PERFORMANCE OF RABBITEYE, SOUTHERN HIGHBUSH, AND NORTHERN HIGHBUSH BLUEBERRY CULTIVARS IN SOUTHERN MARYLAND

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Introduction: Blueberries continue to be in high demand at retail farm stands and farmers markets and offer significant wholesale marketing opportunities for farmers in urbanizing regions in Maryland. Southern Maryland is located in Zone 7a/7b, with varying soils types and often hot, dry summers. In Southern Maryland, the Northern Highbush varieties have typically been grown, but growers have expressed interest in utilizing additional varieties of blueberries that can tolerate higher summer temperatures and less desirable soils with low organic matter. In 2005, a blueberry variety trial was established at the Central Maryland Research and Education Facility in Upper Marlboro, Maryland.

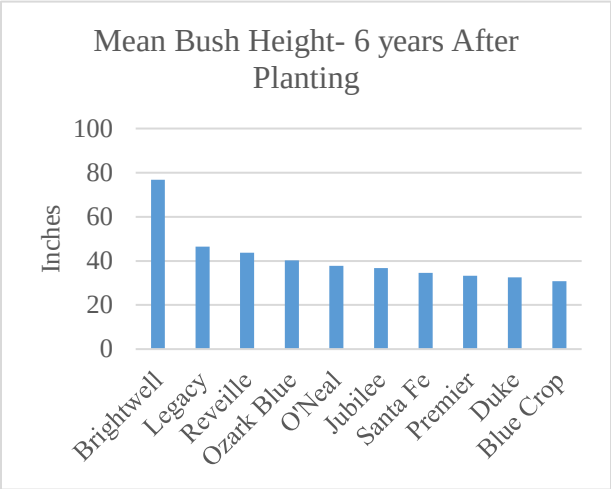
Trial objectives included: evaluating the potential yield of cultivars novel to Southern Maryland; evaluating cold hardiness and spring frost injury potential of Southern Highbush and Rabbiteye cultivars; and evaluating the tolerance of southern cultivars to low organic matter sandy soils and the hot summer climate typical of the Southern Maryland coastal plain region.

Procedures/methods: The trial included ten commercially available blueberry cultivars: two Northern Highbush cultivars: Bluecrop and Duke; six Southern Highbush cultivars: Legacy (Northern and Southern parentage), Jubilee, O'Neal, Ozark Blue, Reveille and Santa Fe; and two Rabbiteye cultivars: Brightwell and Premiere. The study utilized a randomized complete block design consisting of 4 rows with each row considered a replication; there were 4 bushes per plot. The planting site consisted of a well-drained fine sandy loam soil (Collington-Wist complex) on a 3-5 percent slope with 1.4% organic matter. Soil pH was lowered from a starting pH of 6.2 with the addition of elemental sulfur at a rate of 400 pounds per acre applied over the entire field area and tilled in 2 months before planting, with a resulting pH of 4.1 one year after planting, and 4.3 three years after planting. At planting, 8-10 inch high and 3 feet wide raised beds were formed on 12 foot row centers. A 12 inch diameter planting hole, 12-15 inches deep, was created and the soil was amended with the addition of 0.66 cubic feet of peat moss.

Bare-root, 24-30 inch tall, 2 year old bushes from a commercial nursery were established on a 5 foot in-row spacing. After planting, the rows were covered with 3 inches of a well composted hardwood mulch. Drip irrigation was installed consisting of one tape in each row. In 2008, an additional 3 inches of hardwood leaf compost material (LeafGro) was applied to the beds. In 2011, a soil test indicated the pH had risen to 5.1, and an additional application of 100 pounds per acre of sulfur was made. Plots were fertilized with a total of 40 pounds of nitrogen and 45 pounds of K_2O per acre per year split applied in mid-April, May and June utilizing ammonium sulfate and muriate of potash. The soil fertility level was in the excessive range for P and optimal range for K (P: 146 and K: 134 on the UMD FIV Fertility index scale). Plots were treated with 2 herbicide applications per year for weed control and received 4 fungicide

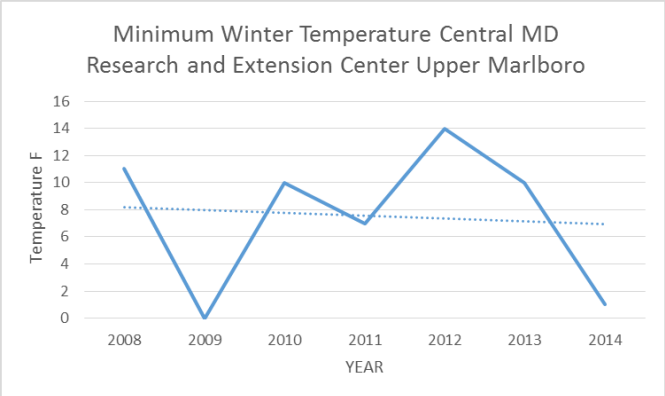
applications for disease control. Bird netting was applied to all plots during the first week of June. In years 2007 through 2010 a solid one piece netting was used to cover the entire plot. In years 2011-2014, each row was covered with an individual net, and the sides pinned to the ground.

Discussion/Results: The blueberry planting established well, with a 100% survival rate during the first year. Differences in bush size and vigor were evident early and continued throughout the life of the trial. The trial received supplemental irrigation only once per week, which was not ideal in summer months. Limited irrigation may have reduced yields of some varieties and demonstrated differences between the cultivars ability to tolerate stress.



Yield data collected during the 2011, 2012 and 2013 growing season is presented below. Over the life of the trial, Brightwell, Legacy, O'Neal and Ozark Blue consistently emerged as the most vigorous and best yielding varieties. Duke also performed well relative to other highbush varieties. Brightwell significantly out yielded all other varieties in 2011 and 2012, and performed as well as Legacy, Oneal and Duke in 2013. The yield reduction of Brightwell in 2013 was most likely due to biennial fruit set pattern induced by a heavy harvest the previous year. Bird predation was a major challenge each year, with the exception of the latest maturing variety, Brightwell. Although bird netting was applied each year, earlier maturing varieties were more prone to bird predation by robins who learned to crawl under the netting material. The robin population diminished in July when Brightwell harvest peaked. Netting applied in the 2011 season and thereafter was pinned to the ground, minimizing bird losses.

Winter injury was not noted in any varieties, with the minimum winter temperature reaching 0° F during the winter of 2008-09 and 1° F during the winter of 2013-14. Bud break and flowering did not occur substantially earlier on Rabbiteye or Southern Highbush compared to Northern Highbush at this site. There were not any fruit set problems or spring frost injury observed at this site in any production year.



Conclusions: Rabbiteye and Southern Highbush cultivars can be grown successfully in the Southern Maryland region. Bushes have survived low winter temperatures as low as 0 degree F. Cultivar selection still remains critical, as not all Rabbiteye or Southern Highbush performed

well, and Northern Highbush did not all perform poorly. The Rabbiteye cultivar Brightwell exhibited the highest yield and most vigor of any cultivar in this trial.

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