dery mildew (*Uncinula necator* Burr.), and anthracnose (*Elsinoe ampelina* (D. Bly.) Shear). However, in some years, vines have shown susceptibility to downy mildew (*Plasmopora viticola* Berl. & Ten.). The northern limits of adaptation for ‘Saturn’ have not been determined. Canes mature their wood early and enter winter in a well-hardened condition. Vines have withstood — 23°C with minimal injury in Arkansas.

‘Saturn’ has produced well when trained to a Four Arm Kniffen trellis using a 30 + 10 balanced pruning system with no cluster thinning. Performance on other trellising systems or effects of cluster thinning have not been determined.

The outstanding characteristics of ‘Saturn’ are its excellent fruit size, texture, and flavor; its attractive fruit color and shape; its resistance to fruit cracking; and its adaptability to long-term cold storage of the fruit. Since the fruit ripens later than ‘Venus’, ‘Reliance’, or ‘Mars’, the commercial harvest season can be extended. The ability of the fruit to be processed into a good-quality blending wine will provide an economic outlet for portions of the crop that cannot be marketed as fresh fruit.

**Additional index words. Rubus**, fruit breeding

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**Choctaw** Blackberry

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Additional index words. *Rubus*, fruit breeding

‘Choctaw’ is the fifth in a series of erect-growing, high-quality, productive blackberry cultivars developed in the breeding program of the Arkansas Agricultural Experiment Station. Previous releases from this program are ‘Comanche’ and ‘Cherokee’ in 1974 (Moore et al., 1974a, 1974b), ‘Cheyenne’ in 1977 (Moore et al., 1977), and ‘Shawnee’ in 1984 (Moore et al., 1985). ‘Choctaw’ ripens its fruit earlier in the season than the previous cultivars, thus extending the blackberry fruiting season.

**Origin**

‘Choctaw’, tested as Ark. 876, resulted from a cross of Ark. 526 x ‘Rosborough’ made in 1975 (Fig. 1). The original plant was selected from a seedling field in 1978. It has since been tested at four locations in Arkansas and on experiment stations in several other states.

**Description**

In Arkansas tests, ‘Choctaw’ has been more productive than ‘Shawnee’ and ‘Cheyenne’ at Hope (southwest), but less productive at Fayetteville (northwest). Yields of the cultivars have been similar at Clarksville (west-central) (Table 1). Fruit weight of ‘Choctaw’ is similar to that of ‘Cheyenne’, but smaller than fruits of ‘Shawnee’. ‘Choctaw’ ripens very early and tends to be more concentrated in ripening than the other cultivars (Table 2). At Clarksville, the average first harvest date is 25 May, 1 week earlier than ‘Cheyenne’ and 2 weeks before ‘Shawnee’.

Fruits of ‘Choctaw’ are short conic in shape and have an attractive glossy black finish (Fig. 2). The fruit is similar in firmness to ‘Shawnee’, but slightly less firm than ‘Cheyenne’ (Table 2). A notable characteristic of ‘Choctaw’ is small seed size. Seeds are significantly smaller than those of other cultivars, which contributes to its overall quality acceptability. The fresh fruit flavor, as evaluated by a panel, rated consistently better than that of ‘Cheyenne’ and ‘Shawnee’. In addition, the panel consistently rated canned fruit of ‘Choctaw’ superior to ‘Cheyenne’ and ‘Shawnee’.

Plants of ‘Choctaw’ are very vigorous and prolific and row establishment is rapid. ‘Choctaw’ produces plants readily from root cuttings. Canes of ‘Choctaw’ are very erect and the fruit are accessible to hand and machine harvest. Plants are self-supporting and require no trellis. Thorn size and density are similar to that of ‘Cheyenne’ and ‘Shawnee’. ‘Choctaw’ produces well when pruned.

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**Table 1. Yield and fruit weight of three blackberry cultivars at four Arkansas locations.**

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Clarksville¹</th>
<th>Fayetteville¹</th>
<th>Bald Knob¹</th>
<th>Hope¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield (t/ha)</td>
<td>Fruit wt (g)</td>
<td>Yield (t/ha)</td>
<td>Fruit wt (g)</td>
</tr>
<tr>
<td>Choctaw</td>
<td>17.0 a</td>
<td>5.7 b</td>
<td>7.2 b</td>
<td>5.1 a</td>
</tr>
<tr>
<td>Cheyenne</td>
<td>14.1 a</td>
<td>5.8 b</td>
<td>10.4 a</td>
<td>5.4 a</td>
</tr>
<tr>
<td>Shawnee</td>
<td>13.9 a</td>
<td>7.7 a</td>
<td>10.0 a</td>
<td>6.1 a</td>
</tr>
</tbody>
</table>

¹Mean separation within columns by Duncan’s multiple range test, *P = 0.05.*

²Means of 2 years, 1986–87. Planting established in 1985 using root cuttings at spacing of 0.6 × 3.05 m.

