'Rebel' Southern Highbush Blueberry

D. Scott NeSmith^{1,2}

Department of Horticulture, University of Georgia–Griffin Campus, 1109 Experiment Street, Griffin, GA 30223-1797

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Southern highbush blueberries (*Vaccinium* sp.) are becoming increasingly important in Georgia and across the southern United States. Growers are particularly interested in their early ripening to be able to enter the market just after fruit from the southern hemisphere decreases in market volume. 'Rebel' is a new southern highbush blueberry (*Vaccinium* hybrid) released by The University of Georgia College of Agricultural and Environmental Sciences along with The University of Georgia Agricultural Experiment Station. 'Rebel' is a very early-season blueberry having favorable fruit attributes, especially size and scar. The cultivar also has excellent plant vigor.

Origin and Description

'Rebel' was selected in 2000 at the Georgia Experiment Station in Griffin, GA, from a group of open-pollinated seedlings of the selection FL 92-84 planted in Griffin in 1997. FL 92-84 has been released as 'Prima-donna' (Lyrene and Williamson, 2007) and resulted from a cross of 'O'Neal' × FL 87-286. FL 87-286 has an undefined pedigree (Paul Lyrene, personal communication). 'Rebel' was tested as selection TH-642. It has a chill requirement of 400 to 450 h (less than 7 °C) as estimated from comparison of flowering times with standard cultivars having known chill hour requirements. 'Rebel' is a very early-season southern highbush with large fruit (1.9 to 2.8 g/berry). Berries are medium to light blue in color and have a small, dry picking scar and good firmness (Fig. 1). Flavor is very mild to bland. 'Rebel' flowers in late February to early March and berries ripen in late April to early May in south Georgia. Plants are highly vigorous, very precocious, and have a spreading bush habit with a medium width crown (Fig. 2). Emergence of 'Rebel' leaves has been excellent, even after mild winters. This is important because many southern highbush blueberries grown in the low-chill areas of the southeastern United States have poor leaf

development (Lyrene and Williamson, 1997; Williamson et al., 2001). 'Rebel' plants are highly branched, producing an abundance of fruiting wood. Propagation has been easily accomplished using softwood cuttings. Plants are self-fertile but should be planted with

Fig. 1. 'Rebel' southern highbush fruit during ripening.

Fig. 2. 'Rebel' plants (3 years old) growing in a high-density pine bark bed in late summer at Alapaha, GA. Plants were hedged earlier in the summer after harvest.

other southern highbush blueberry cultivars for crosspollination.

Performance

'Rebel' has been tested in field plantings at Alapaha and Griffin, GA, since 2001. Table 1 presents various plant attributes along with flowering and ripening dates for 'Rebel' and for the southern highbush industry standard 'Star' (Univ. of Florida 1995 release, USPP 10,675) from these test sites from 2003 to 2006. The two cultivars generally flowered at a similar time ('Rebel' was slightly earlier), but 'Rebel' ripened 9 d earlier on average over the 4-year evaluation period. 'Star' has been desirable for growers as a result of its early ripening, and 'Rebel' is even earlier. This degree of earliness tremendously impacts price received because earlier fruit typically brings a higher market price.

In addition to the early ripening, data from 4 years at the two locations in Georgia have indicated that 'Rebel' is also a desirable cultivar with regard to fruit and plant attributes when compared with 'Star' (Table 1). Berry size of 'Rebel' often exceeded 'Star', and berry scar, cropping, and plant vigor also rated higher for the new cultivar over the 4-year test period at these two sites.

Many growers in Georgia are growing southern highbush blueberries in a high-density system using pine bark beds as a growing media. To further test performance of 'Rebel', a high-density planting was established during 2002 at Alapaha, GA, and at a more normal density at a grower test site amended with pine bark in Ware County, Georgia. Table 2 presents data from these tests over a 3-year period for 'Rebel', 'Star', and an older industry standard, 'O'Neal'. 'Rebel' generally rated high with regard to berry scar, cropping, and plant vigor, and it had earlier ripening fruit than both standard cultivars. Additionally, 'Rebel' was firmer and had better color ratings than 'O'Neal'. Both 'Star' and 'O'Neal' rated higher than 'Rebel' for flavor.

