

Florida's Commercial Blueberry Industry¹

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Blueberry (*Vaccinium* spp.) is one of the few cultivated fruit crops that is native to North America. Canada and Maine have large expanses of native lowbush blueberries (*Vaccinium angustifolium* and *V. myrtilloides*) in naturally occurring barrens that are managed and harvested for the processing market. Cultivated blueberries in the United States consist of

- highbush blueberry (*V. corymbosum*), grown primarily in Michigan, New Jersey, Oregon, Washington, and North Carolina;
- rabbiteye blueberry (*V. virgatum*), grown throughout the southeastern United States; and
- southern highbush blueberry (interspecific hybrids of *V. virgatum*, *V. corymbosum*, and *V. darrowi*), grown primarily in Florida, Georgia, and southern California.

Only certain cultivars of rabbiteye and southern highbush blueberry are adapted to Florida because of its mild winter climate.

Major Production Areas

U-pick blueberry farms are scattered throughout north, north central, and northwest Florida, primarily near population centers, such as Ocala, Gainesville, Tallahassee, and Pensacola. Blueberries for commercial fresh fruit shipping are grown in three major areas of Florida. The north central area includes Alachua, Marion, Putnam, Sumter, and Lake Counties and accounts for about 40% of the blueberry acreage planted for commercial shipping in

Florida. The south central area includes Highlands, Hardee, Desoto, Manatee, and Sarasota Counties and consists of approximately 25% of the total acreage. The central Florida production region includes Polk, Orange, Pasco, Hernando, and Hillsborough Counties and accounts for approximately 30% of the total acreage. All areas have experienced growth during recent years. Southern highbush blueberries share some of the climatic requirements of strawberry, and 90% of Florida's commercial strawberry production is in Hillsborough County.

Types and Cultivars of Blueberries Grown in Florida

Both rabbiteye and southern highbush blueberries are cultivated in Florida. During the early 1980s, many acres of early-season rabbiteye blueberries were planted in north central Florida for what was then considered the early-season market (May 20–June 20). During the last 20 years, southern highbush blueberries have replaced early-season rabbiteye cultivars for the commercial market for two reasons: 1) early-season rabbiteye cultivars have not yielded well in peninsular Florida and 2) southern highbush cultivars ripen earlier than rabbiteye cultivars when market prices are highest (early April through mid-May). Other factors being equal, the earliest southern highbush cultivars ripen about 1 month to 6 weeks earlier than the earliest rabbiteye cultivars. Currently, the vast majority of Florida's blueberries are shipped fresh, and only a small fraction (mostly rabbiteyes) is sold locally.

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For many years, ‘Sharpblue’, ‘Misty’, and ‘Gulf Coast’ were the major southern highbush cultivars grown in Florida. During the early 2000s, the major southern highbush cultivars grown were ‘Emerald’, ‘Star’, and ‘Jewel’. Other southern highbush cultivars, such as ‘Windsor’, ‘Springhigh’, ‘Prima-donna’, and ‘Snowchaser’ were planted to a lesser extent. Newer cultivars, such as ‘Farthing’, ‘Meadowlark™’, ‘Kestel’, and ‘Chickadee’ are increasing in popularity because of their earliness and their potential use for machine harvesting for fresh markets. Florida’s U-pick farms primarily grow midseason rabbiteye cultivars, such as ‘Powderblue’ and ‘Brightwell’, along with some earlier-ripening rabbiteyes, such as ‘Climax’, ‘Chaucer’, and ‘Beckyblue’.

Identify Your Market

As mentioned earlier, blueberries can be grown for fresh fruit shipment, local or roadside markets, and U-pick. Decisions about marketing affect almost every aspect of a blueberry farm, including its size, location, and the cultivars grown. For example, most blueberries grown for fresh fruit shipment are early-season southern highbush cultivars that ripen before prices drop in mid-May. They are best adapted to the region of peninsular Florida between Gainesville and Sebring. Alternatively, many midseason rabbiteye cultivars are grown for the less volatile U-pick, roadside, or local markets because they are generally easier to grow than southern highbush but ripen after wholesale market prices fall. Rabbiteye cultivars are generally well adapted from Ocala north to the Georgia border and west throughout the Panhandle.

