## GRAIN SORGHUM

**Tifton, Georgia:**

*Early-Planted Grain Sorghum Hybrid Performance, 2012*

### Nonirrigated

<table>
<thead>
<tr>
<th>Company or Brand Name</th>
<th>Hybrid</th>
<th>2-Year Average Yield</th>
<th>50% Bloom</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bu/acre</td>
<td>lb/bu</td>
<td>days</td>
<td>in</td>
<td>%</td>
<td>rating</td>
</tr>
<tr>
<td>DeKalb</td>
<td>DKS53-67</td>
<td>139.3</td>
<td>52.3</td>
<td>63</td>
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<tr>
<td>Advanta</td>
<td>XG3101</td>
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<td>60</td>
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<tr>
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<td>83P17</td>
<td>118.2</td>
<td>49.2</td>
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<td>765B</td>
<td>109.1</td>
<td>50.0</td>
<td>68</td>
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<td>GW 9417G</td>
<td>98.7</td>
<td>47.1</td>
<td>64</td>
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</tbody>
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### Average

<table>
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<tr>
<th>2-Year Average Yield</th>
<th>50% Bloom</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>115.0</td>
<td>83.3</td>
<td>48.8</td>
<td>64</td>
<td>53</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LSD at 10% Level</th>
<th>Std. Err. of Entry Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.9</td>
<td>5.7</td>
</tr>
</tbody>
</table>

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. CV = 9.9% and df for EMS = 18.
5. The F-test indicated no statistical differences at the alpha = 0.10 probability level; therefore, an LSD value was not calculated.

**Bolding** indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Harvested: August 10, 2012.  
Seeding Rate: 100,000 seed/acre in 30” rows.  
Soil Type: Dothan loamy sand.  
Soil Test: P = Medium, K = Medium, and pH = 6.1.  
Previous Crop: Dryland peanuts.  
Management: Disked, subsoiled, bedded, and rototilled: Atrazine used for weed control; Lorsban used for insect control.

Test conducted by A. Coy, R. Brooke, and D. Dunn.
### Tifton, Georgia:
#### Late-Planted Grain Sorghum Hybrid Performance, 2012

**Nonirrigated**

<table>
<thead>
<tr>
<th>Company or Brand Name</th>
<th>Hybrid</th>
<th>2-Year Average Yield</th>
<th>Test Wt.</th>
<th>50% Bloom</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bu/acre</td>
<td>bu/acre</td>
<td>lb/bu</td>
<td>days</td>
<td>in</td>
<td>%</td>
<td>rating</td>
</tr>
<tr>
<td>DeKalb</td>
<td>DKS53-67</td>
<td><strong>44.9</strong></td>
<td><strong>63.5</strong></td>
<td>50.2</td>
<td>57</td>
<td>46</td>
<td>4</td>
</tr>
<tr>
<td>Pioneer</td>
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<td><strong>44.4</strong></td>
<td><strong>58.9</strong></td>
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<td>Dyna Gro</td>
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<td><strong>35.4</strong></td>
<td></td>
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<td>67</td>
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<td>5</td>
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<tr>
<td>Average</td>
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<td>60</td>
<td>45</td>
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<tr>
<td>LSD at 10% Level</td>
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<td>N.S.</td>
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<td>3</td>
<td>3</td>
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<tr>
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<td>9.2</td>
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</table>

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. CV = 28.2% and df for EMS = 18.
5. The F-test indicated no statistical differences at the alpha = 0.10 probability level; therefore, an LSD value was not calculated.

**Bolding** indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: June 1, 2012.
Harvested: September 24, 2012.
Seeding Rate: 100,000 seed/acre in 30” rows.
Soil Type: Dothan loamy sand.
Soil Test: P = Medium, K = Medium, and pH = 6.1.
Previous Crop: Dryland peanuts.
Management: Disked, subsoiled, bedded, and rototilled: Gly-Star Plus used for weed control; Lorsban used for insect control.

Test conducted by A. Coy, R. Brooke, and D. Dunn.
**Plains, Georgia:**
*Early-Planted Grain Sorghum Hybrid Performance, 2012*