Yields of plants from the high-density test site at Alapaha were determined during 2006 for 'Rebel' and for the two standard cultivars

Table 1. Average ratings of some fruit and plant characteristics of 'Rebel' and the southern highbush standard cultivar 'Star' over a 4-year period (2003 through 2006) at two locations (Alapaha and Griffin)².

Berry and plant attributes ³	Cultivar	
	Rebel	Star
Berry size	7.5 ± 0.3	7.0 ± 0.3
Berry scar	8.3 ± 0.2	7.8 ± 0.1
Berry color	8.0 ± 0.1	7.7 ± 0.2
Berry firmness	7.8 ± 0.1	7.6 ± 0.2
Berry flavor	7.0 ± 0.1	7.4 ± 0.1
Cropping	7.3 ± 0.8	6.7 ± 0.8
Plant vigor	7.6 ± 0.2	6.3 ± 0.2
Date of 50% flowering	5 Mar. ± 2.5 d	8 Mar. ± 2.6 d
Date of 50% ripening	7 May ± 3.5 d	16 May ± 3.0 d

²Rating scales are based on a 1 to 10 score with 1 being the least desirable and 10 being the most desirable. A value of 6 to 7 is generally considered to be the minimum acceptable rating for a commercial cultivar.

³Values are means ± SE with n = 8.

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¹Professor.

²To whom reprint requests should be addressed; e-mail snsmith@griffin.uga.edu.

Table 2. Average ratings of some fruit and plant characteristics of ‘Rebel’ and southern highbush standard cultivars ‘Star’ and ‘O’Neal’ over a 3-year period (2004 through 2006) at two locations (Alapaha, GA, in a high-density bed and Ware County, GA, in a grower’s test plot)².

Berry and plant attributes ¹	Cultivar		
	Rebel	Star	O’Neal
Berry size	8.4 ± 0.3	8.3 ± 0.4	7.6 ± 0.4
Berry scar	8.5 ± 0.3	8.3 ± 0.1	7.1 ± 0.1
Berry color	7.7 ± 0.1	7.9 ± 0.1	7.0 ± 0.1
Berry firmness	7.8 ± 0.2	7.6 ± 0.1	6.8 ± 0.1
Berry flavor	7.0 ± 0.3	7.4 ± 0.1	8.2 ± 0.1
Cropping	8.0 ± 0.5	6.0 ± 1.1	5.7 ± 0.7
Plant vigor	9.0 ± 0.4	7.9 ± 0.6	6.4 ± 0.3
Date of 50% flowering	4 Mar. ± 3.3 d	7 Mar. ± 3.3 d	12 Mar. ± 4.1 d
Date of 50% ripening	5 May ± 2.6 d	12 May ± 2.8 d	18 May ± 3.2 d
Yield (kg/plant) ³	9.0 ± 0.8	6.2 ± 0.3	2.7 ± 0.4

²Rating scales are based on a 1 to 10 score with 1 being the least desirable and 10 being the most desirable. A value of 6 to 7 is generally considered to be the minimum acceptable rating for a commercial cultivar.

³Values are means ± SE with n = 6.

⁴Yield data are from 2006 at the Alapaha location only. Data were taken from three single plant replications.

(Table 2). Data came from three single plant replications for each cultivar. The 4-year-old ‘Rebel’ plants had a yield 50% greater than ‘Star’ and three times greater than ‘O’Neal’. These findings for yield mirror the cropping scores for the different cultivars across years (i.e., ‘Rebel’ was greater).

These multiyear tests from diverse locations and under varying growing conditions suggest ‘Rebel’ may be a suitable new cultivar for early-season production where low to medium chill southern highbush blueberries are grown. Early flowering of ‘Rebel’ may require frost protection measures in some

regions. However, the early ripening fruit has the potential to command higher early-season prices to help off-set costs associated with frost protection. ‘Rebel’ is recommended for trial as a hand-harvested blueberry cultivar for the early-season fresh market.

Availability

‘Rebel’ is a patented cultivar (USPP 18,138) owned by the University of Georgia Research Foundation. Contact the Georgia Seed Development Commission, 2420 S. Milledge Avenue, Athens, GA 30606 (www.gsdc.com) for information on plant source and availability.

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