Is commercial blueberry production profitable in Florida?

The profitability of blueberry production in Florida for the fresh fruit shipping market is difficult to predict because of

1. high variation in production costs and yields from farm to farm;
2. uncertainty about future market prices and availability of sufficient hand labor to harvest the crop; and
3. uncertain risks from weather, pests, diseases, and other forces of nature inherent to any agricultural enterprise.

Establishment of a southern highbush blueberry planting in Florida can be expensive (as much as \$20,000–\$25,000 per acre, not including land cost), depending on plant density, amount of site preparation required, and the irrigation system. For conventionally spaced plantings, drip irrigation

can be used, and overhead sprinklers may not be needed for freeze protection until the second and subsequent years when plants come into production. During the first 3 years, weed control is a significant maintenance cost. For more detailed information on cost of establishment and production, see *Establishment and Production Costs for Southern Highbush Blueberry Orchards: Enterprise Budget and Profitability Analysis* (EDIS publication FE1002).

Despite the high cost of production, growing early-ripening blueberries for the fresh fruit market has been profitable in Florida. The major incentive for growing blueberries in Florida is the strong market for fresh blueberries that ripen before May 10. Historically, southern highbush blueberries from peninsular Florida are the first blueberries to ripen in North America. However, recently significant blueberry production has occurred in Mexico during March, April, and May. Mexican blueberry imports to the U.S. during this period have increased in recent years and pose a significant threat to the Florida blueberry industry. Beginning in mid-May, Georgia and North Carolina blueberry harvests begin and prices typically decline to the point where commercial production under Florida conditions is not profitable. Growers have access to a variety of marketing options, including cooperatives and independent brokers. Berries shipped from Florida once averaged close to \$5 per pound for the season. However, more recently the seasonal averages for berry prices from Florida have declined significantly: \$3.35 per pound in 2015, according to USDA figures.

Site Selection

Site selection is one of the most important decisions determining the success or failure of a blueberry enterprise. A comprehensive treatment of this topic is beyond the scope of this publication. Factors to consider in selecting a location include marketing plans, zoning, water quality and availability, labor availability, climate, and soil characteristics. Sites suitable for blueberry culture can be found over a wide geographical area in Florida. Generally, rabbiteyes do best in areas where mean winter temperatures are equal to or colder than those experienced in Ocala. Certain hilltop locations in the western Panhandle that have excellent air drainage and reduced risk of spring freezes may be good sites for rabbiteye U-pick enterprises. The southern highbush cultivars that are grown in Florida seem to perform best south of Gainesville. With traditional deciduous production system, Central Florida appears best suited for southern highbush production during the best market window. Production in south-central Florida may require use of the evergreen or non-dormant production

system described below in the section “Possible Trends for the Future”.

Regardless of the region, it is important that the particular parcel of land, including soil and microclimate characteristics, be suitable for blueberries. Blueberries require acidic soils (pH 4.0–5.5) and higher soil organic matter content (2%–3%) than is common in Florida. Late winter and early spring freezes have been a major production problem with early-ripening blueberries. Different parcels of land, even within the same area, vary greatly in temperature during radiation freezes. Sites that are higher than the surrounding land are usually warmer than lower sites during these freezes. Unfortunately, soils high in organic matter are usually located in low areas that are prone to late spring freezes and are appropriately termed frost pockets. These areas should not be used for blueberry production unless provisions are made for freeze protection. More information on blueberry freeze protection is available at <http://edis.ifas.ufl.edu/hs216>.

