

## THE FLORIDA BLUEBERRY INDUSTRY: A DECADE OF GROWTH

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**Abstract.** Florida produces the earliest ripening blueberries in North America. The harvest season begins about 1 April and extends through mid-May until North Carolina's harvest begins. Crop values for the Florida blueberry industry were estimated at \$18,200,000 and \$18,560,000 for the 2002 and 2003 seasons, respectively. This is a 30% increase in value over the two previous years. Commercial acreage and production have steadily increased throughout the 1990s and southern highbush varieties have gradually replaced rabbiteye varieties on commercial farms. Despite increased production and acreage, fruit prices have remained high. The average fruit price for the 2003 season was \$5.20 per pound. New varieties and improved cultural practices have enabled growers to increase yields and quality without substantially increasing production costs. Factors contributing to the growth of this industry and potential challenges for its future will be discussed.

### Early History

Cultivated rabbiteye blueberry (*Vaccinium ashei*) production in Florida began in the 1890s. The first reported planting of blueberry was on a farm belonging to Moses Sapp in the western panhandle of Florida. This may have been the first cultivated blueberry farm in the world. Many other rabbiteye blueberry plantings were established throughout western and northern Florida around the turn of the century. These plantings consisted of native rabbiteye plants transplanted from the woods to cultivated fields. The remnants of these early plantings can still be found as large blocks of rabbiteye plants, laid out in rows, in the woods throughout north and northwest Florida.

### Recent History

Between 1948 and 1950, Professor Ralph Sharpe began a blueberry breeding program at the University of Florida. His primary goal was to develop early-ripening blueberry cultivars with low chilling requirements that were adapted to Florida's sub-tropical climate. To accomplish this goal, Sharpe made crosses between *Vaccinium darrowii* (a heat tolerant species native to Florida) and *V. ashei* and *V. corymbosum* (northern highbush). In 1976, Sherman and Sharpe released the first southern highbush blueberry cultivars, 'Sharpblue' and 'Flordablue'. A third cultivar, 'Avonblue', was released soon thereafter. Fruit quality of these southern highbush cultivars more closely resembled northern highbush than rabbiteye and fruit ripened a full month earlier than the earliest rabbiteye cultivars grown in Florida at the time. The release of these southern highbush cultivars set the stage for the development

of an early-season commercial blueberry shipping industry in Florida during the 1980s.

In 1982, Herold Krupka was the first grower to export blueberries from Florida to the New York markets where he received about \$5.00 per pound. Such high prices were previously unheard of and increased interest in producing berries for the April-May market window. A small, early-season, blueberry industry developed during the mid to late 1980s comprised primarily of 'Sharpblue', 'Gulfcoast' and 'Misty' (Crocker and Lyrene, 1985; Crocker and Willis, 1989). Many problems hampered growth and expansion of this industry, including freeze damage to fruit and flowers, blueberry stem blight, *Phytophthora* root rot, and a general lack of knowledge and experience of blueberry culture in sub-tropical Florida.

During the mid to late 1990s, several new southern highbush cultivars were released by the University of Florida breeding program (Williamson et al., 2000). The most widely grown of these include 'Jewel', 'Emerald', 'Millennium', 'Sapphire' and 'Windsor'. As a group, these cultivars represented significant improvements over 'Sharpblue' and other cultivars grown during the late 1980s and early 1990s. Yield, earliness, compact harvest season, disease resistance, and fruit quality were significantly improved by these newer cultivars. From the mid-1990s to present, Florida's blueberry industry steadily increased in acreage, production and value (Williamson et al., 2000). Some of the factors contributing to this growth and possible limitations to continued growth are briefly discussed below.

**Berry prices.** Figure 1 shows average berry prices for the 2002 and 2003 seasons during April and May and the volume of fruit shipped during 2003 (Florida Agricultural Statistics Service). Although prices vary from year to year, this 2-year average is representative of prices received by Florida growers during recent years. Prices usually begin very high in early April when fruit supply is limited. As berry harvest increases, fruit prices decline gradually but usually stay above \$4.00 per pound for the majority of the Florida season. The seasonal average price for Florida blueberries generally increased between 1996 and 2003 (Fig. 2). In the late 1990s berry prices averaged \$2 to \$3 per pound. Since 2000, average seasonal

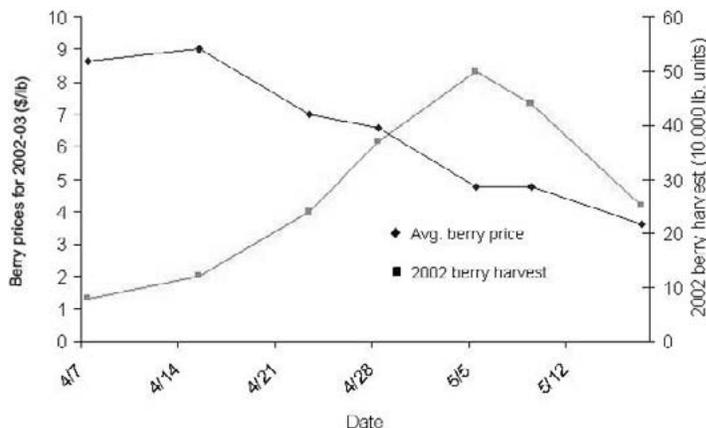


Fig. 1. The relationship between average berry price (2002-2003) and harvest volume (2003) for Florida blueberries harvested during April and May.

