2008 Wisconsin Corn Conference Sponsors

- Dairyland Seed Company
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- Mycogen Seeds
- NK Brand Syngenta Seeds
- Pioneer Hi-Bred, International
- Legacy Seeds
- Syngenta Crop Protection
- Trelay Seed Company
- UAP Distribution
- Rural Mutual Insurance Company
- Contree Sprayer and Equipment Company
- Wisconsin Corn Promotion Board
- Wisconsin Corn Growers Association
- University of Wisconsin Agronomy Department
- University of Wisconsin Cooperative Extension
- UWEX Cooperating Counties – Barron, Richland, and Dodge
Key Management Practices for Profitable Corn Production in the Northern Corn Belt

Joe Lauer
University of Wisconsin

2008 Wisconsin Corn Conferences
Rice Lake, Johnson Creek, and Richland Center
January 10, 21 and 22
Corn yield in Wisconsin since 1866

- Top Hybrid = 2.6 bu/A yr
- Arlington = 2.7 bu/A yr
- Marshfield = 2.6 bu/A yr
  source: UW Hybrid Trials

- 1866 to 1930 = 0.0 bu/A yr
- 1931 to 1995 = 1.4 bu/A yr
- 1996 to 2006 = 1.9 bu/A yr
  source: USDA Statistics

The yield march continues...

- Open Pollinated Era
- Hybrid Era
- Transgenic Era
Corn Yield Progress in Wisconsin
(Top Producer in Category)

All = 3.6 bu/A yr
- PEPS Cash Corn = 4.8 bu/A yr
- PEPS Livestock Corn = 4.4 bu/A yr
- NCGA Non Irrigated = 4.8 bu/A yr
- NCGA No Till/Strip Till Non Irrigated = 4.5 bu/A yr
- NCGA No Till/Strip Till Irrigated = 3.0 bu/A yr
- NCGA Irrigated = 3.2 bu/A yr
- NCGA Ridge Till Irrigated = 3.3 bu/A yr
- NCGA Ridge Till Non Irrigated = 3.5 bu/A yr

Source: Data derived from grower yield contests
(PEPS = 1987 to 2006; NCGA = 1983 to 2006)
Get a Grip on Production Costs

- How much does it cost to grow an acre of corn?
- How do you compare to other corn producers?
- If inputs are changed, how do they affect other input decisions?
- Account for overhead
- Most fields have similar costs of production.

✓ Grower returns differ by doing the right thing in the right place at the right time.
Profits through Efficient Production Systems

- **Objectives**
  - Cost analysis of grain enterprises
  - Emphasize soil and water conservation, efficiency, profitability, and competitiveness vs. productivity alone
  - Recognize the way efficient growers integrate practices into a system

- **Divisions**
  - Corn, Cash Crop
  - Corn, Livestock
  - Corn, Silage
  - Soybean
## Differences between the High (20%) and Low (20%) profit groups

<table>
<thead>
<tr>
<th></th>
<th>Cash Corn (n=108)</th>
<th>Livestock Corn (n=77)</th>
<th>Soybean (n=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High 20%</td>
<td>Low 20%</td>
<td>High 20%</td>
</tr>
<tr>
<td>Grain yield (bu/A)</td>
<td>221</td>
<td>172</td>
<td>222</td>
</tr>
<tr>
<td>Grain moisture (%)</td>
<td>18.7</td>
<td>20.6</td>
<td>18.1</td>
</tr>
<tr>
<td>Acre Cost ($/A)</td>
<td>$315</td>
<td>$313</td>
<td>$242</td>
</tr>
<tr>
<td>Bushel cost ($/bu)</td>
<td>$1.43</td>
<td>$1.83</td>
<td>$1.09</td>
</tr>
<tr>
<td>Grower return ($/A)</td>
<td>$204</td>
<td>$74</td>
<td>$230</td>
</tr>
</tbody>
</table>

*Source: Lauer (2003-2007)*

http://corn.agronomy.wisc.edu
How much does it cost to produce corn in WI?
(*=projected from previous five years)

Data derived from PEPS cash corn division

Cost ($/A) vs. Cost ($/bu)

