2010 Agronomy Update Meetings

Arlington, Fond du Lac, Kimberly, Wausau, Eau Claire, Sparta, Janesville and Belmont

Joe Lauer
University of Wisconsin

Cooperating with Columbia, Fond du Lac, Outagamie, Marathon, Eau Claire, Monroe, Rock and Grant Counties

January 5 – 8, 2010
Highlights for corn production during 2009

- Growing season
  ✓ Coolest year on record.

- New in the Hybrid Trials
  ✓ Nearest neighbor analysis
  ✓ Multi-location testing of hybrids in organic trials (S, SC and NC zones)

- Records
  ✓ New records for grain production location and zone (S, NC and N) performance
    - DeKalb DKC59-64(VT3) and AgriGold A6309VT3 produced 288 bu/A at Janesville
  ✓ High grain moisture at harvest
  ✓ Low NDF, IVTD, and NDFD values in ST
Rationale and Situation

- Corn is grown on 4 million acres in WI. A one bushel increase by farmers increases farm income $8 to $16 million dollars annually.

- In 2009, 523 corn hybrids were tested at 14 locations.

Objective

- To provide unbiased performance comparisons of hybrid seed corn available in Wisconsin.
### 2009 Wisconsin Corn Performance Trials
#### Grain Summary

<table>
<thead>
<tr>
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<th></th>
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<td>Coleman/Rhineland</td>
<td>153</td>
<td>170</td>
<td>56</td>
<td>218</td>
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<td>Spooner</td>
<td>1385</td>
<td>134</td>
<td>165</td>
<td>145</td>
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## 2009 Wisconsin Corn Performance Trials
### Silage Summary

<table>
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<th>Location</th>
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<th>2009</th>
<th></th>
<th>Percent change</th>
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<td>80</td>
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<td>86</td>
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<td>Chippewa Falls</td>
<td>321</td>
<td>7.1</td>
<td>71</td>
<td>8.1</td>
<td>14</td>
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<td>Marshfield</td>
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<td>7.2</td>
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<td>9.0</td>
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<td>Valders</td>
<td>565</td>
<td>7.2</td>
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<td>8.5</td>
<td>18</td>
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<tr>
<td>Coleman/Rhinelander</td>
<td>144</td>
<td>7.2</td>
<td>32</td>
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<td>Spooner</td>
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<td>6.9</td>
<td>64</td>
<td>5.5</td>
<td>-20</td>
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Overview

- Producing corn the “old fashioned way” – Do we go back to the way it was?
- How much should I pay for that corn silage? The grain equivalent story
- Bmr corn: How far has it come?
Producing corn the “old fashioned way” - Do we go back to the way it was?

- **Agronomic short answer = No!**
- **Economic short answer = Maybe!**
  - $100 per bag difference = $40 per acre (80,000 seeds per bag planted at 32,000 seeds per acre)

- **What is the value of traits?**
  - Safety: Do not need to handling pesticides
  - Efficacy: Traits work
  - Insurance (BYE), “Peace of mind”

- **How much yield gain can you predict?**
  - Gain pays for seed price increases.

- **How do you make comparisons?**
  - Isolines (or Families) – if available
    - Breeder – yes
    - Producers – Not a good choice. You have access to the entire commercial hybrids market
    - Traits by themselves versus Stacked
    - Trial mean

- **Trade-offs**
  - **Pros**
    - Safety: Do not need to handling pesticides
    - Efficacy: Traits work
    - Insurance (BYE), “Peace of mind”
  - **Cons**
    - Expense: Projections are $500 per bag
    - Resistance potential, “The Grand Experiment”

- **Remember “Traits do not increase yield, they protect yield.”**

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http://corn.agronomy.wisc.edu
Corn yield in Wisconsin and the U.S. since 1866

Wisconsin
- 1866 to 1929 = 0.0 bu/A yr
- 1930 to 1995 = 1.4 bu/A yr
- 1996 to 2008 = 1.2 bu/A yr

United States
- 1866 to 1929 = 0.0 bu/A yr
- 1930 to 1995 = 1.7 bu/A yr
- 1996 to 2008 = 2.4 bu/A yr

The yield march continues ...

