

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)

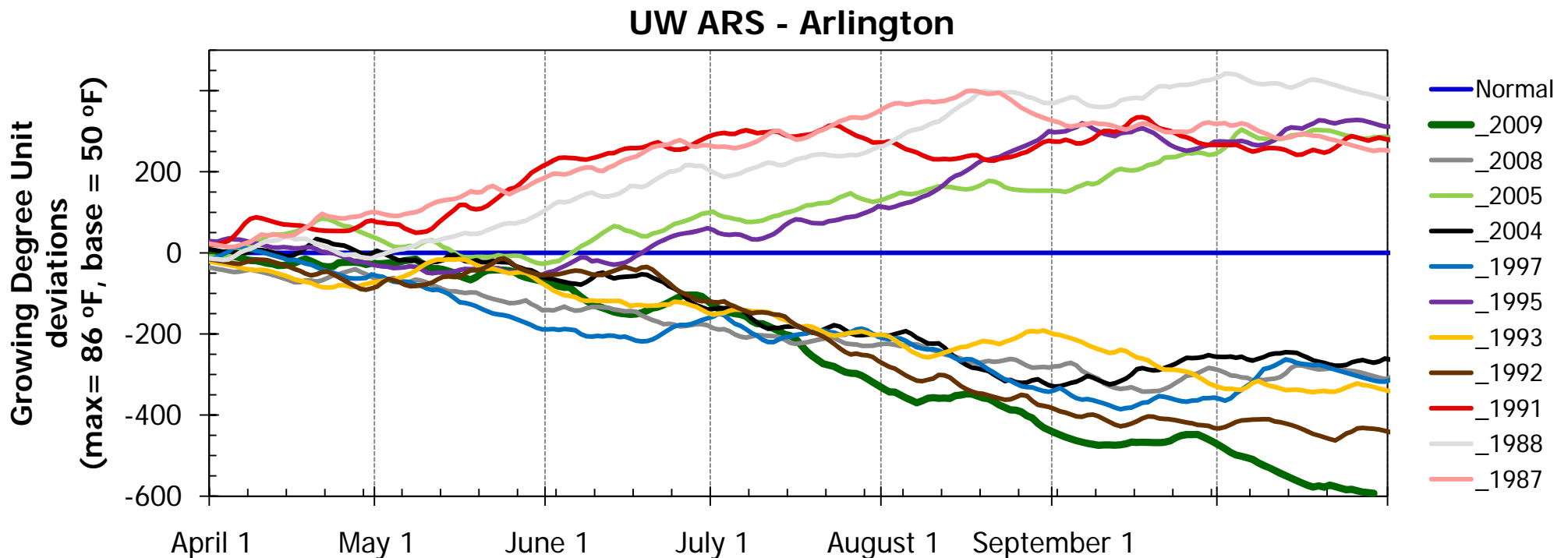
- **Records**

- ✓ 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





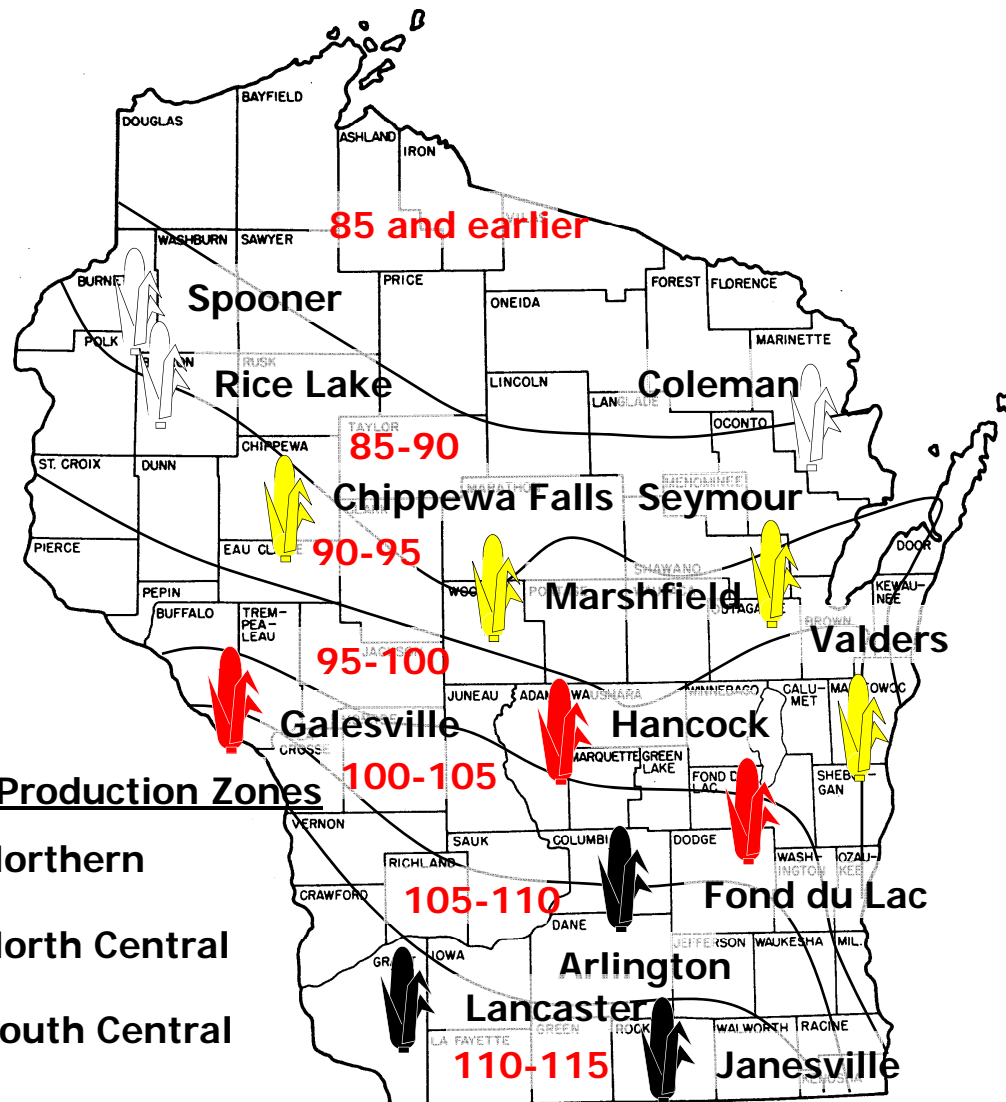
Corn Agronomy Program 2009

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

Location	<u>1999-2008</u>		<u>2009</u>		Percent change
	N	Yield	N	Yield	
Arlington	2030	212	171	239	13
Janesville	1927	218	171	260	19
Lancaster	1795	207	171	225	9
Fond du Lac	1487	188	158	180	-4
Galesville	1581	203	158	227	12
Hancock	1610	215	158	229	7
Chippewa Falls	1193	155	170	194	25
Marshfield	1598	160	170	205	28
Seymour	1217	166	170	204	23
Valders	1550	165	169	199	20
Coleman/Rhineland	153	170	56	218	28
Spoooner	1385	134	165	145	8

2009 Wisconsin Corn Performance Trials Silage Summary

Location	<u>1999-2008</u>		<u>2009</u>		Percent change
	N	Yield	N	Yield	
Arlington	625	9.5	80	10.4	9
Lancaster	625	8.9	80	8.7	-2
Fond du Lac	646	8.5	86	7.5	-12
Galesville	651	9.1	86	10.0	10
Chippewa Falls	321	7.1	71	8.1	14
Marshfield	584	7.2	71	9.0	25
Valders	565	7.2	71	8.5	18
Coleman/Rhineland	144	7.2	32	8.6	20
Spooner	326	6.9	64	5.5	-20

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?



