MANAGING PECAN SCAB THROUGH VARIETY SELECTION - THE GEORGIA PECAN BREEDING PROGRAM

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Scab Resistance

- A primary factor in cultivar choice.
- The resistance of a pecan cultivar will be influenced by the races present where it is grown.
- There tends to more scab pressure as you go south and east.
- Do not plant a susceptible cultivar if you can not spray.
Points to Consider

- Scab varies by location.
- Cultivars often appear to lose resistance over time.
- Black aphids may require spraying even if scab doesn’t.
- Very early cultivars will be heavily fed on by crows, they must be harvested when ready.
- Cultivars with high early yields usually must be crop thinned when mature.
Recommended for low spray / high pressure situations

<table>
<thead>
<tr>
<th>Strong Resistance</th>
<th>Partial Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMillan</td>
<td>Sumner</td>
</tr>
<tr>
<td>Excel</td>
<td>Creek</td>
</tr>
<tr>
<td>Lakota</td>
<td>Moreland</td>
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<tr>
<td>Gafford</td>
<td></td>
</tr>
<tr>
<td>Elliott</td>
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<tr>
<td>Amling</td>
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</tbody>
</table>
McMillan

- Excellent overall pest resistance.
- Medium sized nut.
- Medium quality kernel.
- Excellent productivity.
Yield (pounds / tree) of Excel each year from planting.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>Avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMillan</td>
<td>1</td>
<td>3</td>
<td>18</td>
<td>24</td>
<td>63</td>
<td>35</td>
<td>90</td>
<td>32</td>
<td>88</td>
<td>49</td>
<td>31</td>
</tr>
<tr>
<td>Desirable</td>
<td>1</td>
<td>3</td>
<td>12</td>
<td>20</td>
<td>20</td>
<td>45</td>
<td>53</td>
<td>45</td>
<td>43</td>
<td>57</td>
<td>24</td>
</tr>
<tr>
<td>Stuart</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>20</td>
<td>30</td>
<td>54</td>
<td>48</td>
<td>58</td>
<td>76</td>
<td>68</td>
<td>28</td>
</tr>
<tr>
<td>Cultivar</td>
<td>Nuts / pound</td>
<td>% Kernel</td>
<td>Harvest</td>
<td>Nut scab</td>
<td>Black aphid damage</td>
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</tr>
<tr>
<td>McMillan</td>
<td>51</td>
<td>50</td>
<td>Oct. 12</td>
<td>1.0 (1.0)</td>
<td>1.5 (2.2)</td>
<td></td>
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</tr>
<tr>
<td>Desirable</td>
<td>43</td>
<td>52</td>
<td>Oct. 14</td>
<td>2.5 (4.4)</td>
<td>1.7 (2.7)</td>
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<td></td>
</tr>
<tr>
<td>Stuart</td>
<td>47</td>
<td>45</td>
<td>Oct. 12</td>
<td>1.5 (3.5)</td>
<td>2.3 (3.8)</td>
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</tbody>
</table>
Excel

- Excellent overall pest resistance.
- Large sized nut.
- Thick shell reduces % kernel.
- Thin canopy.
- Earliness is variable, not early in Tifton.
Yield (pounds / tree) of Excel each year from planting.

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</tr>
</thead>
<tbody>
<tr>
<td>Excel</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>17</td>
<td>37</td>
<td>37</td>
<td>74</td>
<td>40</td>
<td>85</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Desirable</td>
<td>1</td>
<td>3</td>
<td>12</td>
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</table>

Excel

![Excel Yield Graph]
<table>
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<tr>
<th>Cultivar</th>
<th>Nuts / pound</th>
<th>% Kernel</th>
<th>Harvest</th>
<th>Nut scab</th>
<th>Black aphid damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excel</td>
<td>45</td>
<td>49</td>
<td>Oct. 7</td>
<td>1.0 (1.0)</td>
<td>1.4 (2.2)</td>
</tr>
<tr>
<td>Desirable</td>
<td>43</td>
<td>52</td>
<td>Oct. 14</td>
<td>2.5 (4.4)</td>
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</table>
Lakota

- USDA release in 2007.
- No scab anywhere, so far.
- Vigorous tree.
- Early harvest, end of Sept.
- High precocity, will need crop thinning.

Variable nut size – 50-55 nuts/lb.
58% kernel
Gafford

- Excellent overall pest resistance.
- Bigger but less quality than McMillan.
- Occasional kernel spotting.
- Midseason harvest.
Yield (pounds / tree) of Excel each year from planting.

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<tbody>
<tr>
<td>Gafford</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>17</td>
<td>40</td>
<td>31</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Desirable</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>29</td>
<td>30</td>
<td>37</td>
<td></td>
<td></td>
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<td>12</td>
</tr>
<tr>
<td>Sumner</td>
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<td>27</td>
<td>25</td>
<td>73</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td>17</td>
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![Graph showing yield over crop years for Gafford cultivar]
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</thead>
<tbody>
<tr>
<td>Gafford</td>
<td>49</td>
<td>51</td>
<td>Oct. 28</td>
<td>1.0 (1.0)</td>
<td>1.1 (1.3)</td>
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<tr>
<td>Desirable</td>
<td>43</td>
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Elliott

- Long standing high resistance.
- Well-known cultivar.
- Alternates.
- Small nut size.

77 nuts / lb.

51% kernel
Amling

- Excellent overall pest resistance.
- Small nut size.
- Midseason harvest.
- Excellent yard tree.

62 nuts / lb.

55% kernel
Sumner

- Popular scab resistant cultivar in Georgia.
- Will scab without sprays.
- Black aphids are a problem.
- Late harvest.
- Good size and quality.
Yield (pounds / tree) of Excel each year from planting.

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<td>2</td>
<td>8</td>
<td>27</td>
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<td>73</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Desirable</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>29</td>
<td>30</td>
<td>37</td>
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</table>
Sumner

% kernel would be improved with crop thinning.

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<tbody>
<tr>
<td>Sumner</td>
<td>54</td>
<td>51</td>
<td>Oct. 29</td>
<td>1.0 (1.0)</td>
<td>1.9 (3.0)</td>
</tr>
<tr>
<td>Desirable</td>
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Creek

- USDA release in 1996.
- 55 nuts/lb and 48% kernel. (without thinning).
- Overloads badly, needs crop thinning.
- Upright strong tree.
- Reported to bear well in competition.
- Only plant it if you will summer crop thin!
Moreland

- 61 nuts/lb and 52% kernel. (without thinning).
- Good yields.
- Crop thinning would be beneficial.
- 1 week after Stuart.
Excellent Resistance

• What I would plant.
  – McMillan: Great overall pest resistance, good productivity.
  – Excel: Good overall pest resistance, large size, needs thinning.
  – Gafford: Pollinator for either McMillan or Excel.

• What I might plant.
  – Lakota: Little data so far, but is early with good quality.
Excellent resistance

- What I wouldn’t plant.
  - Headquarters: Hard to shell, poor looking kernel.
  - Syrup Mill: Percent kernel is too low.
  - Suprize: Kernel quality was terrible in Tifton.
  - Gloria Grande: Kernel was often poor in Tifton, black aphids are bad.
  - Curtis: Too late and small, often spotted.
- Poor Resistance
  - Pawnee
  - Desirable
  - Byrd
  - Cunard
  - Morrill
  - Treadwell
  - Sioux
  - Stuart
  - Forkert
  - Cape Fear
  - Zinner
  - Giftpack
ALL THIS INFORMATION AND MORE IS ON OUR WEBSITE.

SEARCH FOR US UNDER “UGA PECAN BREEDING”.

Dr. Patrick Conner
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