Source: USDA-NASS
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)
# Examples of Hybrids Selected Using Various Strategies

## Table 6. South Central Zone - Early Maturity Grain Trial  (page 1 of 3)

100 DAY RELATIVE MATURITY OR EARLIER, BASED ON COMPANY RATING  (FOND DU LAC = FON, GALESVILLE = GAL, HANCOCK = HAN)

<table>
<thead>
<tr>
<th></th>
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<tr>
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<td>Yield</td>
<td>P.I.</td>
<td>Moist</td>
<td>Test</td>
<td>Lodged</td>
<td>Yield</td>
<td>FON</td>
<td>GAL</td>
<td>HAN</td>
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<td>P.I.</td>
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<td></td>
<td>bu/A</td>
<td>#</td>
<td>%</td>
<td>Wt.</td>
<td>%</td>
<td>bu/A</td>
<td>bu/A</td>
<td>bu/A</td>
<td>bu/A</td>
<td>bu/A</td>
<td>#</td>
<td>bu/A</td>
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<tr>
<td>A 1 Loc *</td>
<td>229</td>
<td>101</td>
<td>18.8</td>
<td>55</td>
<td>0</td>
<td>207</td>
<td>214</td>
<td>265</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Zone *, 2 Loc *</td>
<td>248</td>
<td>105</td>
<td>19.4</td>
<td>56</td>
<td>0</td>
<td>223</td>
<td>244</td>
<td>279</td>
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<tr>
<td>C Average</td>
<td>229</td>
<td>100</td>
<td>19.7</td>
<td>56</td>
<td>1</td>
<td>211</td>
<td>249</td>
<td>229</td>
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</tr>
<tr>
<td>D Zone *, 3 Loc *, 2 Yrs</td>
<td>261</td>
<td>107</td>
<td>20.4</td>
<td>54</td>
<td>0</td>
<td>229</td>
<td>274</td>
<td>279</td>
<td>219</td>
<td>106</td>
<td></td>
<td>173</td>
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<tr>
<td>E Bottom 10%</td>
<td>178</td>
<td>88</td>
<td>20.6</td>
<td>56</td>
<td>0</td>
<td>156</td>
<td>146</td>
<td>232</td>
<td>195</td>
<td>101</td>
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<td>MEAN</td>
<td>227</td>
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<td>248</td>
<td>195</td>
<td>101</td>
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<tr>
<td>LSD(0.10)**</td>
<td>17</td>
<td>4</td>
<td>0.8</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td>16</td>
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<td>22</td>
<td>7</td>
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<td>28</td>
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</tbody>
</table>

* B Zone *, 2 Loc *

** LSD(0.10)**
Predicting next year’s performance of a hybrid using various selection strategies

Frequency (%)

- Top half of trial
- Bottom half of trial

<table>
<thead>
<tr>
<th>Selection Strategy</th>
<th>Frequency (%)</th>
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<tbody>
<tr>
<td>Random hybrid planted at any L</td>
<td>50</td>
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<tr>
<td>L * planted at same L (on-farm trial)</td>
<td>50</td>
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<tr>
<td>Z * planted at any L</td>
<td>72</td>
</tr>
<tr>
<td>Z * &amp; L * planted at any L</td>
<td>71</td>
</tr>
<tr>
<td>Z * &amp; 3 L * planted at any L</td>
<td>77</td>
</tr>
<tr>
<td>Z * &amp; 3 L * (2 yrs) planted at any L</td>
<td>83</td>
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<tr>
<td>L Average hybrid planted at any L</td>
<td>87</td>
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<tr>
<td>L Bottom 10% hybrid planted at any L</td>
<td>48</td>
</tr>
<tr>
<td>L Bottom 10% hybrid planted at any L</td>
<td>52</td>
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<tr>
<td>L Bottom 10% hybrid planted at any L</td>
<td>29</td>
</tr>
<tr>
<td>L Bottom 10% hybrid planted at any L</td>
<td>29</td>
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</tbody>
</table>

(L=Location, Z=Zone)