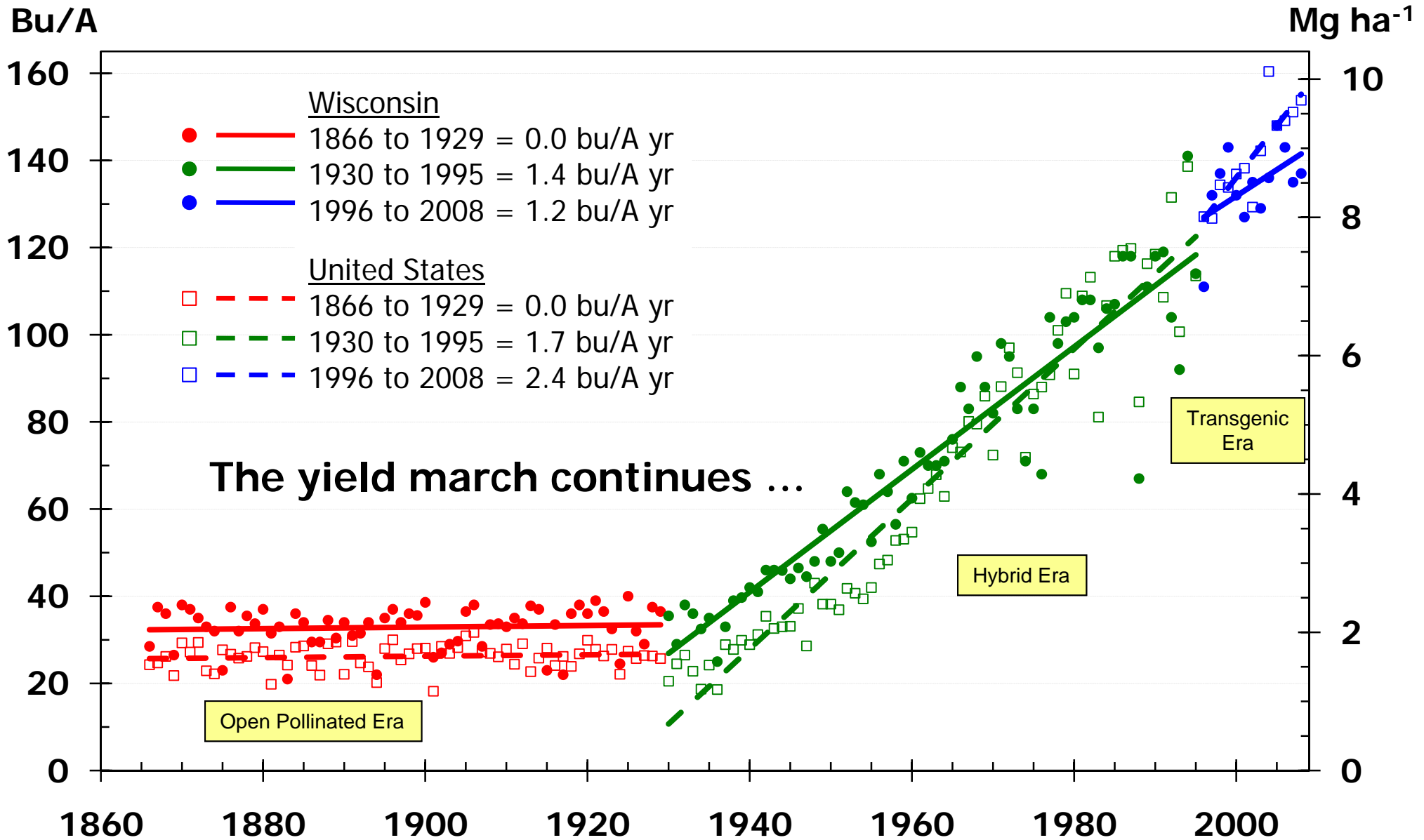
Producing corn the “old fashioned way” – Do we go back to the way it was?

- 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?
 - ✓ What needs to be accounted for?
 - 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.”

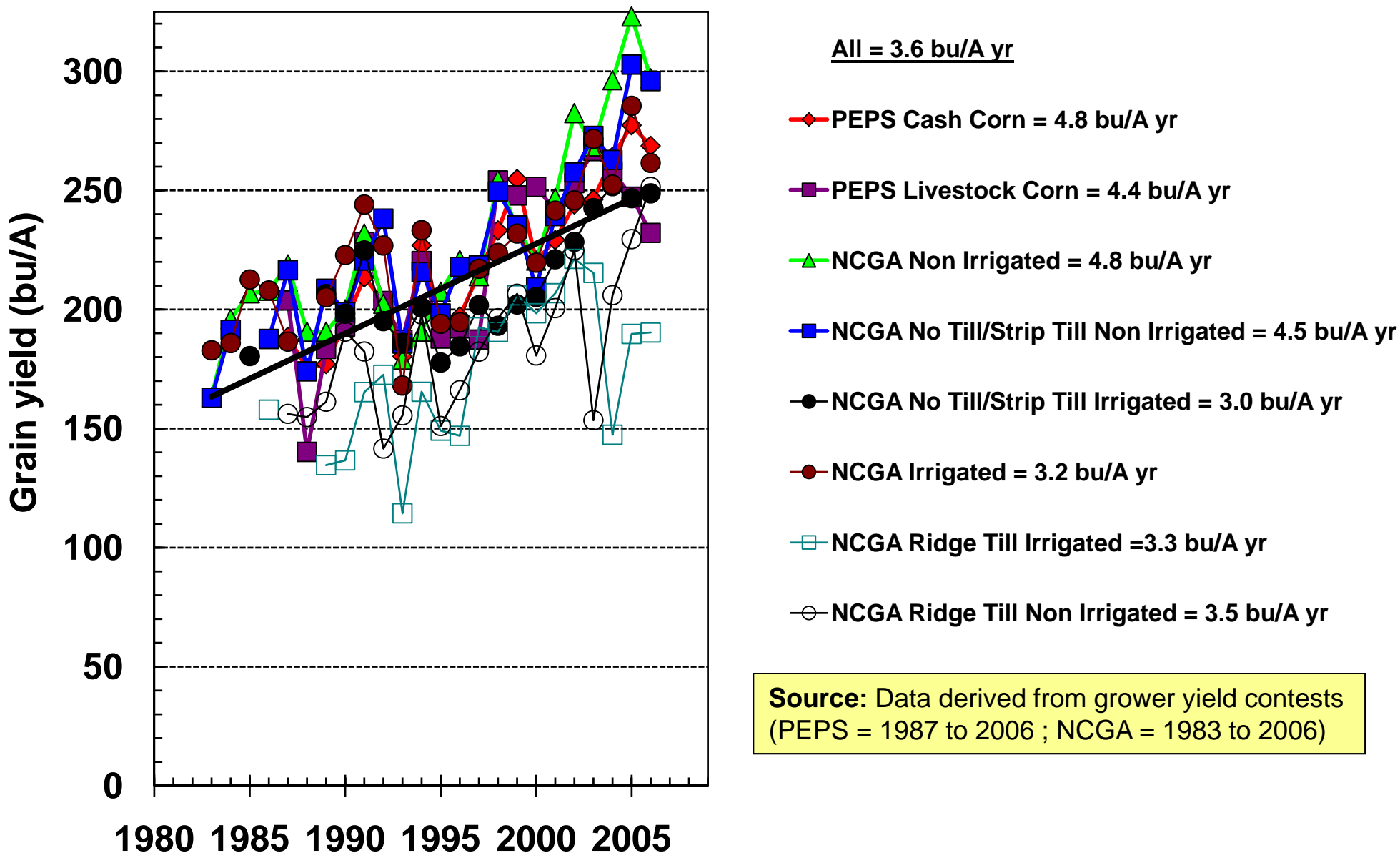


Corn yield in Wisconsin and the U.S. since 1866



Source: USDA-NASS

Corn Yield Progress in Wisconsin (Top Producer in Category)



Examples of Hybrids Selected Using Various Strategies

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

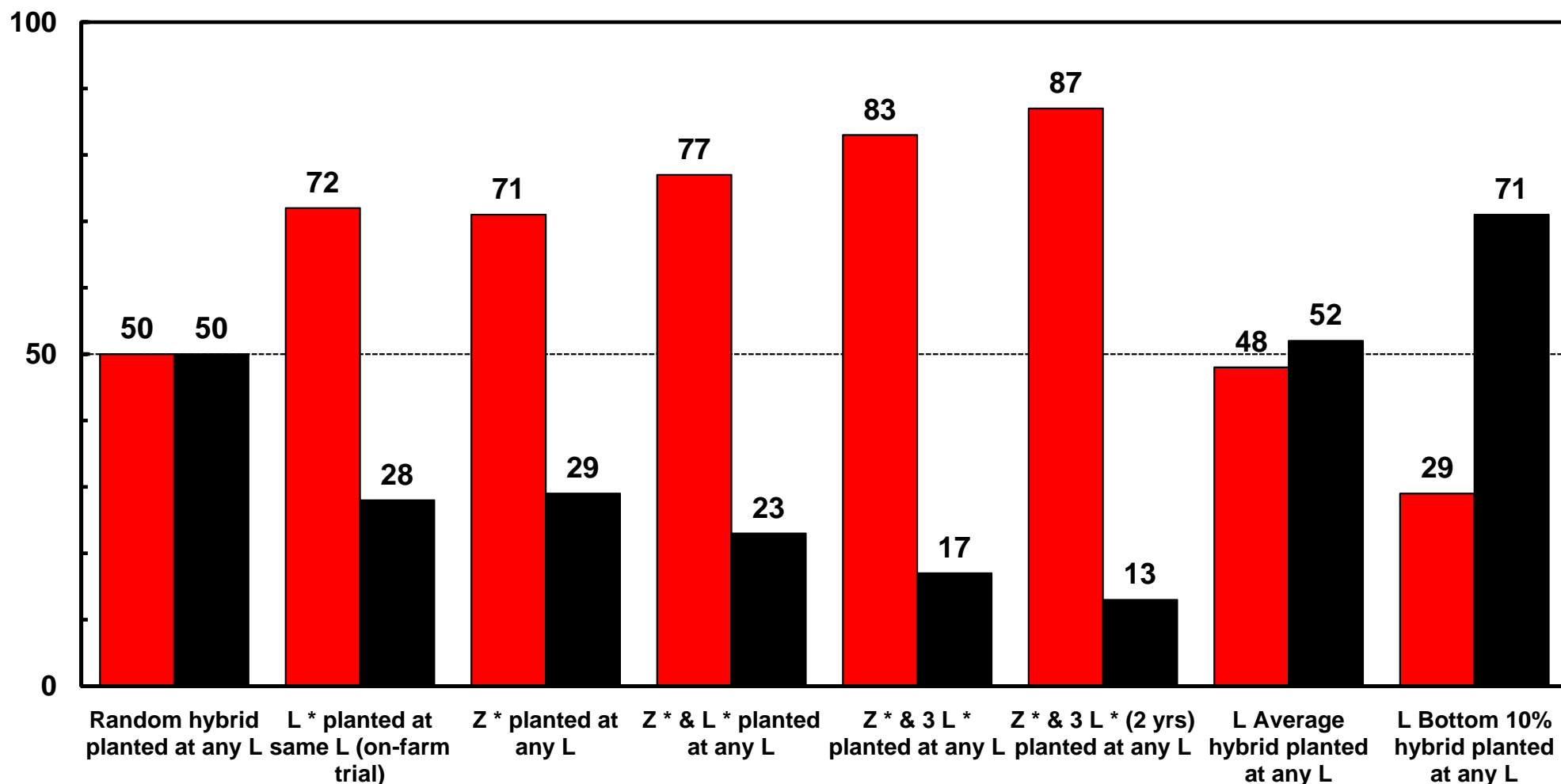
100 DAY RELATIVE MATURITY OR EARLIER, BASED ON COMPANY RATING (FOND DU LAC = FON, GALESVILLE = GAL, HANCOCK = HAN)