**Nonirrigated**

<table>
<thead>
<tr>
<th>Company or Brand Name</th>
<th>Hybrid</th>
<th>2-Year Average Yield¹</th>
<th>Test Wt.</th>
<th>50% Bloom²</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease³</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>bu/acre</td>
<td>Yield</td>
<td>lb/bu</td>
<td>days</td>
<td>in</td>
<td>%</td>
</tr>
<tr>
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<td>DKS53-67</td>
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<td>55.9</td>
<td>68</td>
<td>48</td>
<td>1</td>
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<tr>
<td>Pioneer</td>
<td>83P17</td>
<td>71.9</td>
<td>67.4</td>
<td>51.8</td>
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<td>0</td>
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<tr>
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<td>56.3</td>
<td>73</td>
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<td>54.5</td>
<td>53.4</td>
<td>70</td>
<td>48</td>
<td>6</td>
</tr>
<tr>
<td>Alta Seeds</td>
<td>AG2101</td>
<td>63.1</td>
<td>.</td>
<td>48.8</td>
<td>72</td>
<td>46</td>
<td>1</td>
</tr>
<tr>
<td>Gayland Ward</td>
<td>GW 9417</td>
<td>53.0</td>
<td>.</td>
<td>56.2</td>
<td>69</td>
<td>49</td>
<td>4</td>
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<tr>
<td>Dyna Gro</td>
<td>765B</td>
<td>51.1</td>
<td>.</td>
<td>50.9</td>
<td>77</td>
<td>50</td>
<td>0</td>
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<tr>
<td><strong>Average</strong></td>
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<td>63.7</td>
<td>62.8</td>
<td>53.3</td>
<td>71</td>
<td>47</td>
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<tr>
<td><strong>LSD at 10% Level</strong></td>
<td></td>
<td>6.8</td>
<td>N.S.⁵</td>
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<td>3</td>
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<td><strong>Std. Err. of Entry Mean</strong></td>
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</table>

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. CV = 8.6% and df for EMS = 18.
5. The F-test indicated no statistical differences at the alpha = 0.10 probability level; therefore, an LSD value was not calculated.

**Bolding** indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Harvested: September 8, 2012.
Seeding Rate: 100,000 seed/acre in 30" rows.
Soil Type: Greenville sandy loam.
Soil Test: P = Medium, K = High, and pH = 6.3.
Previous Crop: Cotton.
Management: Disked, subsoiled, and bedded; Atrazine used for weed control.

Test conducted by A. Coy, R. Pines, D. Pearce, R. Brooke, and D. Dunn.
### Plains, Georgia:
**Late-Planted Grain Sorghum Hybrid Performance, 2012**

#### Nonirrigated

<table>
<thead>
<tr>
<th>Company or Brand Name</th>
<th>Hybrid</th>
<th>2-Year Average Yield&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Test Wt.</th>
<th>50% Bloom&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>bu/acre</td>
<td>lb/bu</td>
<td>days</td>
<td>in</td>
<td>%</td>
<td>rating</td>
</tr>
<tr>
<td>DeKalb</td>
<td>DKS53-67</td>
<td><strong>64.3</strong></td>
<td>60.7</td>
<td>59</td>
<td>37</td>
<td>0</td>
<td>1.5</td>
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<td>Alta Seeds</td>
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<td>55.0</td>
<td>59</td>
<td>39</td>
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<td>1.5</td>
</tr>
<tr>
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<td>53.6</td>
<td>57</td>
<td>40</td>
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<td>38</td>
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<td>2.0</td>
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<td>57.0</td>
<td>58</td>
<td>37</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
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<td>765B</td>
<td>48.0</td>
<td>53.2</td>
<td>62</td>
<td>43</td>
<td>2</td>
<td>2.5</td>
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<tr>
<td>Pioneer</td>
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<td>38.7</td>
<td>46.9</td>
<td>49.1</td>
<td>61</td>
<td>39</td>
<td>0.4</td>
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</tbody>
</table>

#### Average
- 51.3<sup>4</sup> bu/acre, 54.3 lb/bu, 39% lodging, 1.8 rating

#### LSD at 10% Level
- 9.2
- N.S.<sup>5</sup>
- 3.7
- 2.4
- 1.5
- 1
- 1
- 0.2

---

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. CV = 14.6% and df for EMS = 18.
5. The F-test indicated no statistical differences at the alpha = 0.10 probability level; therefore, an LSD value was not calculated.

**Bolding** indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

**Planted:** May 31, 2012.

**Harvested:** September 21, 2012.

**Seeding Rate:** 100,000 seed/acre in 30” rows.

**Soil Type:** Greenville sandy loam.

**Soil Test:** P = Medium, K = High, and pH = 6.3.

**Fertilization:** Preplant: 15 lb N, 66 lb P<sub>2</sub>O<sub>5</sub>, and 18 lb K<sub>2</sub>O/acre. Sidedress: 80 lb N/acre.

