The North American Pawpaw Variety: ‘KSU-Atwood™’
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Abstract
The North American pawpaw variety ‘KSU-Atwood™’ (‘KSU8-2’ cultivar) is released for grower trial by the Horticulture Program of the Kentucky State University Land Grant Program. This pawpaw variety is a high yielding, medium sized fruited, middle to late season ripening variety, with a unique mango-banana-pineapple-like flavor. This selection also naturally forms strong right-angled branches to support high crop loads. The release is named for Rufus B. Atwood, who served as president of Kentucky State College (now University) from 1929 to 1962 and also led efforts for desegregated education in Kentucky in the 1940s.

Origin
The North American pawpaw [Asimina triloba (L.) Duran] is a tree-fruit that is still in the early stages of commercial production (6, 7, 9). Pawpaws can be grown successfully in USDA plant hardiness zones 5 (minimum of -29°C) through 8 (minimum of -7°C) (2). The fruit is very nutritious (4) and has an intense flavor that resembles a combination of banana (Musa acuminata Colla.), mango (Mangifera indica L.), and pineapple [Ananas comosus (L.) Merr.] (1, 3, 10). Pawpaw fruit have fresh market appeal for farmers’ markets, community supported agriculture, and organic markets, as well as processing potential for frozen pulp production (1, 11). Currently, over 45 cultivars are available from nurseries (5, 8); however, new high yielding cultivars with excellent fruit and shipping quality are needed for further development of a pawpaw industry.

‘KSU-Atwood™’ (‘KSU8-2’ cultivar) is the first pawpaw variety released by the Kentucky State University (KSU) Horticulture Program. This selection was grown from open pollinated seed donated by R. Neal Peterson in 1990 that was collected from a seedling tree growing at Wye Research and Education Center (Queenstown, Maryland); this Maryland seedling tree was grown from seed collected from a tree [BEF-49 (Row 10, tree 29)] at the Blandy Experimental Farm (Boyle, Virginia) of unknown genetic origin. Trees at the Blandy Experimental Farm include numerous wild seedlings plus seedlings from portions of G.A. Zimmerman’s collection, donated posthumously; assembled by Orland E. White and staff at Boyce, Va., from 1926 to 1955. This KSU seedling (MD90W062-3) was added to the KSU germplasm collection by Dr. Brett Cullaway in 1990. Through the efforts of Dr. Desmond Layne, KSU was designated as a satellite repository for Asimina preservation in the U.S. Department of Agriculture (USDA), National Plant Germplasm System (NPGS) in 1994 to pursue pawpaw germplasm evaluation, preservation, and dissemination. ‘KSU-Atwood™’ is named for Rufus B. Atwood, who served as president of Kentucky State College (now University) from 1929 to 1962. While improving educational opportunities for African Americans and bringing full accreditation to the college, he also led efforts for desegregated education in Kentucky in the 1940s.

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Description

‘KSU-Atwood™’ has a unique mango-banana-pineapple like flavor and displays strong right angled branching compared to other pawpaw varieties; this will make this selection less susceptible to wind damage when bearing large fruit loads. The fruit is medium to large-sized compared to other commercial varieties and the skin of the fruit has an appealing greenish-blue appearance when ripe.

In a comparison of mature ‘KSU-Atwood™’ to other high yielding commercial varieties, this selection displays superior fruiting characteristics. In a trial at KSU, seedling rootstock was budded in 1999 with the selections ‘KSU-Atwood™’, ‘PA-Golden’ (seedling from George Slate, selected in Amherst, NY), and ‘Mitchell’ (selected from the wild in Jefferson Co., IL) and grown in the greenhouses at KSU Research and Demonstration Farm in Frankfort, KY. In May of 2000, successfully budded trees of ‘KSU-Atwood™’, and the pawpaw cultivars ‘PA-Golden’ and ‘Mitchell’ were planted at the KSU Research and Demonstration Farm (Frankfort, KY) in three replicated blocks. To compare yield and production characteristics of mature trees, cluster counts were conducted in early August for trees of all selections. Trunk cross-sectional area (TCA), yield, yield efficiency (YE), and fruit weights (all fruit produced for each mature tree) were recorded in 2009 and 2010.

Tree size, as measured by TCA, was similar for trees of all cultivars each year (Table 1). The selection ‘KSU-Atwood™’ had similar yields to the high yielding commercial selections ‘PA-Golden’ and ‘Mitchell’. The total number of fruit per tree varied by year, but was similar for all three selections; yield efficiency was higher for ‘KSU-Atwood™’ than in ‘Mitchell’ for 2010. Average fruit weight for ‘KSU-Atwood™’ was greater than either ‘PA-Golden’ or ‘Mitchell’ in both 2009 and 2010. The percentage of large fruit, which would command a higher retail price, was greater in ‘KSU-Atwood™’ than ‘Mitchell’ in both 2009 and 2010. Fruit pulp Brix concentration was higher for ‘KSU-Atwood™’ than ‘PA-Golden’ in both years of the study. ‘KSU-Atwood™’ fruit also had a lower percent seed than

![Graph showing harvest dates for 'KSU-Atwood', 'PA-Golden', and 'Mitchell' for mature trees in 2009 that were planted in 2000 at the Kentucky State University Research and Demonstration Farm.](image-url)
Table 1. Vegetative and fruiting characteristics of 'KSU-Atwood™', 'PA-Golden', and 'Mitchell' in 2009 and 2010 for trees that were planted in 2000 at the Kentucky State University Research and Demonstration Farm.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>TCA (cm²)</th>
<th>Yield/tree (kg)</th>
<th>Yield efficiency¹</th>
<th>Total fruit/tree</th>
<th>Average fruit weight (g)</th>
<th>Fruit&gt;100g (%)</th>
<th>³Brix Propn. seed (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'PA-Golden'</td>
<td>67.6</td>
<td>76.2</td>
<td>29</td>
<td>12</td>
<td>0.43</td>
<td>0.15 ab</td>
<td>377</td>
</tr>
<tr>
<td>'Mitchell'</td>
<td>78.7</td>
<td>88.8</td>
<td>29</td>
<td>10</td>
<td>0.36</td>
<td>0.11 b</td>
<td>447</td>
</tr>
<tr>
<td>'KSU-Atwood™'</td>
<td>68.5</td>
<td>74.4</td>
<td>33</td>
<td>15</td>
<td>0.48</td>
<td>0.20 a</td>
<td>365</td>
</tr>
<tr>
<td>P-value</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

¹ Numbers followed by the same letter are not significantly different (least significant difference P = 0.05). Trunk cross-sectional area (TCA (cm²)) and yield efficiency (YE, kg yield/cm² TCA) are reported in the table.
licensed propagators can be found on the KSU website at: http://www.pawpaw.ksu.edu/LicensedPropagators.htm.

**Literature Cited**