HYBRID	2005					2004					6 Test			
	AVERAGE					FON	GAL	HAN	AVERAGE		FON	GAL	HAN	AVE
	Yield bu/A	P.I. #	Moist %	Test Wt.	Lodged %	Yield bu/A	Yield bu/A	Yield bu/A	Yield bu/A	P.I. #	Yield bu/A	Yield bu/A	Yield bu/A	Yield bu/A
A 1 Loc *	229	101	18.8	55	0	207	214	265 *						
B Zone *, 2 Loc *	248 *	105 *	19.4	56	0	223 *	244	279 *						
C Average	229	100	19.7	56	1	211	249	229						
D Zone *, 3 Loc *, 2 Yrs	261 *	107 *	20.4	54	0	229 *	274 *	279 *	219 *	106 *	173 *	232 *	248 *	239 *
E Bottom 10%	178	88	20.6	56	0	156	146	232						
MEAN	227	100	19.6	56	0	205	230	248	195	101	160	206	213	216
LSD(0.10)**	17	4	0.8	1	1	13	16	20	22	7	28	20	19	12

Predicting next year's performance of a hybrid using various selection strategies

Frequency (%)

■ Top half of trial ■ Bottom half of trial



(L=Location, Z=Zone)

Source: Lauer (data from 1973-2009 within a Location Trial)

Economic consequences of various hybrid selection strategies

Selection scheme	N	Relative yield percent	Grain yield difference bu/A	Grower return difference \$/A
1 L* (on-farm)	2816	105	7	21
Z*	2405	104	7	21
Z* & 1L*	1122	106	10	28
Z* & \geq 3L*	515	107	13	36
Z* & \geq 3L* (2 yrs)	261	109	16	45
1 L average	4205	100	0	0
1 L bottom 10%	1122	94	-8	-22

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


Years	N	Relative yield percent	Grain yield difference bu/A	Grower return difference \$/A
1985-1990	213	106	9	25
1990-1995	255	106	9	25
1995-2000	286	106	11	30
2000-2005	255	106	11	34
2005-2009	113	104	7	20

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>

	A	B	C	D	E	F	G	H	I	J	K	L	M	N																																																																																																																																																									
1	Crop Seed Price Calculator v1.2 written by Joe Lauer, University of Wisconsin (September 2008)																																																																																																																																																																						
2																																																																																																																																																																							
3	Predicted Field Yield (bu/A)	150																																																																																																																																																																					
4																																																																																																																																																																							
5	Hybrid / Variety	Hybrid A	Hybrid B	difference																																																																																																																																																																			
6	Seed Price (\$/bag)	\$150.00	\$250.00	-\$100.00	Economic advantage (\$/acre) of Hybrid A or Hybrid B. Seed price difference = \$100 per bag: A = \$150, Hybrid B = \$250.																																																																																																																																																																		
7	Kernels/Seeds per bag (no./bag)	80,000	80,000	0	<table border="1"> <thead> <tr> <th colspan="2">Yield advantage</th> <th colspan="7">Crop Price (\$/bushel)</th> </tr> <tr> <th colspan="2">bushel/acre</th> <th>\$2.50</th> <th>\$3.00</th> <th>\$3.50</th> <th>\$4.00</th> <th>\$4.50</th> <th>\$5.00</th> <th>\$5.50</th> </tr> </thead> <tbody> <tr> <td></td> <td>14</td> <td>\$23</td> <td>\$30</td> <td>\$37</td> <td>\$44</td> <td>\$51</td> <td>\$58</td> <td>\$65</td> </tr> <tr> <td></td> <td>12</td> <td>\$18</td> <td>\$24</td> <td>\$30</td> <td>\$36</td> <td>\$42</td> <td>\$48</td> <td>\$54</td> </tr> <tr> <td>Hybrid A</td> <td>10</td> <td>\$13</td> <td>\$18</td> <td>\$23</td> <td>\$28</td> <td>\$33</td> <td>\$38</td> <td>\$43</td> </tr> <tr> <td>yields less than</td> <td>8</td> <td>\$8</td> <td>\$12</td> <td>\$16</td> <td>\$20</td> <td>\$24</td> <td>\$28</td> <td>\$32</td> </tr> <tr> <td>Hybrid B</td> <td>6</td> <td>\$3</td> <td>\$6</td> <td>\$9</td> <td>\$12</td> <td>\$15</td> <td>\$18</td> <td>\$21</td> </tr> <tr> <td></td> <td>4</td> <td>\$2</td> <td>\$0</td> <td>\$2</td> <td>\$4</td> <td>\$6</td> <td>\$8</td> <td>\$10</td> </tr> <tr> <td></td> <td>2</td> <td>\$7</td> <td>\$6</td> <td>\$5</td> <td>\$4</td> <td>\$3</td> <td>\$2</td> <td>\$1</td> </tr> <tr> <td>Hybrid A = Hybrid B</td> <td>0</td> <td>\$12</td> <td>\$12</td> <td>\$12</td> <td>\$12</td> <td>\$12</td> <td>\$12</td> <td>\$12</td> </tr> <tr> <td></td> <td>2</td> <td>\$17</td> <td>\$18</td> <td>\$19</td> <td>\$20</td> <td>\$21</td> <td>\$22</td> <td>\$23</td> </tr> <tr> <td></td> <td>4</td> <td>\$22</td> <td>\$24</td> <td>\$26</td> <td>\$28</td> <td>\$30</td> <td>\$32</td> <td>\$34</td> </tr> <tr> <td>Hybrid A</td> <td>6</td> <td>\$27</td> <td>\$30</td> <td>\$33</td> <td>\$36</td> <td>\$39</td> <td>\$42</td> <td>\$45</td> </tr> <tr> <td>yields more than</td> <td>8</td> <td>\$32</td> <td>\$36</td> <td>\$40</td> <td>\$44</td> <td>\$48</td> <td>\$52</td> <td>\$56</td> </tr> <tr> <td>Hybrid B</td> <td>10</td> <td>\$37</td> <td>\$42</td> <td>\$47</td> <td>\$52</td> <td>\$57</td> <td>\$62</td> <td>\$67</td> </tr> <tr> <td></td> <td>12</td> <td>\$42</td> <td>\$48</td> <td>\$54</td> <td>\$60</td> <td>\$66</td> <td>\$72</td> <td>\$78</td> </tr> <tr> <td></td> <td>14</td> <td>\$47</td> <td>\$54</td> <td>\$61</td> <td>\$68</td> <td>\$75</td> <td>\$82</td> <td>\$89</td> </tr> </tbody> </table>										Yield advantage		Crop Price (\$/bushel)							bushel/acre		\$2.50	\$3.00	\$3.50	\$4.00	\$4.50	\$5.00	\$5.50		14	\$23	\$30	\$37	\$44	\$51	\$58	\$65		12	\$18	\$24	\$30	\$36	\$42	\$48	\$54	Hybrid A	10	\$13	\$18	\$23	\$28	\$33	\$38	\$43	yields less than	8	\$8	\$12	\$16	\$20	\$24	\$28	\$32	Hybrid B	6	\$3	\$6	\$9	\$12	\$15	\$18	\$21		4	\$2	\$0	\$2	\$4	\$6	\$8	\$10		2	\$7	\$6	\$5	\$4	\$3	\$2	\$1	Hybrid A = Hybrid B	0	\$12	\$12	\$12	\$12	\$12	\$12	\$12		2	\$17	\$18	\$19	\$20	\$21	\$22	\$23		4	\$22	\$24	\$26	\$28	\$30	\$32	\$34	Hybrid A	6	\$27	\$30	\$33	\$36	\$39	\$42	\$45	yields more than	8	\$32	\$36	\$40	\$44	\$48	\$52	\$56	Hybrid B	10	\$37	\$42	\$47	\$52	\$57	\$62	\$67		12	\$42	\$48	\$54	\$60	\$66	\$72	\$78		14	\$47	\$54	\$61	\$68	\$75	\$82	\$89
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8	Seed Population (number/acre)	32,000	32,000	0																																																																																																																																																																			
9	Potential plant death (%)	10	10	0																																																																																																																																																																			
10	Acres per bag (acres/bag)	2.27	2.27	0.00																																																																																																																																																																			
11	Seed Cost (\$/acre)	\$66.00	\$110.00	-\$44.00																																																																																																																																																																			
12	Herbicide Cost (\$/acre)	\$25.00	\$18.00	\$7.00																																																																																																																																																																			
13	Insecticide Cost (\$/acre)	\$20.00	\$0.00	\$20.00																																																																																																																																																																			
14	Fungicide Cost (\$/acre)	\$0.00	\$0.00	\$0.00																																																																																																																																																																			
15	Insurance Cost (\$/acre)	\$15.00	\$10.00	\$5.00																																																																																																																																																																			
16																																																																																																																																																																							
17	Harvest Moisture (%)	20.0	20.0	0.0																																																																																																																																																																			
18	Drying (\$/point*bushel)	\$0.06	\$0.06	\$0.00																																																																																																																																																																			
19	Drying Cost (\$/bushel)	\$0.27	\$0.27	\$0.00																																																																																																																																																																			
20	Handling Cost (\$/bushel)	\$0.02	\$0.02	\$0.00																																																																																																																																																																			
21	Hauling Cost (\$/bushel)	\$0.04	\$0.04	\$0.00																																																																																																																																																																			
22	Trucking Cost (\$/bushel)	\$0.11	\$0.11	\$0.00																																																																																																																																																																			
23	Storage Cost (\$/bushel)	\$0.12	\$0.12	\$0.00																																																																																																																																																																			
24	Yield adjustment (\$/bushel)	\$0.56	\$0.56	\$0.00																																																																																																																																																																			
25	Yield adjustment (\$/acre)	\$84.00	\$84.00	\$0.00																																																																																																																																																																			
26																																																																																																																																																																							
27	Total Input Cost (\$/acre)	\$210.00	\$222.00	\$12.00																																																																																																																																																																			

