

Substrate and container-grown blackberry research at the University of Arkansas

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The ability to grow blackberries outside of the typical field harvest season as well as achieving multiple crop harvests in the same year, can yield significant market benefits for growers. A new research initiative led by our team at the University of Arkansas (UofA) is focused on evaluating the potential of using “soilless” substrate culture and long-cane techniques to achieve off-season harvests with blackberry.

Growing plants in soilless substrates and containers instead of field soil is a relatively new development for the blackberry industry. Soilless substrates are similar to the potting media you would use for container-grown patio plants and your garden, and have been a standard part of production in floriculture and hydroponic industries for decades. Soilless substrates can be formulated either by growers or purchased from suppliers, and often contain a blend of different organic and/or inorganic components but not mineral field soil.

Soilless substrates serve the same purpose as a soil in terms of anchoring plant roots, retaining water and fertilizer nutrients, and allowing gas exchange (i.e. letting roots breathe). Other benefits of soilless container substrates compared to field soils include low weight, uniform composition, and a disease-free root environment for rapid and consistent plant growth.

Long-cane technique is a unique production style developed initially for off-season and winter production of raspberry in northern European climates. This method involves growing long raspberry canes in containers and allowing them to go dormant outside before moving plants to an indoor cold storage facility. Plants are then transferred to a protected high-tunnel or heated greenhouse to force flowering and fruiting. Varying the duration of cold storage and transfer time manipulates the harvest window and can therefore be used to schedule crops for off-season market dates.

Our team at the University of Arkansas specializes in hydroponic and container-crop production in controlled-environments, such as high tunnels and greenhouses. We also work with fertilizer and pH management, water quality issues and irrigation, and soilless substrates.

When it comes to substrate and container-grown blackberry production research, we have several main objectives:

- Evaluating the potential for Arkansas growers to produce blackberries in substrate using long-cane techniques. We are currently investigating variety selection and cane management strategies to optimize yields and schedule crops for off-season harvests. This research involves the evaluation of long-cane blackberries grown in the field, high-tunnels, and greenhouses.
- Evaluating the potential to grow primocane-fruiting blackberry as an annual crop in substrates and containers. Plants can potentially be planted and harvested in one year, and either replaced or mowed down after fruiting to achieve subsequent crops. Similar to our long-cane research, we are focusing on cultivar and cane management strategies to increase yields, shorten crop times, and schedule off-season production.

All of our research involves evaluating cultivars and genetics developed by the University of Arkansas Fruit Breeding Program. We believe Arkansas-bred blackberries are uniquely adapted to substrate and container production because of the low-chill requirements, robust cane architecture, and primocane-fruiting habits present in these plants.

Many other university and grower collaborators are helping with the success of this research, including UofA fruit breeders Drs. Margaret Worthington and John Clark, and UofA Extension Specialists Drs. Amanda McWhirt, Aaron Cato, and Jim Robbins. In addition to conducting experiments at our university research facilities in Fayetteville and Clarksville, AR, we are working closely with Jimmy Williams, owner and operator of Scatter Creek Berries, to trial long-cane blackberries in his high-tunnels with the help of UofA Extension agent Dave Freeze in Paragould, AR.

If you have an interest in substrate and container-grown blackberry production in Arkansas we hope to hear from you, and feel free to email us with questions and comments. Many of our projects are currently underway, and we are excited to share research and extension updates in future newsletters.

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Figure 1. Healthy root system of blackberry grown in substrate in a greenhouse.



Figure 2. Research experiment in Fayetteville, AR, evaluating blackberry cultivars developed by the University of Arkansas grown in containers as “long-canes”.



Figure 3. Substrate-grown blackberries in Watsonville, CA.