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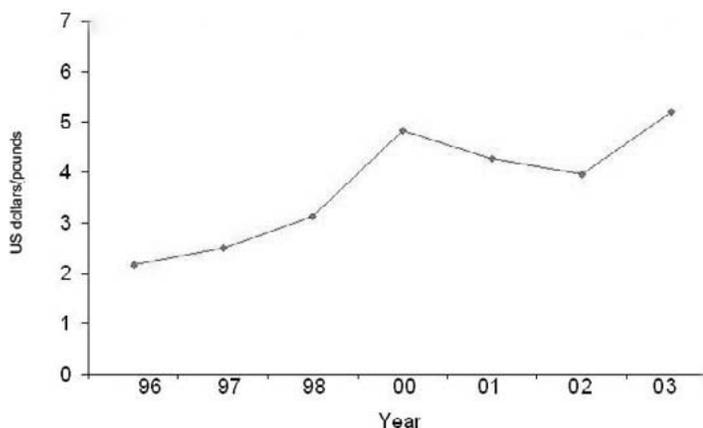


Fig. 2. Average seasonal blueberry price between 1996 and 2003.

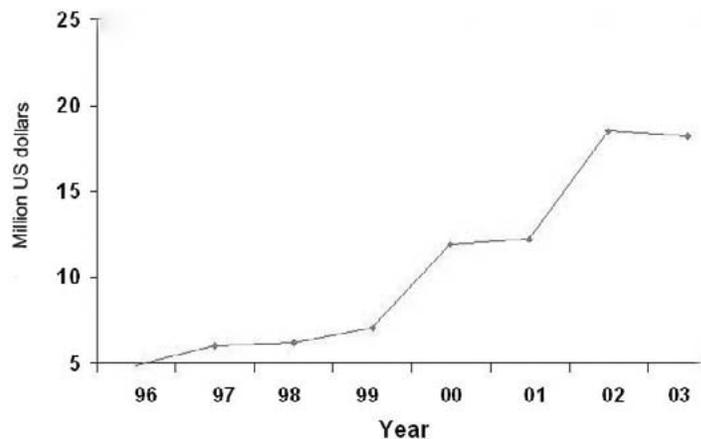


Fig. 3. Estimated value of the Florida blueberry industry between 1996 and 2003.

berry prices have ranged from \$4 to \$5 per pound. New cultivars and improved cultural practices have enabled growers to harvest a larger proportion of their fruit earlier in the harvest season. This is the primary reason for higher seasonal average fruit prices in recent years.

**Cultivars.** During the 1990s, southern highbush cultivars were planted in favor of rabbiteye cultivars in an attempt to capitalize on the lucrative early season market (Williamson et al., 2000). Gradually many large rabbiteye plantings were either abandoned or replanted with southern highbush cultivars. Moreover, during the mid to late 1990s, new southern highbush blueberry cultivars were released by the University of Florida breeding program which were far superior to 'Sharpblue', which was the most widely planted southern highbush cultivar at that time. Improved characteristics included increased earliness, more concentrated harvest season, greater disease resistance, higher fruit quality, larger fruit size and improved shipping and post harvest characteristics. Wide-spread planting of these superior cultivars during the last 4 to 5 years is partially responsible for increased production and higher fruit prices during the last 3 to 4 years.

**Improved cultural and post-harvest practices.** Improved grower practices have contributed to greater sustained annual fruit production from the mid-1990s to present. Freezes during February and March are one of the primary factors limiting berry production in Florida most years. However, growers have improved their freeze protection practices and record production of blueberries has occurred in recent years in the presence of potentially damaging freezes. Dormex, a growth regulator that is in widespread use throughout Florida, can advance harvest date by up to 7 d, improve berry size, and concentrate berry harvest of some cultivars (Williamson et al., 2002). Several leaf spot diseases can cause early fall defoliation, which adversely affects flower bud initiation and development (Lyrene, 1992; Williamson and Miller, 2002). During the last 2 to 3 years, more fungicides for leaf disease management are available to Florida blueberry growers than were available during the early to mid-1990s. Pine bark culture, a system which uses pine bark instead of soil as the growing medium, is in widespread use in Florida and has improved plant establishment, growth and yield (Williamson and Lyrene, 1997). A greater emphasis on postharvest practices has helped maintain good berry quality and high prices, even as fruit volume has increased. Most fruit shipped out-of-state is forced air cooled. Sophisticated packing lines with automated

clam shell fillers allow for more efficient and better packaging than was available several years ago.

During the past 10 years, Florida's blueberry industry has undergone significant growth and change. Southern highbush cultivars have almost exclusively replaced rabbiteye cultivars, especially for the early shipping market. Rapid expansion of acreage has occurred in central and north-central Florida (Williamson et al., 2000). Although total statewide acreage and production have not increased dramatically during the past decade, the relative proportion of southern highbush acreage is much greater than during the early 1990s (Williamson et al., 2000). As a result, seasonal average fruit prices (Fig. 2) and overall industry value (Fig. 3) have increased substantially during the past 3 to 4 years. The high prices received for Florida blueberries are directly related to limited supply and high demand for fresh blueberries during the April-May market window. Currently, Florida maintains its hold on the very early market for blueberries in the northern hemisphere. However, other regions such as California and southern Spain have recently planted relatively large acreages of early season southern highbush cultivars with the goal of capturing some of this market. Competition from other production regions and continued expansion of acreage in the state suggests that Florida growers should address the following points during the coming decade: (1) aggressively identify new markets thereby increasing the demand for fresh blueberries; and (2) improve production efficiency thereby reducing production costs and maintaining profitability.

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