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%

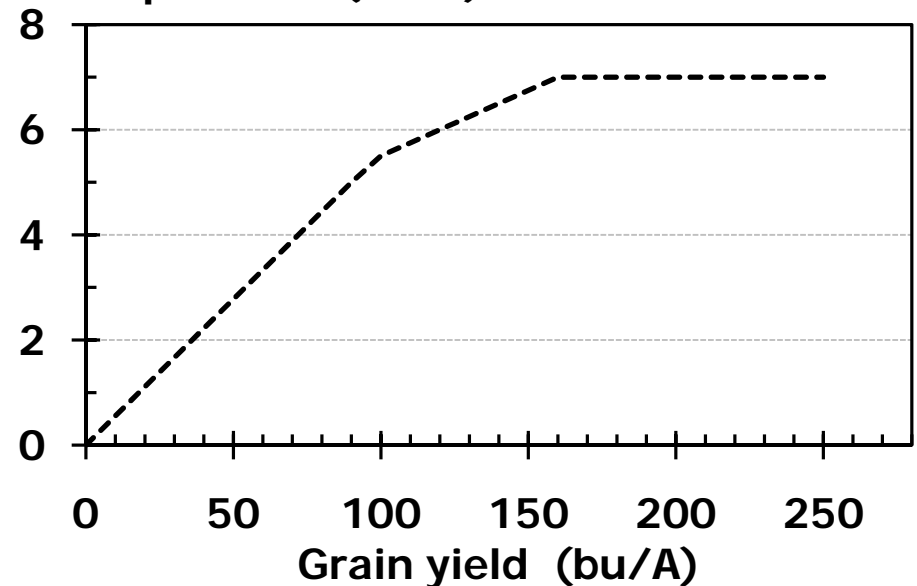
Traditional method

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

Yield of Corn Grain Bushels/Acre	Bushels of Dry Grain Equivalent/Ton of Silage
Less than 90	5.0
90 - 110	5.5
110 - 130	6.0
130 - 150	6.5
Over 150	7.0

Source: Jorgensen and Crowley, 1972

Grain equivalent (bu/T)



Materials and Methods

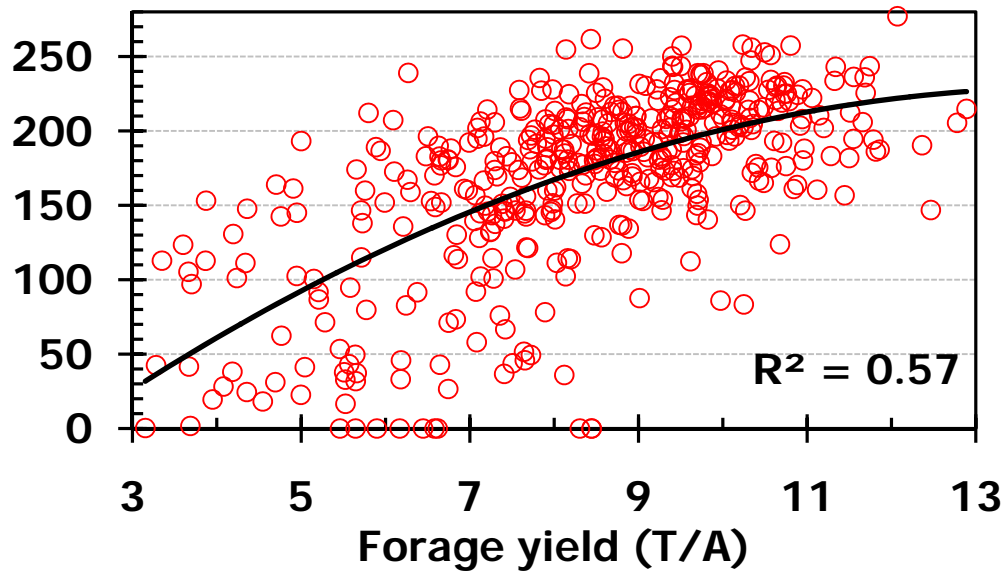
- **Total = 2794 plots**
- **Hybrid (2004-2007)**
 - ✓ N=6 hybrids per year
 - ✓ Bmr, leafy, transgenics, normal
- **Plant density (1997-2009)**
 - ✓ 14,000 to 60,000 plants/A
- **Date of planting (1997-2009)**
 - ✓ April 13 to July 1
- **Interactions**
 - ✓ Hybrid x PD, DOP, RS
 - ✓ Plant density x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

Location	Hybrid	Plant density	Date of planting	Interactions
Arlington	70	726	466	760
Ashland			46	
Fond du Lac	36			64
Galesville	71			
Hancock			91	
Lancaster	17			
Marshfield	72		92	
Rhineland	42			
Sparta		12		
Spooner			95	
Valders	72			62
Total	380	738	790	886