- **Cost per Acre ($/A)**
  - $350
  - $300
  - $250
  - $200
  - $150
  - $100

- **Cost per bushel ($/bu)**
  - $3.50
  - $3.00
  - $2.50
  - $2.00
  - $1.50
  - $1.00

Equation for Cost per Acre:
y = 2.73x - 5157
R² = 0.51

Equation for Cost per bushel:
y = -0.02x + 36
R² = 0.31

Source: Lauer
# Corn and Soybean Cost of Production ($/A)

<table>
<thead>
<tr>
<th>District</th>
<th>Cash corn (n=108)</th>
<th>Livestock corn (n=77)</th>
<th>Soybean (n=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$318</td>
<td>$250</td>
<td>$182</td>
</tr>
<tr>
<td>2</td>
<td>$311</td>
<td>$274</td>
<td>$183</td>
</tr>
<tr>
<td>3</td>
<td>$310</td>
<td>$258</td>
<td>$197</td>
</tr>
<tr>
<td>4</td>
<td>$327</td>
<td>$309</td>
<td>$210</td>
</tr>
<tr>
<td>5</td>
<td>$378</td>
<td>$353</td>
<td>$249</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>$321</strong></td>
<td><strong>$276</strong></td>
<td><strong>$196</strong></td>
</tr>
</tbody>
</table>

**Source:** Lauer (2003-2007)
Average corn production costs for major inputs

(* = projected from previous five years)

Data derived from PEPS cash corn division

Source: Lauer

http://corn.agronomy.wisc.edu

University of Wisconsin - Agronomy
Corn and Soybean Cost of Production and Grower Return

(* = projected from previous five years)

Source: Lauer

http://corn.agronomy.wisc.edu
Know Your Production Costs – PEPS Participation Increases Grower Return

- Cash Corn = $24/A yr
- Livestock Corn = $13/A yr
- Soybean = NS

Year in PEPS

What is Your Yield Potential?

Establish Realistic Yield Goals
• Yield Potential of Soil
• Growing Season - Growing Degree Units
• Sub-soil Moisture
• Management Ability and Philosophy
• Attitude Toward Risk
• Willingness to Be Timely

Record set during 2006

Highest recorded corn yields (bu/A) in Wisconsin counties.

Source: Lauer, 2006
The influence of maturity on yield ... longer season = greater yield

Arlington 1995-2004

Grain yield (bu/A) vs. Company Relative Maturity (days)

GY = -762 + 18.1(RM) - 0.087(RM)^2

R^2 = 0.52
N = 147

Source: Lauer, 2005
Optimum relative maturity (days RM) for grain yield at various locations in Wisconsin.

<table>
<thead>
<tr>
<th>Location</th>
<th>Years tested</th>
<th>Optimum RM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arlington</td>
<td>1995-2004</td>
<td>106</td>
</tr>
<tr>
<td>Janesville</td>
<td>1996-1997</td>
<td>107</td>
</tr>
<tr>
<td>Lancaster</td>
<td>1996-1997</td>
<td>112</td>
</tr>
<tr>
<td>Fond du Lac</td>
<td>1996-1997</td>
<td>103</td>
</tr>
<tr>
<td>Hancock</td>
<td>1995-2004</td>
<td>104</td>
</tr>
<tr>
<td>Chippewa Falls</td>
<td>1999-2001</td>
<td>104</td>
</tr>
<tr>
<td>Marshfield</td>
<td>1999-2004</td>
<td>---</td>
</tr>
<tr>
<td>Seymour</td>
<td>1999-2001</td>
<td>102</td>
</tr>
<tr>
<td>Valders</td>
<td>1999-2001</td>
<td>---</td>
</tr>
</tbody>
</table>

Source: Lauer, 2005
It all boils down to economics (drying cost) …

Arlington 1995-2004

Grower return ($/A)

GR = -2350 + 55.3(RM) - 0.273(RM)^2

R^2 = 0.32
N = 147

Source: Lauer, 2005
Optimum relative maturity (days RM) for three corn production systems at Arlington (1995-2004).