Source: Lauer (data from 1973-2009 within a Location Trial)
# Economic consequences of various hybrid selection strategies

<table>
<thead>
<tr>
<th>Selection scheme</th>
<th>N</th>
<th>Relative yield</th>
<th>Grain yield difference</th>
<th>Grower return difference</th>
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<tbody>
<tr>
<td>1 L* (on-farm)</td>
<td>2816</td>
<td>105</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Z*</td>
<td>2405</td>
<td>104</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Z* &amp; 1L*</td>
<td>1122</td>
<td>106</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>Z* &amp; ≥ 3L*</td>
<td>515</td>
<td>107</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>Z* &amp; ≥ 3L* (2 yrs)</td>
<td>261</td>
<td>109</td>
<td>16</td>
<td>45</td>
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<tr>
<td>1 L average</td>
<td>4205</td>
<td>100</td>
<td>0</td>
<td>0</td>
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<tr>
<td>1 L bottom 10%</td>
<td>1122</td>
<td>94</td>
<td>-8</td>
<td>-22</td>
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</tbody>
</table>

Grower return difference ($3.50 per bushel) = grower return - trial average

Source: Lauer (1973-2009 within a Location Trial)
# Economic consequences of one hybrid selection strategy ($Z^* \ & 1L^*$) over time

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<th>Years</th>
<th>N</th>
<th>Relative yield</th>
<th>Grain yield difference</th>
<th>Grower return difference</th>
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<td>1985-1990</td>
<td>213</td>
<td>106</td>
<td>9</td>
<td>25</td>
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<td>1990-1995</td>
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<td>1995-2000</td>
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<td>2000-2005</td>
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<td>2005-2009</td>
<td>113</td>
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<td>20</td>
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Grower return difference ($3.50 per bushel) = grower return - trial average

Source: Lauer (1973-2009 within a Location Trial)
Spreadsheet for calculating crop seed prices

http://corn.agronomy.wisc.edu/Season/DSS.aspx

<table>
<thead>
<tr>
<th>Hybrid / Variety</th>
<th>Hybrid A</th>
<th>Hybrid B</th>
<th>Difference</th>
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<td>Seed Price ($/bag)</td>
<td>$150.00</td>
<td>$250.00</td>
<td>$100.00</td>
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<tr>
<td>Kernels/Seeds per bag (no./bag)</td>
<td>80,000</td>
<td>80,000</td>
<td>0</td>
</tr>
<tr>
<td>Seed Population (number/acre)</td>
<td>32,000</td>
<td>32,000</td>
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</tr>
<tr>
<td>Potential plant death (%)</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Acres per bag (acres/bag)</td>
<td>2.27</td>
<td>2.27</td>
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<tr>
<td>Herbicide Cost ($/acre)</td>
<td>$25.00</td>
<td>$18.00</td>
<td>$7.00</td>
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<td>Insecticide Cost ($/acre)</td>
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<td>$20.00</td>
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<td>Fungicide Cost ($/acre)</td>
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<td>$0.00</td>
<td>$0.00</td>
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<tr>
<td>Insurance Cost ($/acre)</td>
<td>$15.00</td>
<td>$10.00</td>
<td>$5.00</td>
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</table>

Economic advantage ($/acre) of Hybrid A or Hybrid B. Seed price difference = $100 per bag: A = $150, Hybrid B = $250.