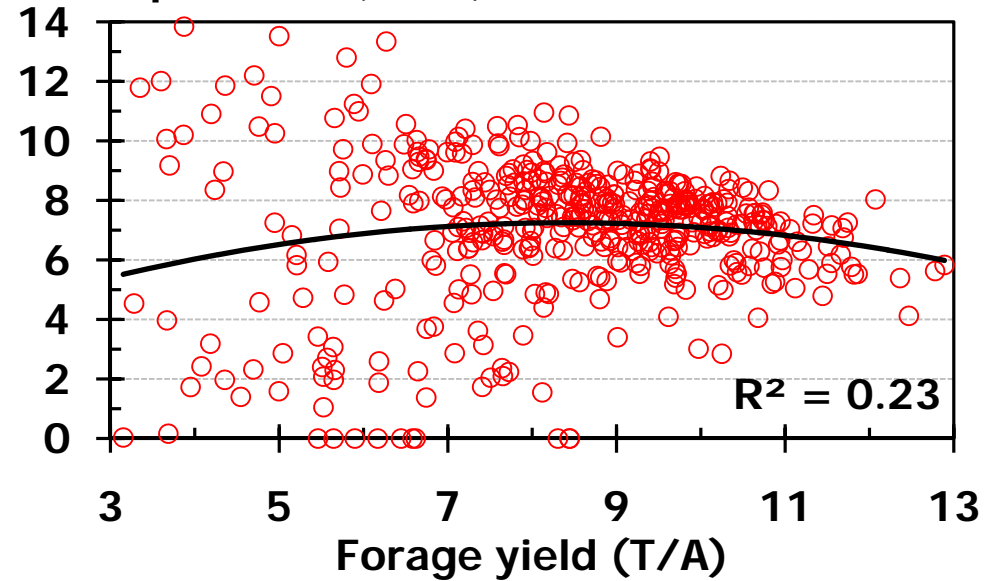


Relationship between corn grain and forage yield

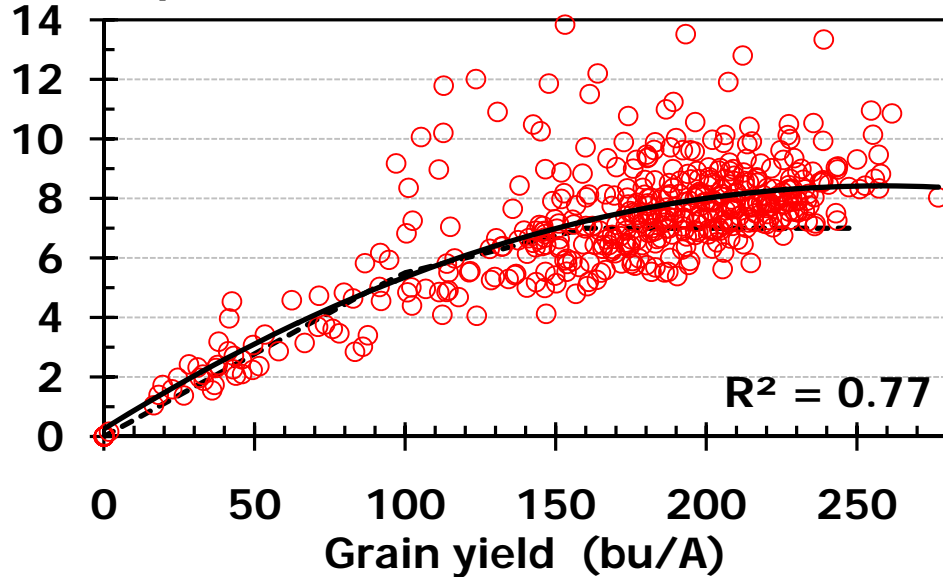
Grain yield (bu/A)



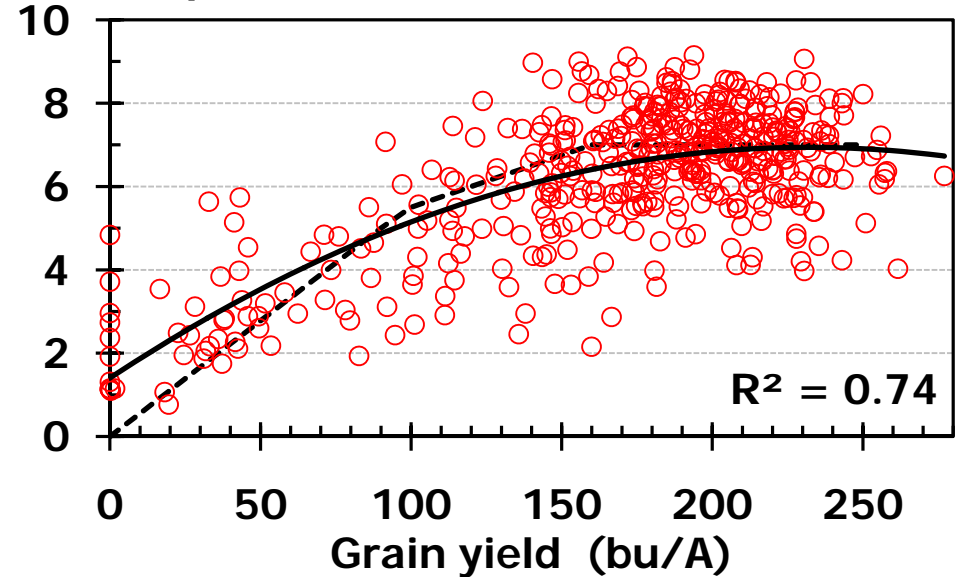
Grain equivalent (bu/T)



Grain equivalent (bu/T)



Starch equivalent (bu/T)



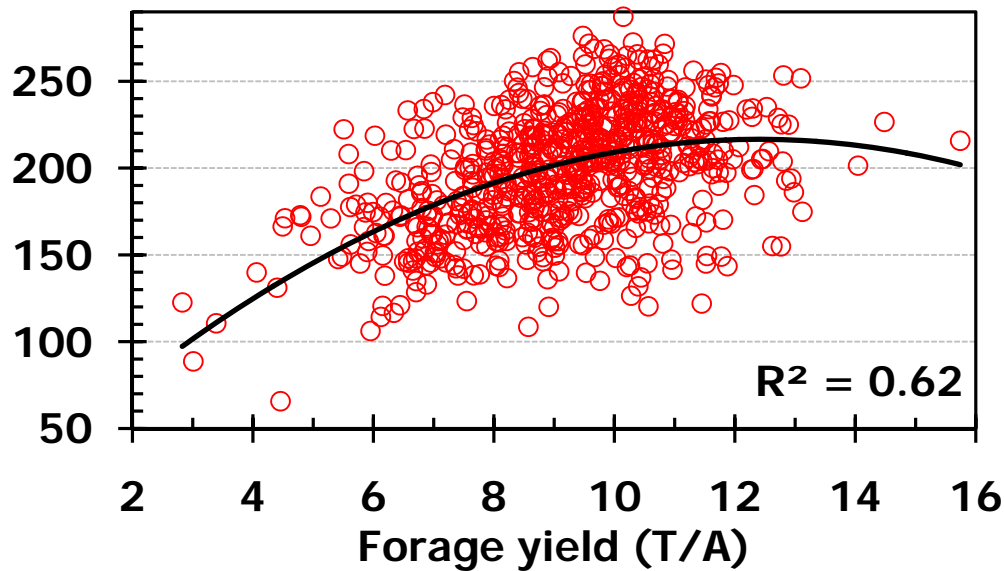
Source: Lauer (Arlington, 1997-2008, 03DOP n=466)

<http://www.agronomy.wisc.edu>

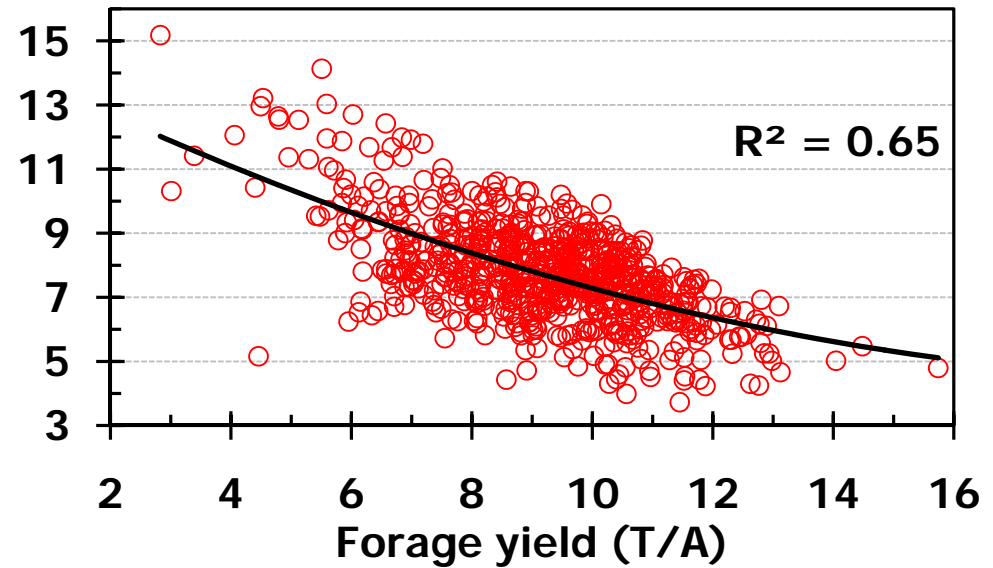
Lauer © 1994-2010
University of Wisconsin – Agronomy

Relationship between corn grain and forage yield

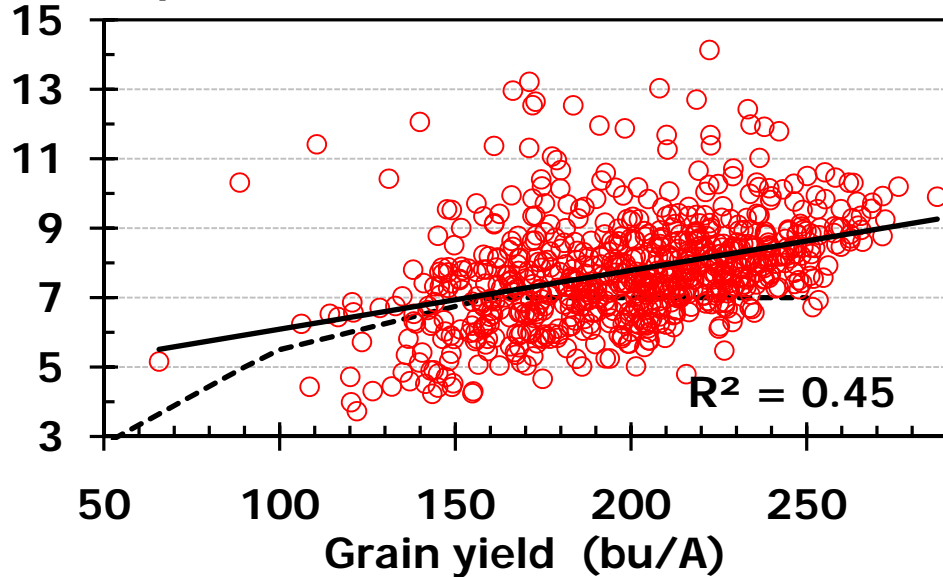
Grain yield (bu/A)



