

Blueberry cultivar considerations

Thinking about blueberry production? Here are the factors to consider for cultivar selection in Florida.

By Jeff Williamson



Look for the launch of *Vegetable and Specialty Crops News*, a brand new magazine from AgNet Media in 2017. It will include features like this on pomegranates, blueberries, peaches, vegetables and more. Watch for developments and tune in online now for VSCNews coverage for the “deep Southeast” at www.vscnews.com.

Cultivar selection is among the most important decisions facing fruit growers and is a popular topic of discussion and debate among Florida blueberry growers. When commercial southern highbush blueberry production began in Florida (25 to 30 years ago), the choices were very limited, making decisions on cultivar selection simple, but not very satisfying. The industry began with Sharpblue, Misty and Gulfcoast. Continued breeding at the University of Florida (UF) from the 1980s to the present has resulted in improved cultivars, but has complicated cultivar selection since there are now more cultivars to choose from, each with its unique strengths and weaknesses.

Basic characteristics that are important for cultivar selection include plant vigor, field survival, fruit quality, earliness, pest and disease tolerance, and high yield. Cultivar selection is also influenced by several factors that may be specific to a particular operation such as farm location, harvesting method(s) (the potential option for mechanical harvesting) and the production system employed (traditional deciduous production vs. evergreen or non-dormant production).

GROWING REGIONS

In Florida, blueberries are cultivated commercially from near Arcadia, north to the Florida/Georgia border. Because the Florida peninsula is oriented north to south, climates are very different between the northern and southern production areas.

Add to that the fact that winter weather in the southeastern United States is highly variable and unpredictable from year to year (as of this writing,

growers have received historically low winter chill accumulation this winter). This makes matching cultivar to climate a daunting task. Cultivars grown in Florida vary in chill requirement, but are generally classified as being suited for north-central, central and/or south-central Florida.

YIELD AND TIMING

Potential yield and date of harvest are important considerations that affect a grower's bottom line. Florida's blueberry industry is based on early production, which typically extends from late March through mid-May, depending on market prices.

Very early-ripening cultivars usually bring higher prices per pound, but are more susceptible to late winter/early spring freezes and often produce lower total yields than mid-season cultivars. On the other hand, most exceptionally high-yielding cultivars ripen in the mid to late season (mid-April through mid-May), after prices have declined due to increased berry supplies. Not knowing exactly what to expect from the weather or the market, most growers hedge their bets by planting a mix of early and mid-season cultivars.

LIFE EXPECTANCY

Field survival is a critical cultivar characteristic, particularly in Florida, where a blueberry plant's life expectancy is relatively short. Although UF cultivars are thoroughly evaluated before their release, field survival may not be fully known for several years following a particular cultivar's release. Some pest and disease issues can take several years to develop in commercial settings. This is a good reason not to plant too heavily with a newly released cultivar, the characteristics of which may not be fully known under a wide variety of commercial settings.

HARVESTING METHODS

Florida's blueberry industry is almost entirely hand-harvested for the fresh market. However, labor shortages and high labor costs have stimulated interest in machine harvesting for fresh

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The cultivar Kestrel is shown here grown under the evergreen production system in Southwest Florida. Photos were taken in mid-January, showing the previous season's leaves carried through the winter.



Photos by James Olmstead, Horticultural Sciences Department, University of Florida

berries in Florida. Cultivars that are well-suited for hand harvesting may not be suitable for machine harvesting. For example, Emerald and Jewel have been important cultivars for Florida, but neither is suitable for machine harvesting. Characteristics such as berry firmness, uniform ripening, open clusters, berry detachment force and plant architecture become more important considerations for machine harvesting.

While Florida remains a hand-harvested industry, many growers would like to have the option to machine harvest, if necessary. Growers must evaluate how important optional machine harvesting is for their operation and weigh this against other desirable traits that may be found in cultivars that are not suited for machine harvesting.

DECIDUOUS VS. EVERGREEN PRODUCTION

Most blueberry farms employ the traditional deciduous production system in which plants enter dormancy and require exposure to cool temperatures (generally thought to be between 45°F and 32°F) to resume normal growth the following spring. The amount of cold weather exposure

needed for normal growth is referred to as a cultivar's chilling requirement. As production has moved farther south, insufficient winter chilling has become a more common problem.

A new production system known as the "evergreen" system is being tried in the most southern production areas, and under tunnels in more northern locations. The evergreen production system attempts to avoid winter dormancy. The idea is that if plants do not enter dormancy, winter chilling is not required. The current season's foliage is carried over through the winter to support earlier fruit production the following year. While harvest usually begins earlier with this system, the harvest season typically extends over a longer period than with the traditional deciduous system.

Total production may be greater with the evergreen system, but a significant portion of the crop may ripen before or after the optimum

Florida market window. As one might expect, the production system used (deciduous vs. evergreen) will affect the relative importance of certain cultivar traits. For example, with the evergreen production system, late-season leaf disease management is essential because leaves must be carried over through the winter as disease-free as possible. Therefore, a cultivar such as Jewel, which is highly susceptible to leaf rust, would not be a good evergreen candidate. Additionally, some cultivars are inherently more evergreen than others. Since this is a relatively new production system, the performance of most cultivars under the evergreen system is not fully understood.

Choosing the proper cultivars is complex, farm-specific and requires research and planning on the part of the grower/manager. Evaluate your business plan carefully to determine which cultivar characteristics are most essential.

Do not make large plantings of newly released cultivars when their strengths and weaknesses are not fully understood. Most experienced growers spread their risks by planting several cultivars (i.e., early- and mid-season cultivars). A mixed planting of multiple cultivars will also increase cross-pollination, which is needed for optimum fruit set and yield. 🍓

Jeff Williamson is an Extension specialist in the Horticultural Sciences Department of the University of Florida's Institute of Food and Agricultural Sciences in Gainesville.

Additional grower resources

Sources of information to help with cultivar selection include:

- Southern Highbush Cultivars from the University of Florida, <https://edis.ifas.ufl.edu/pdf/HS/HS124500.pdf>
- Florida Blueberry Growers Association, <http://floridablueberrygrowers.com>
- Florida Foundation Seed Producers (for information on licensed nurseries and licensing opportunities for nurseries) <http://www.ffsp.net/>