Irrigation Management: An Agronomist’s Perspective

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Photo courtesy of Texas AgriLife Extension Service
General Thoughts on Irrigation

• Irrigation is one of the best tools that we have yet it is the least well understood

• Water for irrigation is becoming an increasingly precious resource
  – San Joaquin Valley

• We must become better stewards of this resource
Typical Irrigation Questions

• When can I stop irrigating?
  – Growth stage
  – Depends on your irrigation system
  – Soil texture

• When should I start irrigating?
  – Depends
  – When irrigation usually starts

• How long should I wait between irrigations?
Transitioning to Irrigation

• Variety selection

• Management of vegetative growth

• Insect management
  – Plant bugs
  – Stink bugs
Transitioning to Irrigation

• Variety selection

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Plant Height

<table>
<thead>
<tr>
<th></th>
<th>Dryland</th>
<th>Irrigated</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 5288 - No PGR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST 5288 - 1 PGR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST 5288 - 2 PGR</td>
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</tbody>
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Transitioning to Irrigation

• Variety selection
• Management of vegetative growth
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Irrigation Advantages

• Potential for increased crop production
• Increased land value
• Herbicide activation
• Fertigation
On-Farm Experiments

• Interest in improving irrigation management

• Decagon and Watermark soil moisture sensors installed at Bush Farms near Money, MS
  – Equipped with wireless communication

• Evaluate the effectiveness of soil moisture sensors for scheduling irrigation
  – Ease of use
  – Yield
  – Water savings
Bush Farms – Money, MS

22.3 ac
6/25
7/11
8/2

22.3 ac
7/10
8/8

18.7 ac
6/30
7/26
8/5

29.4 ac
7/5
8/7
Total Water Used

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW - 3 Irr.</td>
<td>40000000</td>
</tr>
<tr>
<td>SW - 3 Irr.</td>
<td>45000000</td>
</tr>
<tr>
<td>NE - 2 Irr.</td>
<td>35000000</td>
</tr>
<tr>
<td>SE - 2 Irr.</td>
<td>35000000</td>
</tr>
</tbody>
</table>
Water Utilization

- NW - 3 Irr.: Pumping Time 11.3, Acre Inches 2.2
- SW - 3 Irr.: Pumping Time 12.6, Acre Inches 2.9
- NE - 2 Irr.: Pumping Time 15.8, Acre Inches 3
- SE - 2 Irr.: Pumping Time 16.1, Acre Inches 2.3
Lessons Learned

• We must continue to fine tune our production systems
  – Intervals between watering?

• We can produce high yields with less water
  – Where is the edge?

• Using sensors without wireless communications – PITA
Using Moisture Sensors

• Sensor installation requires time and technique
  – How many sensors are required for accurate scheduling?
  – Must be done each year

• The ability to view data from office improves efficiency

• Education is needed regarding values provided by sensors
Thank You

- Chris Bush and family
- Cotton Incorporated
- Lyle Pringle
- Jerry Singleton

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