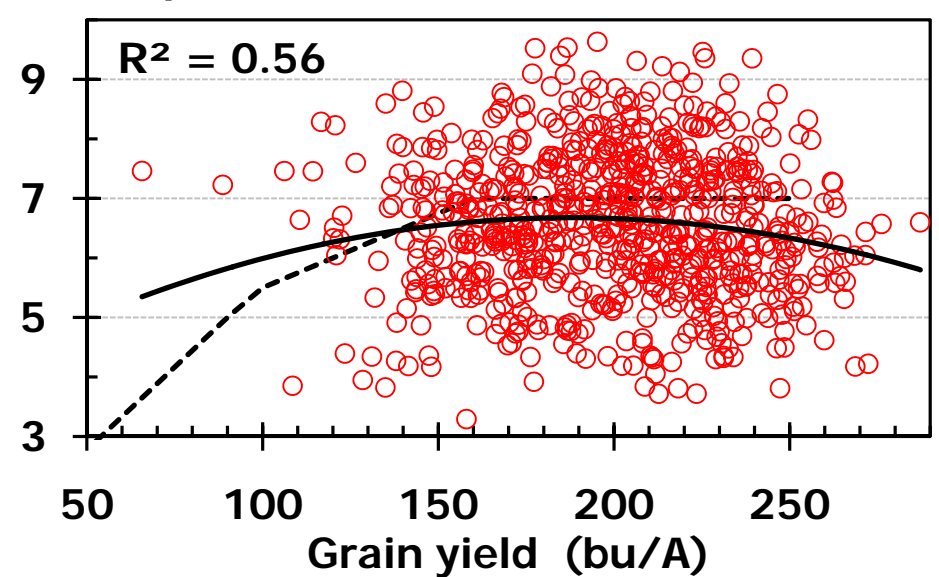
Grain equivalent (bu/T)



Grain equivalent (bu/T)



Starch equivalent (bu/T)



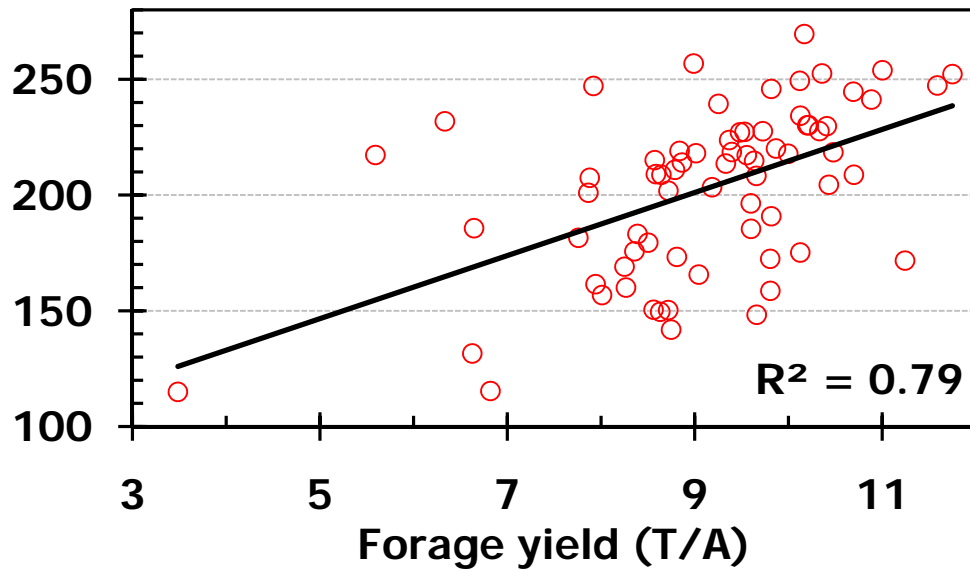
Source: Lauer (Arlington, 1997-2009, 02PD, n=726)

<http://corn.agronomy.wisc.edu>

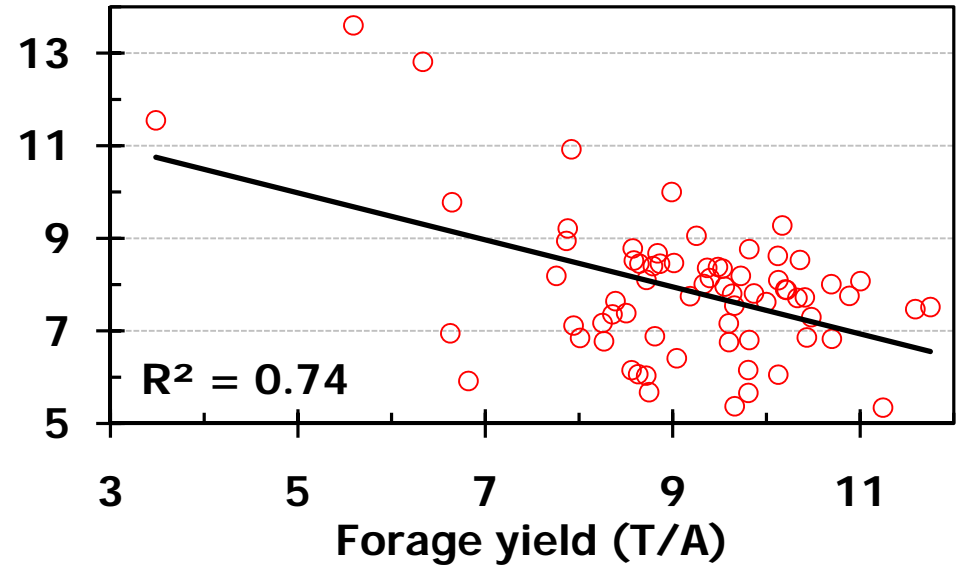
Lauer © 1994-2010
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Relationship between corn grain and forage yield

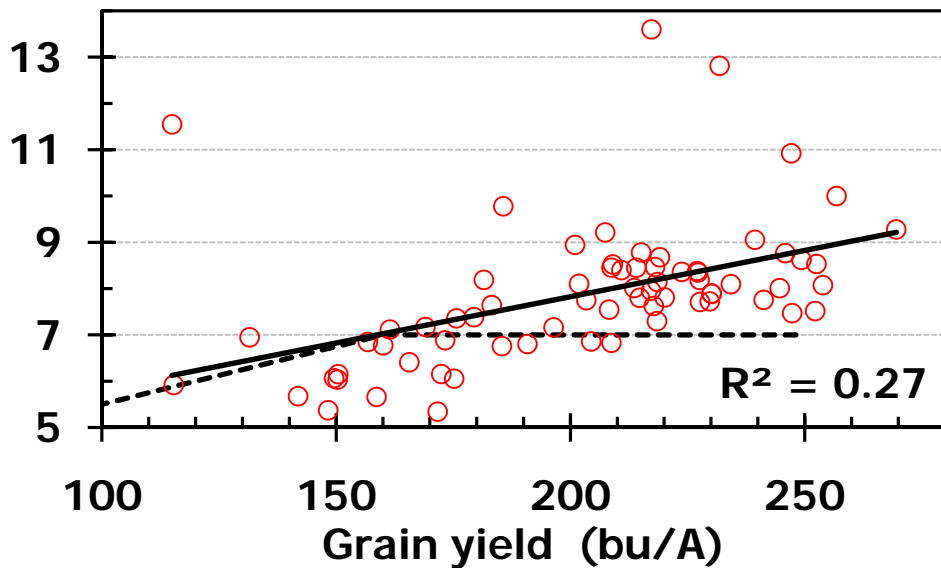
Grain yield (bu/A)



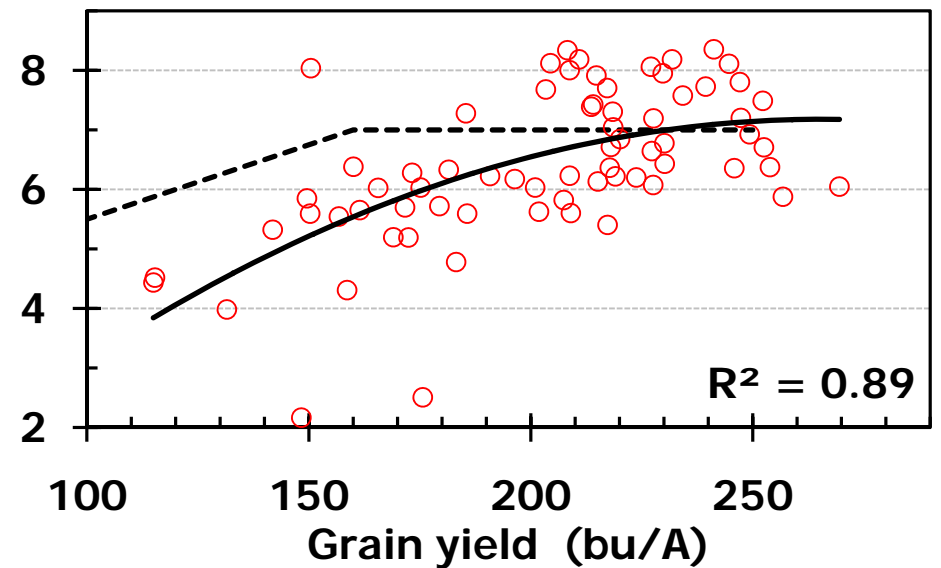
Grain equivalent (bu/T)