<table>
<thead>
<tr>
<th>Yield advantage</th>
<th>$2.50</th>
<th>$3.00</th>
<th>$3.50</th>
<th>$4.00</th>
<th>$4.50</th>
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<tr>
<td>bushel/acre</td>
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<td>$37</td>
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<td>$51</td>
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<td>$65</td>
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<td>$30</td>
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<td>$54</td>
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<td>$18</td>
<td>$23</td>
<td>$28</td>
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<td>$38</td>
<td>$43</td>
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<td>$32</td>
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<tr>
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<td>$6</td>
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<td>$12</td>
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<td>$18</td>
<td>$21</td>
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<tr>
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<td>$2</td>
<td>$4</td>
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<td>$8</td>
<td>$10</td>
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<td>$5</td>
<td>$4</td>
<td>$3</td>
<td>$2</td>
<td>$1</td>
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<td>Hybrid B</td>
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<tr>
<td>Hybrid A</td>
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<tr>
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<td>$21</td>
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<td>$23</td>
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<td>Hybrid B</td>
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<td>$42</td>
<td>$45</td>
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<td>Hybrid A</td>
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<td>$40</td>
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<td>$48</td>
<td>$52</td>
<td>$56</td>
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<td>Hybrid B</td>
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<td>$47</td>
<td>$52</td>
<td>$57</td>
<td>$62</td>
<td>$67</td>
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<tr>
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<td>$42</td>
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<td>$54</td>
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<td>$66</td>
<td>$72</td>
<td>$78</td>
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<tr>
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<td>$47</td>
<td>$54</td>
<td>$61</td>
<td>$68</td>
<td>$75</td>
<td>$82</td>
<td>$89</td>
</tr>
</tbody>
</table>

| Total Input Cost ($/acre) | $210.00 | $222.00 | $12.00 |

http://corn.agronomy.wisc.edu

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How much should I pay for that corn silage?
The grain equivalent story

- **Traditional Methods for Determining Silage Value**
  - $20 per ton (wet)
  - Corn silage value = relative feed value of a known market such as corn grain or baled hay
  - Corn silage value = what it would cost to replace or substitute another feed.
  - Corn silage value = some price agreed upon between grower and buyer which is over and above the cost of production (contract).

- **Buyer v. Seller perspectives**

  - **Opportunities with marketing grain**
  - **Opportunities with marketing stover**
    - Bedding, Fertilizer value, Soil erosion
  - **Forage quality adjustments - Opportunities with marketing milk**
  - **Pricing of standing v. harvested**
    - Buyer usually assumes harvesting costs when corn is standing
Buyer v. Seller Perspectives

• Need to develop a price from the seller’s (minimum to accept) and buyer’s (maximum to pay) perspectives.

• The seller …
  ✓ Starts with the value of the standing corn minus grain harvest costs
  ✓ Represents the same return to the seller if the seller harvested the corn for grain.
  ✓ The price is adjusted for the value of phosphorous and potassium harvested in the stover

• The buyer …
  ✓ Starts with the price of standing corn in terms of quality and harvesting costs.
  ✓ Adjusts the value of corn silage based on what it would cost to purchase corn and straw (or bedding) to replace nutritional value of corn silage

• Buyers and sellers need to consider local market conditions that will influence final negotiated price

• If the seller minimum is greater than the buyer maximum, then it would be more economical to harvest the crop as grain.
Yield and Price Information

- Estimate how much grain is in silage
  - Grain yield
  - Silage yield
  - Silage moisture
- Price perspective
  - Local market price for No. 2 corn at 15.5% moisture as buyer (higher) or seller (lower due to basis)
  - Local market price for poor quality/low protein forage to buyer = current market price for high quality feed straw.
  - Serves to estimate value of stover to buyer in corn silage
  - Average lower grain yield due to early silage harvest = 5-10%

### Traditional method

**Table 2. Approximate Bushels of Dry Grain Per Ton of Silage**

<table>
<thead>
<tr>
<th>Yield of Corn Grain Bushels/Acre</th>
<th>Bushels of Dry Grain Equivalent/Ton of Silage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 90</td>
<td>5.0</td>
</tr>
<tr>
<td>90 - 110</td>
<td>5.5</td>
</tr>
<tr>
<td>110 - 130</td>
<td>6.0</td>
</tr>
<tr>
<td>130 - 150</td>
<td>6.5</td>
</tr>
<tr>
<td>Over 150</td>
<td>7.0</td>
</tr>
</tbody>
</table>

*Source: Jorgensen and Crowley, 1972*

**Grain equivalent (bu/ T)**

![Graph showing grain equivalent (bu/ T) vs. grain yield (bu/ A)](image-url)
**Materials and Methods**