**Previous Crop:** Cotton.

**Management:** Disked, subsoiled, and bedded; Atrazine used for weed control.

Test conducted by A. Coy, R. Pines, D. Pearce, R. Brooke, and D. Dunn.
## Griffin, Georgia:
### Early-Planted Grain Sorghum Hybrid Performance, 2012
#### Nonirrigated

<table>
<thead>
<tr>
<th>Company or Brand Name</th>
<th>Hybrid</th>
<th>2-Year Average Yield</th>
<th>Test Wt.</th>
<th>50% Bloom</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease</th>
<th>Bird Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bu/acre</td>
<td>lb/bu</td>
<td>days</td>
<td>in</td>
<td>%</td>
<td>rating</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Pioneer</td>
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<td>92.1</td>
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<td>78</td>
<td>34</td>
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<td>18</td>
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<tr>
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<td>81.2</td>
<td>56.2</td>
<td>79</td>
<td>39</td>
<td>1</td>
<td>1.6</td>
<td>19</td>
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<tr>
<td>DeKalb</td>
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<td>67</td>
<td>35</td>
<td>1</td>
<td>1.9</td>
<td>26</td>
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<tr>
<td>Gayland Ward</td>
<td>GW 9417</td>
<td>70.5</td>
<td>53.9</td>
<td>69</td>
<td>36</td>
<td>1</td>
<td>1.5</td>
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</tr>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Advanta</td>
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<td>30</td>
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<tr>
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<td>71</td>
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<td>1.7</td>
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<tr>
<td>LSD at 10% Level</td>
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<td>1</td>
<td>1</td>
<td>-</td>
<td>0.1</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. Percent of grain head damaged.
5. CV = 27.5% and df for EMS = 18.
6. The F-test indicated no statistical differences at the alpha = 0.10 probability level; therefore, an LSD value was not calculated.

**Bolding** indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

- **Planted:** May 31, 2012.
- **Harvested:** October 24, 2012.
- **Seeding Rate:** 100,000 seed/acre in 30" rows.
- **Soil Type:** Cecil sandy clay loam.
- **Soil Test:** P = Medium, K = High, and pH = 6.0.
- **Fertilization:** Preplant: 30 lb N, 60 lb P<sub>2</sub>O<sub>5</sub>, and 90 lb K<sub>2</sub>O/acre. Sidedress: 100 lb N/acre.
- **Previous Crop:** Soybeans.
- **Management:** Chisel plowed, disked, and rototilled; Atrazine and one cultivation used for weed control.

Test conducted by J. Gassett and G. Ware.
### Griffin, Georgia:
#### Late-Planted Grain Sorghum Hybrid Performance, 2012

#### Nonirrigated

<table>
<thead>
<tr>
<th>Company or Brand Name</th>
<th>Hybrid</th>
<th>2-Year Average Yield</th>
<th>Test Wt.</th>
<th>50% Bloom</th>
<th>Plant Ht.</th>
<th>Lodging</th>
<th>Disease</th>
<th>Bird Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>bu/acre</td>
<td>bu/acre</td>
<td>lb/bu</td>
<td>days</td>
<td>in</td>
<td>%</td>
<td>rating</td>
</tr>
<tr>
<td>Pioneer</td>
<td>83P17</td>
<td>107.3</td>
<td>82.1</td>
<td>57.2</td>
<td>60</td>
<td>49</td>
<td>1.0</td>
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<tr>
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<td>DKS53-67</td>
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<td>46</td>
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<td>47</td>
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<td>765B</td>
<td>78.3</td>
<td></td>
<td>58.3</td>
<td>60</td>
<td>50</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>92.9</td>
<td>79.0</td>
<td>58.6</td>
<td>58</td>
<td>46</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>LSD at 10% Level</td>
<td></td>
<td>12.9</td>
<td>N.S.</td>
<td>0.5</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>0.3</td>
</tr>
<tr>
<td>Std. Err. of Entry Mean</td>
<td></td>
<td>5.3</td>
<td>6.6</td>
<td>0.2</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>0.1</td>
</tr>
</tbody>
</table>

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. Percent of grain head damaged.
5. CV = 11.4% and df for EMS = 18.
6. The F-test indicated no statistical differences at the alpha = 0.10 probability level; therefore, an LSD value was not calculated.

**Bolding** indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: July 2, 2012.
Harvested: October 24, 2012.
Seeding Rate: 100,000 seed/acre in 30" rows.
Soil Type: Appling coarse sandy loam.
Soil Test: P = High, K = High, and pH = 6.1.
Fertilization: Preplant: 30 lb N, 60 lb P2O5, and 90 lb K2O/acre. Sidedress: 100 lb N/acre.
Previous Crop: Fallow.
Management: Moldboard plowed, disked, and rototilled; Basagran and one cultivation used for weed control.

Test conducted by J. Gassett and G. Ware.
Grain Sorghum Hybrid Resistance to Insect and Bird Damage, 2012

Xinzhi Ni, Michael D. Toews and G. David Buntin

Seven grain sorghum hybrids were evaluated for resistance to insect and bird damage in 2012. Although their damage was relatively low in general in 2012, five insect pests were observed on sorghum in south Georgia. They could be listed in order of importance as follows: sorghum midge, leaf-footed bug, fall armyworm and stink bugs (southern green and brown stink bugs). Aphid, headworm complex (i.e., corn earworm, and sorghum webworm) and chinch bug populations were low; so were plant diseases in the experimental plots in 2012.

