Implementing Crop Sensors for Cotton Production
Concepts for PGRs and Harvest Aids

PGR and Defoliant Application with Crop Sensors
Concept
- Higher biomass = higher rates
- Higher sensor values = higher rates

PGR and Harvest Aid Application with Crop Sensors
Application
- PGR’s:
  1. Real-time, variable-rate application
  2. Sensor data to Rx map
- Harvest Aids
  • Sensor data to Rx map
  • Collect data during PGR applications to base Rx Maps
PGR Algorithms

- Determined prior to application
- Make 1 pass across field which depicts a range of cotton biomass

Assigning Rates

<table>
<thead>
<tr>
<th>NDVI</th>
<th>GPA</th>
<th>Oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>0.85</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>&gt; 0.9</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
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Variable-Rate PGRs Application in Cotton

Example of a variable-rate application of plant growth regulator in cotton as a function of biomass:

Higher biomass = more product
Results and Issues

• More aggressive with PGR’s
• Less product used (10% to 25%)
• Manage cotton to be more uniform by harvest

• ISSUE
  – Multiple product application with PIX
  – Difficult to balance concurrent PGR and insecticide applications when varying rates

Harvest Aids

Map to Rx Steps
1. Collect sensor data
2. Interpolate, scout (take images and/or notes)
3. Generate application zones
4. Establish desired rates
5. Generate Rx Map

Harvest Aids VR Application

• Use prior sensor data to generate Rx maps
• 3 to 5 application zones
• Assign desired rate to each zone

Mid July  Early August
Summary Comments…

- PGR: real-time + map
- Defoliants: Rx map based (AgGIS software)
- Nitrogen
  - A bit more tricky (scouting needed)
  - Real-time has shown to be more profitable than uniform N
  - Success using sensors to map biomass, scout then generate Rx nitrogen maps