- **Total = 2794 plots**
- **Hybrid (2004-2007)**
  - N=6 hybrids per year
  - Bmr, leafy, transgenics, normal
- **Plant density (1997-2009)**
  - 14,000 to 60,000 plants/A
- **Date of planting (1997-2009)**
  - April 13 to July 1
- **Interactions**
  - Hybrid x PD, DOP, RS
  - Plant density x Date of planting
    - 1997-2006
  - Plant density x Row spacing
    - 1997-2009

<table>
<thead>
<tr>
<th>Location</th>
<th>Hybrid</th>
<th>Plant density</th>
<th>Date of planting</th>
<th>Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arlington</td>
<td>70</td>
<td>726</td>
<td>466</td>
<td>760</td>
</tr>
<tr>
<td>Ashland</td>
<td></td>
<td></td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Fond du Lac</td>
<td>36</td>
<td></td>
<td></td>
<td>64</td>
</tr>
<tr>
<td>Galesville</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hancock</td>
<td></td>
<td></td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Lancaster</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshfield</td>
<td>72</td>
<td></td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>Rhinelander</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sparta</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spooner</td>
<td></td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valders</td>
<td>72</td>
<td></td>
<td>62</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>380</td>
<td>738</td>
<td>790</td>
<td>886</td>
</tr>
</tbody>
</table>
Relationship between corn grain and forage yield

Grain yield (bu/A) vs. Forage yield (T/A)
- \( R^2 = 0.57 \)

Grain equivalent (bu/T) vs. Forage yield (T/A)
- \( R^2 = 0.23 \)

Grain equivalent (bu/T) vs. Grain yield (bu/A)
- \( R^2 = 0.77 \)

Starch equivalent (bu/T) vs. Grain yield (bu/A)
- \( R^2 = 0.74 \)

Source: Lauer (Arlington, 1997-2008, 03DOP n=466)

University of Wisconsin - Agronomy
Relationship between corn grain and forage yield

Grain yield (bu/A) vs. Forage yield (T/A)
- $R^2 = 0.62$

Grain equivalent (bu/T) vs. Forage yield (T/A)
- $R^2 = 0.65$

Grain equivalent (bu/T) vs. Grain yield (bu/A)
- $R^2 = 0.56$

Starch equivalent (bu/T) vs. Grain yield (bu/A)
- $R^2 = 0.45$

Source: Lauer (Arlington, 1997-2009, 02PD, n=726)
Relationship between corn grain and forage yield

Grain yield (bu/A) vs. Forage yield (T/A)

- Grain yield (bu/A)
  - Graph with data points and regression line
  - $R^2 = 0.79$

- Grain equivalent (bu/T) vs. Forage yield (T/A)
  - Graph with data points and regression line
  - $R^2 = 0.74$

- Grain equivalent (bu/T) vs. Grain yield (bu/A)
  - Graph with data points and regression line
  - $R^2 = 0.27$

- Starch equivalent (bu/T) vs. Grain yield (bu/A)
  - Graph with data points and regression line
  - $R^2 = 0.89$

Source: Lauer (Arlington, 2004-2007, 01HT, n=70)
### Corn grain equivalents (at 15.5% moisture) per Ton of Silage (at 65% moisture)

<table>
<thead>
<tr>
<th>Grain Yield</th>
<th>Bushels of Grain Equivalent / Ton Silage (1972)</th>
<th>Bushels of Grain Equivalent / Ton Silage (Revised 2010)</th>
<th>Bushels of Grain Equivalent / Ton Silage (Starch method)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bu/A</td>
<td>Bu/T</td>
<td>Bu/T</td>
<td>Bu/T</td>
</tr>
<tr>
<td>Less than 90</td>
<td>5.0</td>
<td>5.0</td>
<td>4.4</td>
</tr>
<tr>
<td>90-110</td>
<td>5.5</td>
<td>6.4</td>
<td>5.4</td>
</tr>
<tr>
<td>110-130</td>
<td>6.0</td>
<td>6.9</td>
<td>5.8</td>
</tr>
<tr>
<td>130-150</td>
<td>6.5</td>
<td>7.3</td>
<td>6.2</td>
</tr>
<tr>
<td>150-170</td>
<td>7.0</td>
<td>7.5</td>
<td>6.5</td>
</tr>
<tr>
<td>170-190</td>
<td>7.0</td>
<td>7.6</td>
<td>6.7</td>
</tr>
<tr>
<td>190-210</td>
<td>7.0</td>
<td>7.5</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Data includes treatment means from 01HT, 02PD, 03DOP at Arlington (1997 to 2009)

