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2. **Choices for Soybean Growers**
   - Increase yield
   - Reduce production costs
   - Improve marketing skills
   - Adopt new risk management strategies
   - Differentiate from commodity products, management and/or markets
   - Plant other crops, idle the ground or exit the business

3. **Disease & Soil Fertility Management**

4. **Considerations for Identity Preserved Crops**
   - **Premiums and Discounts**
     - Feed vs. food
     - Domestic use vs. exports
   - **Legal Implications**
     - Paperwork and records
     - Testing and sample retention
     - Implied warranty of fitness
   - **Production Practices**
     - Seed specifics:
       - Variety/hybrid planted
       - Lot numbers
       - Location planted
       - Field maps
     - Cross-pollination and buffer strips
     - Clean out planter, combine, bins and equipment
     - Harvest timing, grain delivery and storage

Page 10

Page 12
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Disease and Soil Fertility Management

- How to recognize Soybean Cyst Nematode, Sclerotinia Stem Rot, and Sudden Death Syndrome
- How pathogens move in the soil
- Impact of fertility, planting date and row width on diseases and crop production

Page 13

Sudden Death Syndrome

- Symptoms: interveinal, chlorotic spots which turn necrotic and eventually coalesce; leaflets may drop and leave petioles attached
- Signs: bluish fungal colonies on the taproots
- Look-alike symptoms: Brown stem rot, Stem canker, Phytophthora root rot, and several herbicides

Page 14
Maximizing Yield
<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Grain</th>
<th>Plant</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>222</td>
<td>120</td>
<td>342</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>50</td>
<td>30</td>
<td>80</td>
</tr>
<tr>
<td>Potassium</td>
<td>86</td>
<td>48</td>
<td>134</td>
</tr>
<tr>
<td>Secondary Nutrients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Magnesium</td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Sulfur</td>
<td></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>
**Sclerotinia Stem Rot (White Mold)**

- **Symptoms:** Wilting plants during pod development, dead plants as season progresses, bleached stems on dead plants
- **Signs:** White, fluffy mycelium and sclerotia
- **Look-alike symptoms:** Brown stem rot and late season root rots

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**How Pathogens Move in the Soil**

- Growth through soil
- Swimming spores
- Soil movement
- Movement with seed

---

**Enhancing Soybean Value**
Enhancing Soybean Value

Sclerotinia sclerotiorum Life Cycle and Soybean Plant Development

Table 33: Effects of planting date on VMR

- Early May: 38
- Mid-May: 59
- Early June: 62
- Mid-June: 71
- Early July: 81

Page 18

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Enhancing Soybean Value

- Competing in the global market
- Determining net revenue returns
- Exploring opportunities for contracting
- Examining value-added identity traits and markets

Page 9

Conventional Soybeans

Page 35

Effect of Plant Density on Yield

<table>
<thead>
<tr>
<th>Density in Row Spacing (inches)</th>
<th>Yield Increase Without Disease (%)</th>
<th>Value Added Potential Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 x 30</td>
<td>50+2</td>
<td>Low</td>
</tr>
<tr>
<td>30 x 30</td>
<td>50+7</td>
<td>Low</td>
</tr>
<tr>
<td>20 x 30</td>
<td>30+5</td>
<td>Medium</td>
</tr>
<tr>
<td>20 x 5</td>
<td>15+5</td>
<td>High</td>
</tr>
</tbody>
</table>

Page 18

Precision Technology: Apply Tools, Improve Management

Page 36

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prectech1
Use precision technology to improve management:
- Look to learn and learn to see
- GPS your place in farming
- Learn to map and develop management zones
- Taste and feel the power of site-specific farming

What is your management goal?
What do you want this technology to do for you?

Surface Crop Photo

Soil Survey Map and Bare Soil Photo
Aerial Crop Photo

Electrical Conductivity Map

Management Zones

How Often ... Why?