<table>
<thead>
<tr>
<th>System: Drying Cost ($ / point bu)</th>
<th>Grain price ($/bu)</th>
<th>$2.00</th>
<th>$2.50</th>
<th>$3.00</th>
<th>PEPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial: $0.04</td>
<td>--</td>
<td>98</td>
<td>99</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>On-Farm: $0.02</td>
<td>100</td>
<td>101</td>
<td>102</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>Livestock: $0.00</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>107</td>
<td></td>
</tr>
</tbody>
</table>

Source: Lauer, 2005
Hybrid Selection Decisions …

• Select hybrids using multi-location performance data
• Evaluate consistency

• “Buy the traits you need”
• “Every hybrid must stand on its own for performance”

✓ DO NOT buy based upon “family” performance, base genetics, etc.
Cost ($/A) matrix of corn seed sold at a premium (i.e. technology fee)

<table>
<thead>
<tr>
<th>Yield Increase (bu/A)</th>
<th>$25 Bag difference</th>
<th>$50 Bag difference</th>
<th>$75 Bag difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Corn Price</td>
<td>Corn Price</td>
<td>Corn Price</td>
</tr>
<tr>
<td></td>
<td>$2</td>
<td>$3</td>
<td>$4</td>
</tr>
<tr>
<td>0</td>
<td>-$10</td>
<td>-$10</td>
<td>-$10</td>
</tr>
<tr>
<td>2</td>
<td>-$6</td>
<td>-$4</td>
<td>-$2</td>
</tr>
<tr>
<td>4</td>
<td>-$2</td>
<td>$2</td>
<td>$6</td>
</tr>
<tr>
<td>6</td>
<td>$2</td>
<td>$8</td>
<td>$14</td>
</tr>
<tr>
<td>8</td>
<td>$6</td>
<td>$14</td>
<td>$22</td>
</tr>
<tr>
<td>10</td>
<td>$10</td>
<td>$20</td>
<td>$30</td>
</tr>
<tr>
<td>12</td>
<td>$14</td>
<td>$26</td>
<td>$38</td>
</tr>
<tr>
<td>14</td>
<td>$18</td>
<td>$32</td>
<td>$46</td>
</tr>
<tr>
<td>16</td>
<td>$22</td>
<td>$38</td>
<td>$54</td>
</tr>
</tbody>
</table>

Assume: 80,000 seeds/bag planted at 33,000 seeds/A for final population of 30,000 plants/A
Grain yield is decreasing 0.5 bu/A per day on May 15 and accelerates to 2.5 bu/A per day on June 1...

\[ y = -0.04x^2 + 8.68x - 268 \]

\[ R^2 = 0.68 \]

Source: Lauer (Full-season hybrid at Arlington 1997-2006)
Soil temperatures at Arlington during 2003

Source: NWS, 2003
“Today there are more chances than ever for disease development from soil pathogens.”

The Problem

- Historically seedling emergence is a problem in WI
- Changing farmer practices
  ✓ Earlier planting dates
  ✓ Increased acreage where corn is planted into reduced tillage seedbeds.
  ✓ Seed environment is often cool and wet
  ✓ “Slow-growth” syndrome in reduced tillage systems causes delayed emergence, poor seedling growth, and difficult stand establishment
- The Solution: For nearly 50 years, Captan was the “workhorse” for protecting corn seed.

Race - Pathogen v. Corn

- Environments which favor seedling blight have high enough temperatures to start corn germination followed by a period of low temperatures
  ✓ (Dickson, 1929; referring to the 1921 season).
- "... that other factors being constant, the relative growth rates of the host and pathogen determine to a considerable degree the severity of pre-emergence and seedling infection at different temperatures."
  ✓ (Leach, 1947)
# Efficacy of Corn Seed Treatments

<table>
<thead>
<tr>
<th>Disease</th>
<th>Favorable Environment</th>
<th>Captan</th>
<th>Maxim</th>
<th>Apron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhizoctonia</td>
<td>Rainfall followed by cool and then warm weather</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Fusarium</td>
<td>??</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
</tr>
<tr>
<td>Pythium</td>
<td>Likes cold and wet</td>
<td>Poor</td>
<td>Poor</td>
<td>Excellent</td>
</tr>
<tr>
<td>Helminthosporium</td>
<td>??</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Penicillium</td>
<td>??</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Aspergillus</td>
<td>??</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
</tr>
</tbody>
</table>

*derived from Pedersen, U. of Illinois*
Take home message ... The number of days from planting to emergence is a key factor in establishing the amount of seedling disease that will be infecting the crop.