\[
GY = -164 + 61.6(FY) - 2.40(FY)^2 \quad R^2 = 0.71
\]

\[
GY \text{ Starch} = -129 + 40.3(FY) - 0.782(FY)^2 \quad R^2 = 0.88
\]
Harvest Costs
See http://corn.agronomy.wisc.edu/PEPS/

**Grain**
- Combining cost
- Trucking cost = $0.10 to $0.20 per bushel
- Drying cost = $0.00 to $0.90 per bushel
- Storage cost = $0.02 to $0.03 per bushel month
- Harvest, handling and storage loss = 2 to 3%
  ✓ Shrink cost? – usually not accounted for in calculations

**Silage**
- Chopping cost = ~ $55 to $90 per acre
- Hauling, Hauling, Packing and Storage costs (from PEPS)
  ✓ Handling=$0.75/T DM;
  ✓ Hauling=$1.50/T DM;
  ✓ Packing or Filling=$0.50/T DM;
  ✓ Storage=$1.00/T DM
- **Storage loss**
  ✓ Concrete tower = 13%
  ✓ Oxygen limiting tower = 6%
  ✓ Bunker = 16%
  ✓ Packed pile = 18%
  ✓ Bagged = 11%
Adjustments

Fertilizer Value of Stover
- Stover yield = approximately half of grain dry matter
- Fertilizer value
  ✓ (from UWEX publication A2809)
  ✓ Pounds of P$_2$O$_5$ per Ton of DM = 4.6
  ✓ Pounds of K$_2$O per Ton of DM = 32
- Other value to soil from seller’s perspective
  ✓ Micronutrients
  ✓ Carbon sequestration
  ✓ Soil conservation and erosion control
  ✓ Rotation effects

Forage Quality
- Based upon laboratory analysis
- Starch adjustment = (Starch-29%) x 0.5 bu x Corn price
  ✓ Base value = 29%
- NDFD adjustment = (NDFD-58%) x 0.6 x Milk price
  ✓ Base value = 58%
- Prices determined at some point during the growing season using CBOT and CME.
- Other forage quality aspects
  ✓ Hybrid / Environment interactions
  ✓ Harvest timing
  ✓ Starch digestibility – particle size, moisture, endosperm genetics/maturity
  ✓ Cutting height
# Corn Silage Pricing Decision Aid

Please enter your input values into the shaded cells.

Red letters refer to explanations or guidelines at bottom.

Use actual costs when possible, or refer to guidelines.

## Yield Information
- Grain Yield Bshels/Acre
- Silage % DM
- Corn Silage/Tons Acre (Wet Basic)

## Price Perspective
- Local Market Price for No. 2 Corn at 15.6% moisture as Buyer or Seller
- Local Market Price per ton for poor quality/low protein forage to Buyer
- Average grain loss for harvest before black layer (Bshels/Acre)
- Gross Value of Corn Crop/Acre

## Grain Harvest Costs (c)
- Combining Cost/Acre
- Trucking Cost/Acre
- Drying Cost/Acre
- Storage Cost/Acre
- Storage Length (months)
- Harvest and Storage Loss (d)
- % Loss

## Silage Harvest Costs (e)
- Chopping $/Acre
- Hauling $/Acre
- Harvest and Storage Loss (f)

*To use estimated yield actual column must be BLANK!*
Results to date = money loss