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Soybean and Corn November Prices

Tillage options:
- Disk 2X
- Disk 1X + Field Cultivate 1X
- No-Till

Planting options:
- Row planter
  - 30-20
  - 30-15
- Drill

Inoculation:
- Absolute must if:
  - Never planted soybeans
  - No soybeans for 3 years
Inoculation:
♀ New products:
♀ Liquids
♀ Dry forms

<table>
<thead>
<tr>
<th>Seed Rate</th>
<th>Final Population</th>
<th>Survival Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>180</td>
<td>160</td>
</tr>
<tr>
<td>180</td>
<td>162</td>
<td>144</td>
</tr>
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<td>160</td>
<td>144</td>
<td>128</td>
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<td>140</td>
<td>126</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td></td>
<td>98</td>
</tr>
</tbody>
</table>

Rotate with soybean
♀ Reduce tillage and drying
♀ Reduce applied N
♀ Improve pest and disease control
♀ Increase yield

Soybeans
♀ Lower production costs
♀ Favorable loan rate
## Irrigated Production Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>$104</td>
<td>$ 56</td>
</tr>
<tr>
<td>Energy/repairs</td>
<td>75</td>
<td>58</td>
</tr>
<tr>
<td>Insurance,interest</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>Depreciation</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>Listed Costs</td>
<td>$240</td>
<td>$156</td>
</tr>
</tbody>
</table>

## Net @ Loan Rates

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>175 bu/A</td>
<td>54 bu/A</td>
</tr>
<tr>
<td>Price</td>
<td>$1.82/bu</td>
<td>$5.09/bu</td>
</tr>
<tr>
<td>Revenue</td>
<td>$319</td>
<td>$275</td>
</tr>
<tr>
<td>Cost</td>
<td>(240)</td>
<td>(156)</td>
</tr>
<tr>
<td>Net</td>
<td>$79</td>
<td>$119</td>
</tr>
</tbody>
</table>

## Net @ 10 Year Average Prices

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>175 bu/A</td>
<td>54 bu/A</td>
</tr>
<tr>
<td>Price</td>
<td>$2.37</td>
<td>$5.74</td>
</tr>
<tr>
<td>Revenue</td>
<td>$414</td>
<td>$310</td>
</tr>
<tr>
<td>Cost</td>
<td>(240)</td>
<td>(156)</td>
</tr>
<tr>
<td>Net</td>
<td>$174</td>
<td>$154</td>
</tr>
</tbody>
</table>

## Corn & Soybean Revenue by Planting Date

- Potential 175 bu/A corn, 55 bu/A beans:
  - Corn revenue peaks in mid-June.
  - Soybean revenue peaks in late June.

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Soybean Weed Control: Reduce Costs, Minimize Yield Loss

This field stop will cover:
- Improving sprayer performance
- Weed control timing
- Conditions affecting weed control
- Customizing your weed management plan
- Economics of weed management

Influence of Weed Removal and Row Spacing on Yield

Timing of Weed Control and Weed Size
Weed size and CPWC:
- If weeds emerge before crop or are taller than crop, control them 4-5 days (1-2 crop leaf) before CPWC
- If weeds emerge 5-10 days after crop, wait 5-10 days (2-3 crop leaves) to start control

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Timing of Weed Control
and Weed Size

Weed size and herbicide rates:
- Larger weeds need higher herbicide rate
  - Example: Roundup rates
  - Reduced rate 6-24 oz.
  - (annual grasses 3-8” tall; broadleaf less than 6”)
  - Full rate 32 oz
  - (taller grasses and other broadleafs)
  - Magnum rates 40-64 oz

(smartweeds, bindweed, morning glories, sweet clover)

Effects on Weed Control

<table>
<thead>
<tr>
<th>Increased Control</th>
<th>Decreased Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow Rows</td>
<td>Wide Rows</td>
</tr>
<tr>
<td>Rapid Emergence</td>
<td>Slow Emergence</td>
</tr>
<tr>
<td>Even Stand</td>
<td>Uneven Stand</td>
</tr>
<tr>
<td>Low Weed Population</td>
<td>High Weed Population</td>
</tr>
<tr>
<td>Good Moisture</td>
<td>Dry Conditions</td>
</tr>
<tr>
<td>Warm Temperatures</td>
<td>Cool Temperatures</td>
</tr>
<tr>
<td>Small Weeds</td>
<td>Large Weeds</td>
</tr>
<tr>
<td>Correct Additives</td>
<td>Wrong/No Additives</td>
</tr>
<tr>
<td>Uniform Spray Coverage</td>
<td>Poor Spray Coverage</td>
</tr>
</tbody>
</table>

Row Spacing: Yield Increase without Disease

<table>
<thead>
<tr>
<th>Row Spacing</th>
<th>Yield Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 to 30 inch</td>
<td>8 to 12%</td>
</tr>
<tr>
<td>30 to 20 inch</td>
<td>5 to 7%</td>
</tr>
<tr>
<td>20 to 10 inch</td>
<td>3 to 5%</td>
</tr>
<tr>
<td>10 to 7 inch</td>
<td>0 to 2%</td>
</tr>
</tbody>
</table>