The hybrids were planted with four replications on June 13, 2012. The flowering date (or days to anthesis) was recorded in August. The flowering time (50% plants with flowering panicles) of the seven hybrids was 60-63 days after planting (as shown in the following table), ranging between 58 and 65 days in the four replications. The whorl damage by natural fall armyworm population was assessed on July 16, 2012. Because there was no difference in fall armyworm damage among the hybrids, the data were not included in the table. Sorghum midge and bird damage were rated on September 25, 2012. The sorghum midge damage was rated according to the visual estimates of grain loss. Grain loss caused by the midge infestation can be separated from other factors using the whitish-cast skins hanging at the tip of glumes during pre-harvest examination. The sorghum midge damage was assessed according to the following rating scale: Very Good = 0-15%; Good = 16-30%; Fair = 31-75%; and Poor = more than three quarters (> 75%) empty glumes per sorghum panicle. In addition, the assessment of bird damage on developing kernels was based on the following scale: Very Good (VG) = less than 10% loss; Good (G) = 11-25% loss; Fair (F) = 26-50% loss; and Poor (P) = more than 50% loss of grains per panicle. The bird damage could be reduced by timely harvest of the crop in general.

The sorghum midge is a cyclic insect pest in grain sorghum production in the southern Coastal Plain region. The overall damage caused by sorghum midge is usually high on late flowering hybrids. The midge damage was very low in 2012, rated as Very Good (VG) (< 15% grain loss), in all hybrids except hybrid ‘83P17’ in 2012 with the June planting. Hybrid ‘83P17’ was rated good (G) (< 30% grain loss). In addition, all entries showed a low level of bird damage when it was evaluated on September 25, 2012, which was more than three months after planting and more than one month after flowering. All bird damage ratings were also relatively low (≤ 25%) this year in comparison with the previous years. The hybrids ‘AG3201,’ ‘83P17’ and ‘XG3103’ showed less bird damage than the other four hybrids. Based on the data collected in 2012 with the principal components analysis, the two best hybrids showing resistance to fall armyworm, midge and bird damage were ‘DKS53-67’ and ‘XG3103.’

It is highly recommended that growers use available insect- and disease-resistant hybrids, which is one of the most economical pest management strategies for sorghum production in our region. The information on both insect and bird damage might vary based on planting dates, with later plantings tending to have increased insect pest pressure. For further integrated insect management information, please consult with your local county agent and/or Extension entomologists.

This test was maintained and flowering-date data were collected by Penny Tapp, Jonathan Roberts, and Joshua Gamblin from the Crop Genetics and Breeding Research Unit, USDA-ARS, Coastal Plain Experiment Station, University of Georgia, Tifton, Ga.
### Evaluation of Grain Sorghum Hybrids for Resistance to Insect and Bird Damage, 2012, Tifton, Georgia

<table>
<thead>
<tr>
<th>Brand</th>
<th>Hybrid</th>
<th>Days to Anthesis</th>
<th>Midge Resistance</th>
<th>Bird-feeding resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2012</td>
<td>2+ years</td>
<td>2012</td>
</tr>
<tr>
<td>Advanta</td>
<td>XG3103</td>
<td>62</td>
<td>VG</td>
<td>VG</td>
</tr>
<tr>
<td>Alta</td>
<td>AG2101</td>
<td>61</td>
<td>VG</td>
<td>G</td>
</tr>
<tr>
<td>Alta</td>
<td>AG3201</td>
<td>60</td>
<td>VG</td>
<td>VG</td>
</tr>
<tr>
<td>Dekalb</td>
<td>DKS53-67</td>
<td>61</td>
<td>VG</td>
<td>VG</td>
</tr>
<tr>
<td>Dyna-Gro</td>
<td>765B (GX 12564)</td>
<td>62</td>
<td>VG</td>
<td>G</td>
</tr>
<tr>
<td>Gayland Ward</td>
<td>GW 9417</td>
<td>61</td>
<td>VG</td>
<td>G</td>
</tr>
<tr>
<td>Pioneer</td>
<td>83P17</td>
<td>63</td>
<td>G</td>
<td>G-</td>
</tr>
</tbody>
</table>

1. The test plots were maintained with irrigation.
2. Days from planting to 50% bloom.
3. For sorghum midge resistance: Very Good (VG) = 0-15%, Good (G) = 16-30%, Fair (F) = 31-75%, and Poor (P) = >75% glumes are without grains on a panicle.
4. Bird-feeding resistance: Very Good (VG) = less than 10% loss; Good (G) = 11-25% loss; Fair (F) = 26-50% loss; and Poor (P) = over 50% loss.