Grain equivalent (bu/T)



Starch equivalent (bu/T)



Source: Lauer (Arlington, 2004-2007, 01HT, n=70)

<http://corn.agronomy.wisc.edu>

Lauer © 1994-2010
University of Wisconsin – Agronomy

Corn grain equivalents (at 15.5% moisture) per Ton of Silage (at 65% moisture)

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

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_2O_5 per Ton of DM = 4.6
 - ✓ Pounds of K_2O 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

written by Ryan Sterry, Lee Milligan and Joe Lauer

available at <http://corn.agronomy.wisc.edu/Season/DSS.aspx>

UWEXCornSilagePricingDecisionAid.xls [Read-Only] [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

D7 120

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 Bushels/Acre		120	
Silage % DM		35%	
	Estimated	Actual	*To use estimated yield actual column must be BLANK!
Corn Silage/Tons Acre (Wet Basis)	16.14		16.14

Price Perspective

	Seller	Buyer
Local Market Price for No.2 Corn at 15.5% moisture as Buyer or Seller	\$3.50	\$3.85
Local Market Price per ton for poor quality/low protein forage to Buyer (a)		\$75
Average grain loss for harvest before black layer (Bushels/Acre) (b)		11
Gross Value of Corn Crop/Acre	\$420	\$611

Grain Harvest Costs (c)

Combining Cost/Acre	\$25.00
Trucking Cost/Acre	\$18.00
\$/Bushel	\$0.15
Drying Cost/Acre	\$28.80
\$/Bushel	\$0.24
Storage Cost/Acre	\$32.40
\$/Bushel/month	\$0.03
Storage Length (months)	9
Harvest and Storage Loss (d)	\$10.50
% Loss	2.50%
Total Harvest Costs/Acre	\$114.70
Minimum Value/Acre of Corn Silage to Seller	\$305.30
(Gross Value of Crop - Grain Harvest Costs)	
Value of Corn Silage to Seller on a \$/ton wet basis	\$18.92

Silage Harvest Costs (e)

Chopping \$/Acre	\$55.00	
Hauling \$/Acre	\$15.00	
Harvest and Storage Loss (f)	\$79.43	
	Estimated	Actual (if known)
Concrete tower	13%	13%

Introduction Pricing STANDING Corn Silage Pricing HARVESTED Corn Silage Yield Estimate

Ready 100%

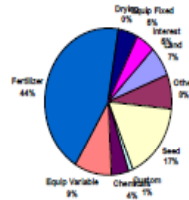


Results to date = money loss

2008 PEPS Program Summary Sheet

Entry No./ID: 2075 / 378
 District: 4
 Division: Corn, Silage
 Note:

Yield (T @ 65%/A or T DM/A) = 20.5 or 7.2 Starch (% DM) = 39.4 ADF (%) = 17.6 CP (%) = 8.6
 Moisture (%) = 46.2 NDFD (% of NDF) = 65.5 NDF (%) = 38.2



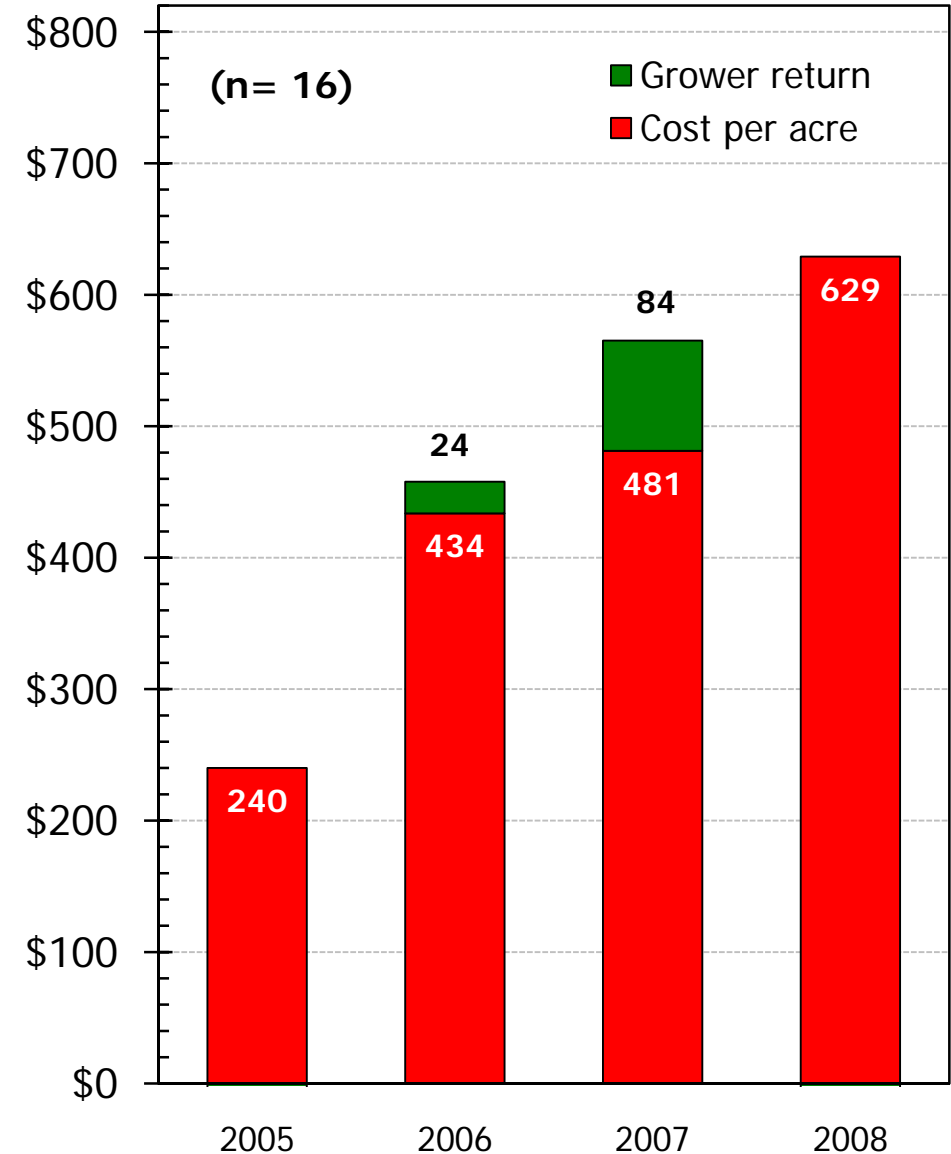
VARIABLE COSTS by Category	Description	Rate/A	Units	N + Micro	\$/Unit	\$/A	Total by Category
Seed	Mycogen F2F635	0.36	bag		276.060	100.07	\$100.07
Fertilizer	Starter (lb material/A): 36-0-0-8	205		1.00	0.332	68.00	\$260.21
	Nitrogen (lb material/A): 25-0-0-3S	420		1.00	0.237	99.58	
	Other (lb material/A): Manure (T or gal/A): Liquid Manure	4000					
	P2O5 Removal (lb/A): Yield x 3.6 lbs/T removed x \$/lb	73.8			0.3963	32.50	
	K2O Removal (lb/A): Yield x 8.3 lbs/T removed x \$/lb	170.2			0.1965	60.13	
Chemicals	Herbicides: Dual II	1.3	pt		14.556	19.36	\$25.87
	Sterling	0.5	pt		13.020	6.51	
	Insecticides: Inoculant: Fungicides: Growth Regulators:						
Custom Machinery Hire	Custom Spray				6.50		\$6.50
Estimated Equipment Operating Costs	Liquid Manure Spreader 3500 Gal				10.06		\$55.61
	Min-Til Planter 6 Row-30, 15 Ft				7.34		
	Forage Harvester (Corn Head) 3 Row, 7.5 Ft				38.21		
Other Expenses	Crop Insurance	1.0			24.43	24.43	\$45.46
	Irrigation	1.0			21.03	21.03	
Harvesting and Storage Costs	Handling=\$0.75/T DM; Hauling=\$1.50/T DM; Packing or Filling=\$0.50/T DM; and Storage=\$1.00/T DM. Silage loss during storage = 15%.				118.16		\$118.16
Interest	4.5% of variable costs				27.53		\$27.53
Total Variable Costs							\$639.42

FIXED COSTS by Category	Description	\$/A	Total by Category
Estimated Equipment Overhead	Liquid Manure Spreader 3500 Gal	11.27	\$30.09
	Min-Til Planter 6 Row-30, 15 Ft	6.05	
	Forage Harvester (Corn Head) 3 Row, 7.5 Ft	12.77	
Land	Average of Cash Rent and 50% of NRCS Potential Corn Yields (Soils Form)	38.75	\$38.75
Total Fixed Costs			\$68.84