- Growers must do ALL of the right things to minimize early season STRESS
- It is hard to make money raising “runts”
- Rain a growers best friend or worst enemy

✓ Rainfall - soon after planting that results in saturated or nearly saturated soils - is a bigger factor on yield than is date of planting or tillage type

✓ Grower’s today plant large numbers of acres of corn each day-increasing the at risk acres when a major weather front comes through

- There is no second chance to do things right the first time
Yield Cost of Delaying Weed Control

Source: Knezevic et al. (2003)
The rotation effect lasts two years increasing corn grain yield 10 to 19% for 1C and 0 to 7% for 2C ...

Corn Yield Response Following Five Years of Soybean

Control treatments averaged across tillage treatments at Arlington, WI.

Source: Lauer

C= Corn, S= Soybean, Number = consecutive year of corn

http://corn.agronomy.wisc.edu
Rotation is more important in stress environments ...

![Graph showing the relationship between yield advantage of rotated corn and continuous corn yield. The equation of the line is y = -0.21x + 46.45 with R² = 0.38.]

Control Treatments of CS and CC Arlington and Lancaster, WI 1985 - 2006 (n=65)

Source: Lauer
Yield Contest Winners - DO NOT use Crop rotation, but DO use High Plant Densities

Ken Beaver, Sterling, NE
• 2001: 319 bu/ A
• 39,000 plants/ A

Herman Warsaw, Saybrook, IL
• 1985: 370 bu/ A
• 20+ years continuous corn
• 36,000 plants/ A

Francis Childs, Manchester, IA
• 2002 World Record = 442 bu/ A
• 30+ years continuous corn
• 45,000 plants/ A
Yield Components of Corn

- Number of rows
- Kernels per row

Grain Yield

Kernel number

Kernel weight

Ears per area
Potential Grain Yield Using Calculated Components

Assume 90,000 kernels/bu and 56 lb/bu; kernel mass = 282 mg

<table>
<thead>
<tr>
<th>Plant density (number/A)</th>
<th>Row spacing (number)</th>
<th>15 in</th>
<th>30 in</th>
</tr>
</thead>
<tbody>
<tr>
<td>15,000</td>
<td>28</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>25,000</td>
<td>17</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>30,000</td>
<td>14</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>35,000</td>
<td>12</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>45,000</td>
<td>9</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Increasing plant density increases grain yield ... but there is a risk

Source: Lauer, 2006
(Arlington, WI (1987 to 2005, n= 867 plots)
# Price Ratio of Seed:Corn

(i.e. $/1000 seeds ÷ $/bu corn)

<table>
<thead>
<tr>
<th>Price of seed</th>
<th>Price of corn ($/bu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$80 K bag</td>
<td>$1.00</td>
</tr>
<tr>
<td>$40</td>
<td>$0.50</td>
</tr>
<tr>
<td>$60</td>
<td>$0.75</td>
</tr>
<tr>
<td>$80</td>
<td>$1.00</td>
</tr>
<tr>
<td>$100</td>
<td>$1.25</td>
</tr>
<tr>
<td>$120</td>
<td>$1.50</td>
</tr>
<tr>
<td>$140</td>
<td>$1.75</td>
</tr>
<tr>
<td>$160</td>
<td>$2.00</td>
</tr>
<tr>
<td>$180</td>
<td>$2.25</td>
</tr>
<tr>
<td>$200</td>
<td>$2.50</td>
</tr>
<tr>
<td>$220</td>
<td>$2.75</td>
</tr>
<tr>
<td>$240</td>
<td>$3.00</td>
</tr>
</tbody>
</table>

Source: Lauer, 2006
As Seed:Corn price ratios increase, economic optimum plant density decreases …

• Symbols represent the economic optimum return to plant density (EOPD).

