.

Impact Statements

Provided a forum for plant breeders, researchers, extension workers, and industry members to formulate strategies and develop tools needed to improve the small fruit production and profitability.

Developed, tested, and released new small fruit cultivars that bring higher-quality fruits and more diversity to the market. These new cultivars allow farmers to grow small fruit varieties that are best adapted to conditions on their farms.

Designed technologies for "high tunnel production" that help farmers grow out-of-season fresh red raspberries, blackberries, and strawberries, allowing them to capitalize on "niche market" opportunities such as higher prices.

Conducted important genetics research, and germplasm preservation that have helped scientists understand disease inheritance and map out genetic diversity in small fruit species. This research has helped scientists cultivate new small fruit varieties, and identify conservation strategies.

What research is needed?

Continued collaboration between research programs (within and between states) will continue to build towards improved cultivars, germplasm, and management programs that small fruit crops industries can utilize.

Want to know more?

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Edited and designed by Sara Delheimer

Berries are a popular crop on small farms because of the relatively small investment inputs required. New practices and technologies are helping farmers produce out-of-season berries, which boost their profits. Consumers benefit from having nutritious, high-quality berries supplied year-round. Photo by Cedward Brice.