Possible Trends for the Future

Cultivar selection. As Florida growers attempt to capitalize on early-season market prices (early April through mid-May), they will continue to grow new, improved southern highbush cultivars. ‘Emerald’ and ‘Jewel’ once the major southern highbush cultivars grown in Florida, are gradually being replaced by newer southern highbush cultivars, such as ‘Farthing’, ‘Meadowlark’, ‘Kestrel’, ‘Chickadee’, and others. Continued cultivar development will likely result in additional cultivar options for Florida growers in the future. Acreage of rabbiteye cultivars will probably remain stable or decline slightly as emphasis continues to be placed on fresh berries for the early-season market.

Site selection and establishment. With the advent of earlier-flowering cultivars, damage from late winter and early spring freezes has been severe. Many successful plantings have been established on warm (elevated) sites along the central ridge of Florida, as opposed to traditional blueberry sites in Florida, which were on low-lying flatwoods soils that are usually high in soil organic matter but are subject to spring frosts. Soils on these upland sites are predominately deep, well-drained sand and usually require the addition of large quantities of organic matter and sometimes adjustment to the soil pH. A system currently adopted by many growers on high, well-drained ground is to plant in pine bark beds on top of the well-drained soil. (Figure 1). When properly done, plants have grown well. However, the cost of pine bark is high, and irrigation and fertilization must be modified to suit the bark medium. A



Figure 1. Southern highbush blueberry planting with bark beds and drip and overhead irrigation
Credits: Jeffrey G. Williamson



Figure 2. Southern highbush blueberry grown on incorporated pine bark beds with double-line drip irrigation
Credits: Jeffrey G. Williamson

modification of this system consists of incorporating pine bark into the top layer of soil and creating raised beds from the soil bark mixture (Figure 2). The bed is sometimes covered with nursery ground cloth with drip lines (one or two per row) located under it (Figure 3).

Evergreen, or non-dormant, production. New plantings have been established in the southern production regions of Florida in an attempt to achieve earlier harvests and reduce crop injury from freezes. In these regions where winter chill accumulation is usually inadequate for standard production systems, evergreen, or non-dormant, production systems are being used by some growers. The details of this alternative production system are still being developed and are beyond the scope of this publication.



Figure 3. Southern highbush blueberry grown on incorporated pine bark beds with double-line drip irrigation and ground cloth

Credits: Jeffrey G. Williamson

High tunnels. Some growers are planting blueberries under polyethylene tunnels (Figure 4). The potential advantages include reduced water use during freeze protection, greater total yields, and earlier fruit ripening in the spring. Disadvantages of this system include the additional cost of tunnels, inexperience with the performance of individual cultivars under tunnels, and protracted harvest seasons that begin before and extend after the prime market window for Florida.

Mechanical harvesting. Florida's blueberry crop is almost completely hand harvested for the fresh market. The uncertainty of future labor availability has increased interest in mechanized berry harvesting for fresh markets. Some large growers now use mechanical harvesters at the end of the season to harvest the remaining fruit after berry prices have dropped (Figure 5). The University of Florida blueberry breeding program is attempting to identify the best cultivars for mechanical harvesting in the event that harvest labor becomes unavailable or cost prohibitive.

Conclusion

The Florida blueberry industry has grown rapidly despite some production problems because Florida growers can produce high-quality fruit when few fresh berries are available and berry prices are high. However, high prices encourage competition, and southern highbush blueberry acreage has expanded significantly in Florida, Georgia, California, and Mexico during the last several years. The best long-term strategies for Florida growers are higher yields per acre, lower production costs, and the development of currently underexploited markets for blueberries. Since the late 1990s, improved southern highbush blueberry cultivars have been released by the University of Florida blueberry breeding program. These cultivars represent significant



Figure 4. Southern highbush blueberry planting under tunnels

Credits: James W. Olmstead



Figure 5. Mechanized harvest of southern highbush blueberry

Credits: Jeffrey G. Williamson

improvements in terms of earliness, berry size and quality, and yield. Better cultivars and improved cultural practices have increased grower production efficiency during the last several years. Acreage and production continue to increase, and berry prices have remained profitable but have declined during the 2009 and 2010 seasons.