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American Pomological Society workshop.

The workshop, "Unique Blueberry Production Practices for Subtropical and Tropical Climates" was sponsored by the American Pomological Society at the American Society for Horticultural Sciences Conference, Orlando, Florida on 30 July 2014 and was organized by Dr. Fumiomi Takeda. The purpose of this workshop was to review the Florida blueberry industry and to summarize research on the development of low-chill blueberry cultivars for planting in warm climates, the role of plant growth regulators for producing blueberries in tropical and subtropical environments, novel practices used to mitigate lack of chilling, and the application of chilling models to predict plant responses.

Each of the manuscripts that follow were peer reviewed.

An Overview of the Blueberry Industry in Florida

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Additional index words: crop production, low-chill cultivars, southern highbush, *Vaccinium*

Abstract

From 1997 to 2012, the blueberry acreage in Florida has expanded by 1950 ha, with the majority of this increase in central and south central Florida. Also during this period, the value of the industry has grown from just over $US5 million to greater than $US62 million. Moreover, the Florida blueberry industry received significantly higher freight on board (FOB) prices than other marketing regions in the United States during the traditional "market window" from late March to early May 2012 to 2014. Southern highbush blueberry (*Vaccinium corymbosum* hybrids) cultivars adaptable to low-chill sites in central and south central Florida are commonly planted. Inputs such as pine bark, hydrogen cyanamide application, and overhead irrigation for freeze protection are often utilized by Florida producers to enhance early season fruit production.

Before the introduction of southern highbush blueberry cultivars in Florida (late 1970's and early 1980's), rabbiteye blueberry (*Vaccinium virgatum* Aiton) cultivars were utilized for commercial production (Williamson et al., 2012). Since most rabbiteye cultivars are only adapted to the climate of northern Florida, commercial blueberry farms were found from Gainesville north through the panhandle and were mainly small plantings marketing pick-your-own fruit.

With the planting of southern highbush blueberry cultivars on Florida farms, commercial production in the state increased gradually at first and then very significantly as newer improved southern highbush cultivars were released. From 1997 to 2012, there was a rapid expansion of the Florida blueberry industry from 550 to 2500 ha with the value of the industry increasing from just over $US5 million to more than $US62 million (USDA – NASS, 2012).

As demand for increased volumes of early blueberry fruit increased over the past 15 years, most of the new farms have been established in central and south central Florida, where chill accumulation is low and temperatures are warm (AgroClimate, 2014; Florida Automated Weather Network, 2014). The Florida "marketing window" is from late

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March to early May and garners significantly higher FOB prices than other blueberry production regions marketing their fruit before or after Florida blueberries (USDA-Agricultural Marketing Service, 2014).

Low- to moderate-chill cultivars are grown in central and south central Florida (Williamson et al., 2013). 'Emerald' and 'Jewell' tend to be the most popular blueberry cultivars. However, some central Florida growers produce 'Primadonna' and 'Springhigh' blueberry fruit. New cultivars under evaluation by growers in central Florida are 'Farthing' and 'Meadowlark', while very low-chill cultivars including 'Flicker', 'Kestrel', and 'Chickadee' are being tested in south-central Florida.

Most Florida blueberry growers utilize several cultural practices to enhance their fruit production, including the incorporation of pine bark into the soil, application of hydrogen cyanamide, and the use of overhead irrigation for freeze protection (Williamson et al., 2013). Pine bark improves soil pH and organic matter content that are often less than optimum in most Florida blueberry sites. Hydrogen cyanamide application has been essential in attaining uniform leafing and early harvest of low-chill blueberry cultivars. Due to the potential for low temperature injury to plants during January and February in all Florida blueberry production regions, overhead irrigation is typically used for freeze protection.

Some of the major challenges facing Florida blueberry growers are the availability of farm labor, especially during harvest, and competition from other blueberry producing regions throughout the world. Thus, selection of cultivars with an upright growth habit and uniform fruit ripening, along with the development of the most efficient harvesting equipment is necessary. Fortunately, worldwide demand for fresh blueberries continues to increase, potentially lessening the impact of competition from other production regions. New cultivars with high fruit quality characteristics that are adapted to Florida, use of plant growth regulators and novel technologies to mitigate low chill conditions, as well as utilization of chilling models to predict plant response will be important factors for profitable production in this region.

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Correction

In volume 68(4), in the article by M.R. Warmund "Growth and cropping of 'AU-Super' or 'Eaton' chestnut trees with 'Little Giant' interstem on AU-Cropper seedling rootstock", in Table 2 (page 194) the nut no./tree for Eaton in 2012 should have been 508 (rather than 08 as shown).