• Error bars are the low and high ends of the range of profitability (within $1/ A of EOPD) at each seed:corn price ratio.

Source: Lauer, 2006
Michigan Row Spacing study

**Methods**

- 15 total site-years (5 Sites x 3 Years)
- 4 hybrids per Site
- 5 populations per site (23000, 26400, 29800, 33200, 36500 plants/A)
- 3 row widths (15, 22, 30 in)
- 2640 total plots

Corn response to row width in Michigan 1998-1999. Each value is the mean of 880 plots.

<table>
<thead>
<tr>
<th>Row width (in)</th>
<th>Yield (bu/A)</th>
<th>Moisture (%)</th>
<th>Stalk Lodging (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>177 c</td>
<td>19.6 a</td>
<td>1.60 b</td>
</tr>
<tr>
<td>22</td>
<td>181 b</td>
<td>19.2 b</td>
<td>1.92 a</td>
</tr>
<tr>
<td>15</td>
<td>184 a</td>
<td>19.2 b</td>
<td>1.65 b</td>
</tr>
</tbody>
</table>

#7 Insect Management

- It's all about scouting and timing!
- Insects are adapting

Corn rootworm (*Diabrotica sp.*)

Northern

Western

Southern

Photos: Rice

http://corn.agronomy.wisc.edu

Lauer © 1994-2008
University of Wisconsin - Agronomy
What about Bt corn and European Corn Borer dynamics?

Factors affecting ECB

• Natural enemies
  ✓ Diseases
    ☐ Fungus: *Beauveria bassiana*
    ☐ Protozoan: *Nosema pyrausta*
  ✓ Parasitoids
  ✓ Predators

• Tillage

• Weather (overwintering, mating, egg laying, and larval establishment)
  • Planting date
  • Corn hybrid resistance

European Corn Borer (*Ostrinia nubilalis*)

Photos: Rice
ECB Fall Population Trends for Wisconsin

Source: WDATCP (2006)
<table>
<thead>
<tr>
<th>Price of N</th>
<th>Price of Corn ($/bu corn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$/lb N</td>
<td>1.80</td>
</tr>
<tr>
<td>0.20</td>
<td>0.11</td>
</tr>
<tr>
<td>0.22</td>
<td>0.12</td>
</tr>
<tr>
<td>0.24</td>
<td>0.13</td>
</tr>
<tr>
<td>0.26</td>
<td>0.14</td>
</tr>
<tr>
<td>0.28</td>
<td>0.16</td>
</tr>
<tr>
<td>0.30</td>
<td>0.17</td>
</tr>
<tr>
<td>0.32</td>
<td>0.18</td>
</tr>
<tr>
<td>0.34</td>
<td>0.19</td>
</tr>
<tr>
<td>0.36</td>
<td>0.20</td>
</tr>
<tr>
<td>0.38</td>
<td>0.21</td>
</tr>
<tr>
<td>0.40</td>
<td>0.22</td>
</tr>
<tr>
<td>0.42</td>
<td>0.23</td>
</tr>
<tr>
<td>0.44</td>
<td>0.24</td>
</tr>
<tr>
<td>0.46</td>
<td>0.26</td>
</tr>
</tbody>
</table>
Profitable N Rates - MRTN

N: Corn price ratio

Net return to N ($/a)

CC - High Yield Potential Soils

N rate (lb/a)

Source: Laboski and Bundy, 2006
<table>
<thead>
<tr>
<th>Soil and Previous Crop</th>
<th>N:Corn Price Ratio ($/ lb N:$/ bu)</th>
<th><strong>ib N/ a (Total to Apply)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.05</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>HIGH/ V.HIGH YIELD POTENTIAL SOILS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn, Forage legumes, Vegetable legumes, green manures</td>
<td>165</td>
<td>135</td>
</tr>
<tr>
<td>Soybean, Small grains</td>
<td>140</td>
<td>115</td>
</tr>
<tr>
<td><strong>MEDIUM/LOW YIELD POTENTIAL SOILS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn, Forage legumes, Vegetable legumes, green manures</td>
<td>120</td>
<td>105</td>
</tr>
<tr>
<td>Soybean, Small grains</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td><strong>IRRIGATED SANDS &amp; LOAMY SANDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All crops</td>
<td>215</td>
<td>205</td>
</tr>
<tr>
<td><strong>NON-IRRIGATED SANDS &amp; LOAMY SANDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All crops</td>
<td>120</td>
<td>105</td>
</tr>
</tbody>
</table>
## Corn and Fungicide in Wisconsin

