

BLUEBERRY

Introduction

The Florida blueberry industry has grown rapidly over the past 20 years, today reaching over \$70 million in annual value with nearly 5,000 acres and an annual production of more than 20 million pounds. UF/IFAS played a pivotal role in the industry's growth by releasing southern highbush cultivars that ripen in late April to May, a time of year when few berries are available and market prices are high. Several species of *Vaccinium* are native to Florida, including highbush (*Vaccinium corymbosum*), rabbiteye (*Vaccinium virgatum*), and evergreen (*Vaccinium darrowii*). Rabbiteye blueberry production peaked in northern Florida in the 1920s with more than 2,000 acres. Because of competition with northern blueberry producers, acreage in Florida steadily declined to less than 100 acres until the 1970s, when southern highbush cultivars were released. By 1985, the industry had approximately 1,000 acres (more than half was rabbiteye), which increased to 2,000 acres by 1995. Since 2005, nearly all acreage planted in Florida is in southern highbush cultivars developed by UF/IFAS. The industry continues to move farther south into areas such as DeSoto, Highlands, and Okeechobee counties.

From the Beginning

The UF/IFAS blueberry breeding program started in the 1940s to develop low-chill, early-ripening, high-quality blueberry cultivars. The biggest initial obstacle was developing competitive cultivars at the edge of the natural adapted range for highbush blueberry. This was accomplished by crossing high-quality northern blueberry cultivars with native Florida *Vaccinium* species and selecting for low-chill requirements. The resulting cultivars, known as southern highbush, revolutionized blueberry production in Florida and worldwide, allowing production in low-chill areas and creating a year-round supply of fresh blueberries. The first southern highbush cultivars were 'Sharpblue', 'Flordablue', and 'Avonblue', released in the late 1970s. Since then, UF/IFAS has released 30 southern highbush cultivars. The initial germplasm developed by UF/IFAS has contributed to all southern highbush cultivars released in the world.

Today and Tomorrow

The UF/IFAS blueberry breeding program aims to produce cultivars with a low chill requirement, early fruit maturity, disease tolerance, and high yield of quality fruit. Blueberries in Florida must have a low chill requirement and early fruit maturity to expand and maintain production in warmer climates. Disease tolerance is necessary to withstand fungal, bacterial, and viral pathogens. The program also breeds for important fruit qualities, such as a small, dry stem scar, firm texture, proper sugar-to-acid balance, large size, and a light blue color. Recent highlights of the UF/IFAS program include 'Sweetcrisp' (USPP20,027), a cultivar with a unique crisp texture that performs well in machine-harvesting for the fresh market, and Meadowlark™ 'FL 01-173' (USPP21,553) (the first

UF/IFAS cultivar that includes sparkleberry, a Florida native adapted to soils that cannot support highbush blueberries).

Moving forward, the UF/IFAS blueberry breeding program will continue researching cultivars that help Florida growers more efficiently and economically produce blueberries. One key will be breeding low-chill blueberries that can grow in a complete evergreen production system, expanding the range of Florida blueberry production. Other desirable traits include increasing pH and drought tolerance, developing machine-harvest capable cultivars, thus reducing labor costs, and producing cultivars with crisp texture and better flavor. The program is also beginning to use marker-assisted breeding, which uses DNA fingerprinting of cultivars to identify plant qualities during propagation. The search is under way for molecular markers associated with low-chill genetics, flavor components, and fruit texture, all characteristics that could be used to select desirable plants for field testing before fruiting.

In the future, the program expects to adopt molecular-marking assisted breeding strategies for the most important traits under selection. This will allow the program to be more efficient in identifying cultivars for Florida blueberry production. More efficient core breeding strategies will create opportunities to explore new avenues, such as ornamental blueberry cultivars for the landscape, wide crosses with additional native *Vaccinium* sources to diversify blueberry germplasm, and traits that may add value in the market, such as unique colors, flavors, and textures.



Blueberry Varieties Released from 2002

| Release Date | Cultivar |
|--------------|--------------------------------------|
| 7/1/02 | 'Floridarose' (USPP14,485) |
| 7/1/02 | 'Savory' (USPP15,109) |
| 7/1/03 | 'Abundance' (USPP16,476) |
| 7/1/03 | 'Springhigh' (USPP16,404) |
| 7/1/03 | 'Springwide' (USPP16,333) |
| 7/6/05 | 'Snowchaser' (USPP19,503) |
| 7/6/05 | 'Primadonna' (USPP20,181) |
| 7/6/05 | 'Sweetcrisp' (USPP20,027) |
| 7/23/07 | 'Scintilla' (USPP19,233) |
| 7/23/07 | 'Farthing' (USPP19,341) |
| 7/23/07 | San Joaquin/FLX-1 (USPP19,342) |
| 7/23/07 | FLX-2 (USPP19,381) |
| 7/9/09 | Flicker™ 'FL 96-43' (USPP21,554) |
| 7/9/09 | Meadowlark™ 'FL 01-173' (USPP21,553) |
| 7/9/09 | Chickadee™ 'FL 04-235' (USPP21,376) |
| 7/9/09 | Raven™ 'FL 05-627' (USPP21,374) |
| 7/9/09 | Vireo™ 'FL 05-107' (USPP21,375) |
| 7/9/09 | Bobolink™ 'FL 03-291' (USPP21,377) |
| 7/9/09 | Kestrel™ 'FL 02-40' (USPP21,719) |

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