### 2008 PEPS Program Summary Sheet

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate ($/A)</th>
<th>Units</th>
<th>N + Micro</th>
<th>$/Unit</th>
<th>$/A</th>
<th>Total by Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myogen F215/35</td>
<td>0.30</td>
<td>bag</td>
<td>275,000</td>
<td>100.07</td>
<td>$100.07</td>
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<tr>
<td><strong>Fertilizer</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starter (lb material)</td>
<td>30-0-0-5</td>
<td>200</td>
<td>1.00</td>
<td>0.332</td>
<td>65.00</td>
<td>$100.21</td>
</tr>
<tr>
<td>Nitrogen (lb material)</td>
<td>25-0-0-55</td>
<td>420</td>
<td>1.00</td>
<td>0.237</td>
<td>92.58</td>
<td></td>
</tr>
<tr>
<td>Other (lb material)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Manure</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>F202 Removal (Ib/A)</td>
<td>Yld = 3.5 Ib/a rem = $7.58</td>
<td>170.2</td>
<td>0.1556</td>
<td>60.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K20 Removal (Ib/A)</td>
<td>Yld = 8.3 Ib/a rem = $29.84</td>
<td>14.08</td>
<td>1.00</td>
<td>14.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chemicals</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbicides</td>
<td>Dual II</td>
<td>1.3 pt</td>
<td>14.50</td>
<td>12.30</td>
<td>$185.87</td>
<td></td>
</tr>
<tr>
<td>Insecticides</td>
<td>Sterling</td>
<td>0.5 pt</td>
<td>13.02</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Cost Per Acre

- **Grower return**
  - ($800 / $600) = 62.9%
- **Cost per acre**
  - Total variable costs: $639.42
  - Total fixed costs: $48.54
  - Total cost per acre: $688.96

### Income

- **Silage Value** ($/T @60% or $/T DM) = $29.67 or $84.77 ($/A) = $508.32
- **Milk per Ton (lb / T DM) = 3038**
- **Milk per Acre (lb / A) = 21,802**

### Summary

- Total return per acre: $508.32
- Cost per acre: $688.96
- Profit per acre: $508.32 - $688.96 = $-180.64

*Lauer © 1994-2010 University of Wisconsin - Agronomy*

http://corn.agronomy.wisc.edu
Bmr corn: How far has it come?

• “I would buy all of the bmr silage I could, but I’m not sure I would grow it on my farm.”
  ✓ Seed costs
  ✓ Lower yield and agronomic concerns

• Bmr corn silage in dairy cow feeding trials
  ✓ Review by Gencoglu, Shaver and Lauer – meta analysis of literature
  ✓ NDFD was 11.5%-units greater with 34% less lignin and 19% higher IVD
  ✓ Dry matter intake was 2.6 lb/d greater
  ✓ Milk yield was 3.7 lb/d greater
  ✓ Milk fat % tends to be reduced by 0.08%-units (interaction with NDF)

• Recently, much progress is claimed with bmr hybrids
  ✓ Yield
  ✓ Traits

• 2009 performance: an exception?
Relative performance of bmr corn hybrids to the trial mean

Source: Lauer (Southern Zone)
Relative performance of bmr corn hybrids to the trial mean

Early Trial

Late Trial

Source: Lauer (South Central Zone)
Relative performance of bmr corn hybrids to the trial mean

Early Trial
- Yield
- Starch
- NDF
- NDFD
- Milk Ton
- Milk Acre

Late Trial
- Relative to Trial Mean (%)
Summary

• When the seed price difference between two hybrids is greater than $50 per bag, it is unlikely that the more expensive hybrid will pay for itself (grain price = $3.50 per bu).

  ✓ The best we can predict is 16 bu/A. Typical gain we can predict is 7 bu/A.

  ✓ As grain price increases, the allowable seed price difference between two hybrids increases.

• Grain equivalents in modern hybrids are greater than older hybrids

  ✓ The relationship between grain and forage yield is quite variable. We need a predictor.

  ✓ Starch content of corn forage can be used to predict grain yield, underestimates final grain yield.

• Variation for bmr hybrids is associated with starch content

  ✓ Current seed price of untraited bmr hybrids makes if attractive to dairy operations

  ✓ Agronomic research is needed
Thanks for your attention!
Questions?

2010 Corn Conferences

Chippewa Falls
January 20

Janesville
January 21

Lomira
January 19

January 28-29, 2010
Kalahari Resort
Wisconsin Dells, WI

http://corn.agronomy.wisc.edu