<table>
<thead>
<tr>
<th>Year</th>
<th>Previous Crop</th>
<th>Tillage</th>
<th>No Fungicide</th>
<th>With Fungicide</th>
<th>Fungicide Increase</th>
<th>Did it pay?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Corn</td>
<td>No-till</td>
<td>216</td>
<td>222</td>
<td>6</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Soybean</td>
<td>No-till</td>
<td>203</td>
<td>230</td>
<td>27*</td>
<td>Yes</td>
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Source: Lauer
Headline @ VT - Arlington
Guidelines for Using a Fungicide on Hybrid Corn

- Spraying in 2008? Consider:
  ✓ hybrid susceptibility,
  ✓ disease pressure at VT,
  ✓ weather conditions at VT,
  ✓ previous crop,
  ✓ the amount of crop residue present,
  ✓ fungicide and application cost,
  ✓ grain price, and
  ✓ directions & restrictions on label

- In general, a fungicide application is not recommended on resistant hybrids.

- On susceptible hybrids, a fungicide application may be warranted if disease is present on the third leaf below the ear leaf or higher on 50 percent of the plants at tasseling.

- With intermediate hybrids, a fungicide need only be applied if conditions are favorable for disease development
  ✓ Spray if disease is present on the third leaf below the ear leaf or higher on 50 percent of the plants at tasseling, and
  ✓ the weather is warm and humid, and
  ✓ the field has a history of Gray Leaf Spot and/or Anthracnose, and
  ✓ >35 percent corn residue is present.
Tillage does not affect corn yield the first year following soybean, but improves yield 5% in the second year, and 9% in the third year ...

No tillage response is observed in the second cycle ...

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<th>Cropping Sequence</th>
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Source: Lauer, unpublished

C = Corn, S = Soybean, Number = consecutive year of corn
Yield advantage of chisel plow tillage over no-till 1986-2002
(“Long” Rotation trial, n= 6608 plots)

Agronomic and economic consequences of corn management decisions in WI

1. Weather
2. Hybrid
   - Top to bottom ranking = 0 to 30% change
   - Presence or absence of genetic traits = 0 to 100% change
3. Date of Planting
   - May 1 to June 1 = 0 to 30% change
   - Also need to add moisture penalty
4. Pest Control
   - Timeliness
   - Weeds > Insects > Diseases
   - Good v. Bad = 0 to 100% change
5. Plant Density
   - 32,000 to 15,000 plants/A = 0 to 22% change
6. Rotation
   - Continuous v. Rotation = 0 to 30% change
   - Greater consequence in ‘stress’ environments
7. Soil Fertility
   - 160 v. 0 lb N/A = 20 to 50% change
8. Harvest Timing
   - Oct. 15 to Dec. 1 = 0 to 20% change
9. Tillage
   - Chisel v. No-till = -5 to 10% change
   - No-till = energy savings
   - Cultivation: Yes v. No = 0 to 10% change
10. Row Spacing
    - 30-inches to 15-inches = 0 to 5% change
Ways To Increase Grower Return

• Substitute information for more expensive purchased inputs:
  ✓ Hybrid performance data
  ✓ Soil tests
  ✓ Manure analysis
  ✓ Pest scouting
  ✓ Crop consultant
  ✓ On-farm trials??
Thanks for your attention!
Questions?

2008 Corn Conferences

- Rice Lake
  January 10
- Richland Center
  January 22
- Johnson Creek
  January 21

January 24-25, 2008
Kalahari Resort
Wisconsin Dells, WI
2008 Wisconsin Corn Conference Sponsors

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University of Wisconsin Agronomy Department
University of Wisconsin Cooperative Extension
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