³Means of 3 years, 1984–86. Planting established in 1981 using root cuttings at spacing of 0.6 × 3.05 m.

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¹Distinguished Professor of Horticulture.

²Resident Director, Fruit Substation.
Table 2. Plant and fruit characteristics of blackberry cultivars at Fruit Substation, Clarksville, Ark.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Harvest date</th>
<th>Seed size</th>
<th>Soluble solids conc.</th>
<th>Firmness</th>
<th>Flavor</th>
<th>Processed quality</th>
<th>Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First</td>
<td>Last</td>
<td>(mg)</td>
<td>(%)</td>
<td></td>
<td></td>
<td>Vigor</td>
</tr>
<tr>
<td>Choctaw</td>
<td>25 May</td>
<td>18 June</td>
<td>2.1 c</td>
<td>8.7 b</td>
<td>8.0</td>
<td>8.7</td>
<td>6.9</td>
</tr>
<tr>
<td>Cheyenne</td>
<td>1 June</td>
<td>3 July</td>
<td>2.5 b</td>
<td>8.5 b</td>
<td>8.5</td>
<td>7.8</td>
<td>6.4</td>
</tr>
<tr>
<td>Shawnee</td>
<td>6 June</td>
<td>3 July</td>
<td>3.9 a</td>
<td>9.3 a</td>
<td>8.2</td>
<td>8.0</td>
<td>6.1</td>
</tr>
</tbody>
</table>

1987 Data.
*Mean separation within columns by Duncan’s multiple range test, \( P = 0.05 \).
*Means of 8 years, 1980-87. Rating scale 1-10; 10 = best.


‘Navaho’ Erect Thornless Blackberry

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Additional index words. Rubus, fruit breeding

One objective of the Arkansas blackberry breeding program has been to develop erect-growing, thornless cultivars that produce self-supporting canes. ‘Navaho’ is the first such release from this program, and, to our knowledge, it is the first fully erect thornless blackberry to be developed worldwide.

Fig. 2. Fruit of ‘Choctaw’ blackberry.

Origin

‘Navaho’, tested as Ark. 1172, resulted from a cross of Ark. 583 x Ark. 631 made in 1977 (Fig. 1). Both parents of ‘Navaho’ are thorny, but are heterozygous for the recessive genes for thornlessness. Ark. 550, a parent of Ark. 631, is a thornless segregate obtained from selfing an F, plant of ‘Thorn-free’ x ‘Darrow’. The original plant of ‘Navaho’ was selected in a seedling field in 1980 and has been tested at three locations in Arkansas and sent to experiment stations in several other states for regional tests. The thornless cane character of ‘Navaho’ results from recessive thornless genes ob-

Table 1. Yield and fruit weight of three blackberry cultivars at three Arkansas locations.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Yield (t·ha⁻¹)</th>
<th>Fruit wt (g)</th>
<th>Yield (t·ha⁻¹)</th>
<th>Fruit wt (g)</th>
<th>Yield (t·ha⁻¹)</th>
<th>Fruit wt (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navaho</td>
<td>6.4 b</td>
<td>5.0 b</td>
<td>10.4 b</td>
<td>4.5 b</td>
<td>11.6 b</td>
<td>4.9 c</td>
</tr>
<tr>
<td>Cheyenne</td>
<td>18.5 a</td>
<td>5.7 b</td>
<td>12.1 ab</td>
<td>4.0 c</td>
<td>14.1 a</td>
<td>5.8 b</td>
</tr>
<tr>
<td>Shawnee</td>
<td>19.2 a</td>
<td>7.8 a</td>
<td>14.3 a</td>
<td>5.2 a</td>
<td>13.9 a</td>
<td>7.7 a</td>
</tr>
</tbody>
</table>

*Mean separation within columns by Duncan’s multiple range test, \( P = 0.05 \).
1987 Data. Planting established in 1985 using root cuttings at spacing of 0.6 x 3.05 m.
*Means of 2 years, 1986-87. Planting established in 1985 using root cuttings at spacing of 0.6 x 3.05 m.

Available

United States Plant Patent no. 6678 has been assigned to ‘Choctaw’. A list of nurseries licensed to propagate and sell ‘Choctaw’ can be obtained from J.N.M., Dept. of Horticulture and Forestry, 316 Plant Science Bldg., Univ. of Arkansas, Fayetteville, AR 72701.

Literature Cited


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