Abstract
Primocane fruiting blackberries have the potential to produce a niche-market crop for Kentucky growers from late summer until frost. The objective of this study was to determine the suitability of advanced primocane fruiting (APF) blackberries from the University of Arkansas Fruit Breeding Program for production in Kentucky. In June 2006, six selections of APF: blackberries from the University of Arkansas breeding program (APF-27, APF-40, APF-41, APF-42, APF-46, and APF-77) and the commercially available primocane fruiting selections ‘Prime-Jim’ and ‘Prime-Jan’, were established at the Kentucky State University Research Farm. Plants were arranged in a randomized complete block design, with four blocks, including 5 plants of each cultivar per block (20 plants of each cultivar). On October 10, 2006, survival, total number of canes, total number of flowering/fruited canes, and vigor (rated visually from 0 to 10) were evaluated in each plot/block for each genotype. First-year survival was excellent for all APF selections. There was a similar number of canes produced in each plot for each genotype; however, the number of flowering canes varied by genotype, with APF-46 producing the most flowering/fruited canes (15), and APF-27 and APF-77 producing the fewest flowering/fruited canes (4). Vigor was similar for all genotypes; however, there was a trend for ‘Prime-Jim’ and ‘Prime-Jan’ plants to be less vigorous than APF selections. First-year survival and vigor were acceptable for APF selections; however, flowering, fruiting, and disease resistance characteristics need to be evaluated over the next 5 years to determine suitability for Kentucky growers.

Introduction
With the decline of the United States tobacco industry, many farmers in Kentucky and the Southeastern U.S. are interested in new high-value crop opportunities (Scott, 2009).

Kentucky’s climate is well-suited for blackberry production; winters are generally severe; although there is disease pressure that comes with the high humidity and temperatures in the region.

Wild blackberries have been harvested in Kentucky, with “U-Pick” and small-scale commercial production emerging in recent years.

Blackberry fruits do not store or ship well, limiting market area, but increasing the demand for local fruit; demand for blackberries often exceeds supply in Kentucky (Ernst et al. 2001).

Blackberry acreage in Kentucky has increased by 25% since 1994; there are currently 150 acres of blackberries in the state (Jones et al. 2005; http://www.usda.gov/nass).

Primocane fruiting blackberries, such as ‘Prime-Jim’ and ‘Prime-Jan’, have the potential to produce a niche-market crop in late summer and into fall on the current primocane season, these varieties flower and fruit from late summer until frost.

However, late summer temperatures above 85°F can greatly reduce fruit set, size, and quality on primocanes; which results in substantial reductions in yield and fruit quality in areas with this temperature range in late summer and fall (Clark et al., 2005).

Objective
The objective of this study was to determine suitability of advanced selections of primocane fruiting blackberries from the University of Arkansas Fruit Breeding Program for production in Kentucky.

Materials and Methods
The trial was established in June 2006 with six advanced selections of primocane fruiting blackberries from the University of Arkansas breeding program (APF-27, APF-40, APF-41, APF-42, APF-46, and APF-77) and the commercially available primocane fruiting blackberries ‘Prime-Jim’ and ‘Prime-Jan’ (Indiana Berry and Plant, Huntington, IN). Plants were arranged in a randomized complete block design, with four blocks, including 5 plants of each cultivar per block (20 plants of each cultivar).

Table 1. First-year survival, total number of canes, total number of flowering/fruited canes, and vigor (rated visually from 0 to 10) evaluated on October 10, 2006 in Kentucky for each primocane fruiting blackberry selection established.

<table>
<thead>
<tr>
<th>Selection</th>
<th>Survival</th>
<th>% of canes</th>
<th>% of flowering/ fruited canes</th>
<th>Vigor</th>
</tr>
</thead>
<tbody>
<tr>
<td>APF-27</td>
<td>100 a</td>
<td>39</td>
<td>4 d</td>
<td>6.6</td>
</tr>
<tr>
<td>APF-40</td>
<td>100 a</td>
<td>32</td>
<td>6 d</td>
<td>6.1</td>
</tr>
<tr>
<td>APF-41</td>
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<td>34</td>
<td>5 d</td>
<td>6.8</td>
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<td>APF-42</td>
<td>100 a</td>
<td>32</td>
<td>6 d</td>
<td>6.0</td>
</tr>
<tr>
<td>APF-46</td>
<td>100 a</td>
<td>39</td>
<td>13 a</td>
<td>7.0</td>
</tr>
<tr>
<td>APF-77</td>
<td>100 a</td>
<td>29</td>
<td>4 d</td>
<td>6.0</td>
</tr>
<tr>
<td>PrimeJim</td>
<td>85 a</td>
<td>31</td>
<td>12 b</td>
<td>4.1</td>
</tr>
<tr>
<td>PrimeJan</td>
<td>85 b</td>
<td>22</td>
<td>9 b</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Discussion
Primocane fruiting blackberries have the potential to produce a niche-market crop for Kentucky growers from late summer until frost; however, the current available primocane blackberry selections ‘Prime-Jim’ and ‘Prime-Jan’ are not suitable for commercial production.

First-year survival and vigor were similar for all selections; however, there was a trend for early flowering and fruiting during the first year of establishment of the planting with APF-46 producing significantly more flowering/fruited canes than other selections.

Although first-year survival and vigor were acceptable for APF selections, fruit weight, flavor, total yield, flowering and harvest dates, disease/insect resistance, and overall plant vigor characteristics need to be evaluated over the next 5 years to determine suitability for Kentucky growers.

References

Figure 1. First-year flowers on primocane fruiting blackberry.
Figure 2. First-year fruit on primocane fruiting blackberry.
Figure 3. Evaluating APF selections in the field, October 2006.