TOTAL COST PER ACRE = Variable costs + Fixed costs = 639.42 + 68.84 = **\$708.26**
TOTAL COST PER TON = Cost per Acre / Yield = 708.26 / 7.18 = **\$98.69**
SILAGE VALUE (\$/T @ 65% or \$/T DM) = \$29.67 or \$84.77 (\$/A) = \$608.32
 Milk per Ton (lb / T DM) = 3038 Milk per Acre (lb / A) = 21,802
TOTAL RETURN PER ACRE (Value x Yield) - Cost per Acre = (\$84.77 x 7.18) - 708.26 = **(\$99.94)**

Corn price = Weighted Price per Bushel = 50% November Average Cash price + 25% March Futures price (\$0.15 basis) + 25% July Futures price (\$0.10 basis).
 Milk price = Weighted Price per CWT = [2/12 x October and November Average Cash price] + [10/12 x December to September Futures price (\$1.25 basis)].
 Average Cash price derived from Wisconsin Ag Statistics; Futures prices derived from closing price of Class III milk on first business day in December at CME.
 2008: Corn price (\$/bu) = \$3.71, Milk price (\$/cwt) = \$14.02.
 Silage Value = Base price + Starch adjustment + NDFD adjustment = \$60 per Ton + [(Starch-29%) x 0.5 bu x Corn price] + [NDFD x 0.6 x Milk price]

\$/A

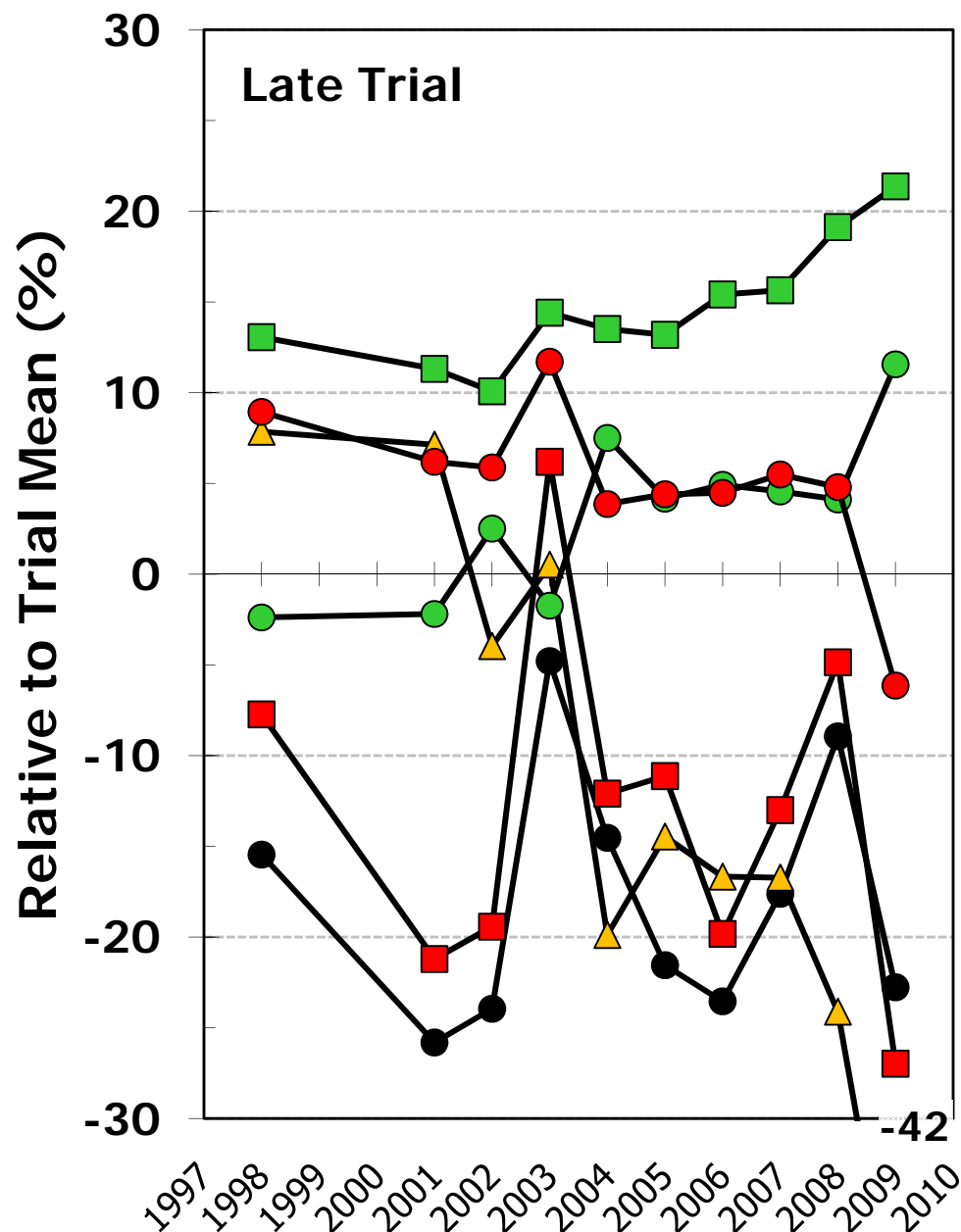
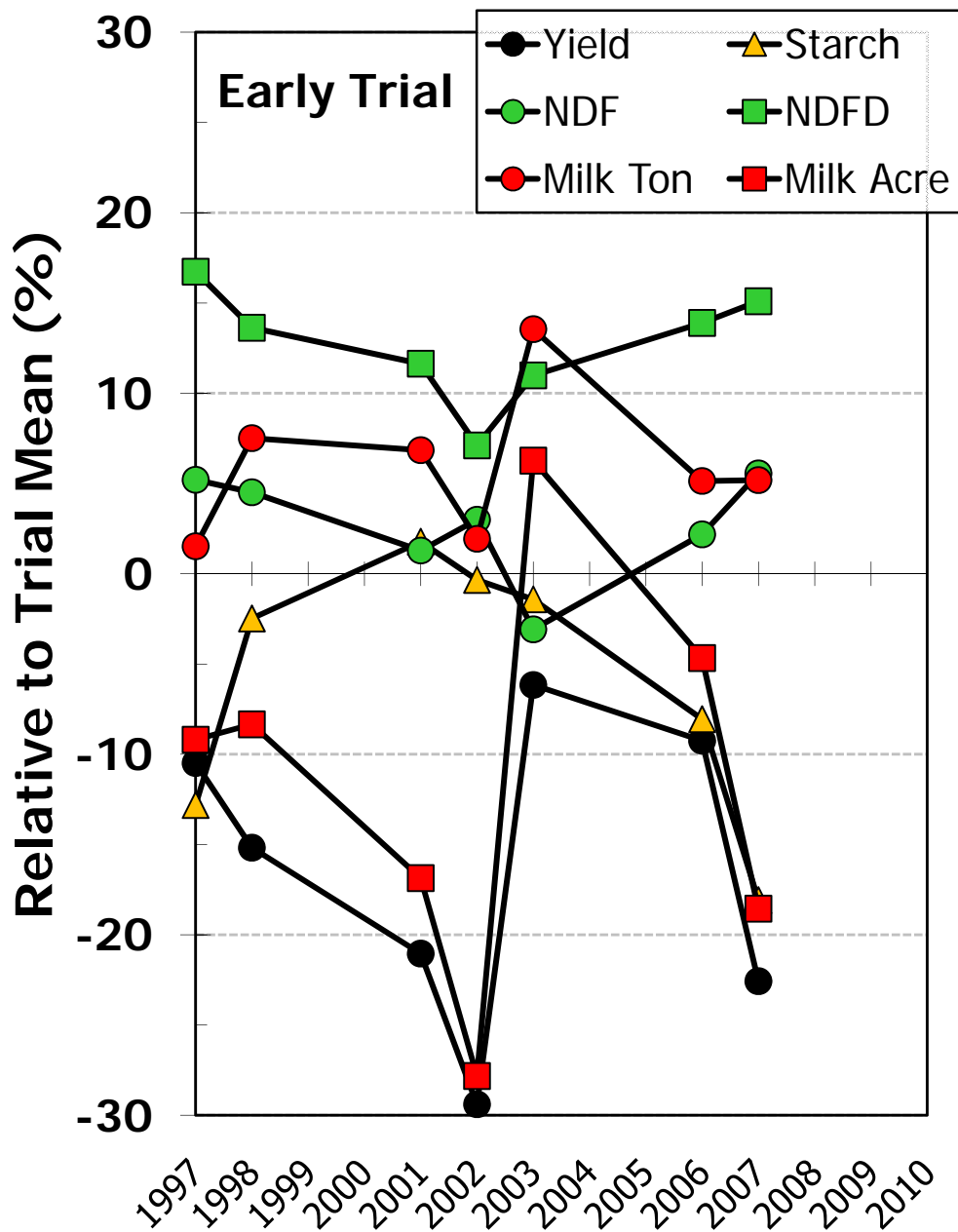


Bmr corn: How far has it come?

- **“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?**

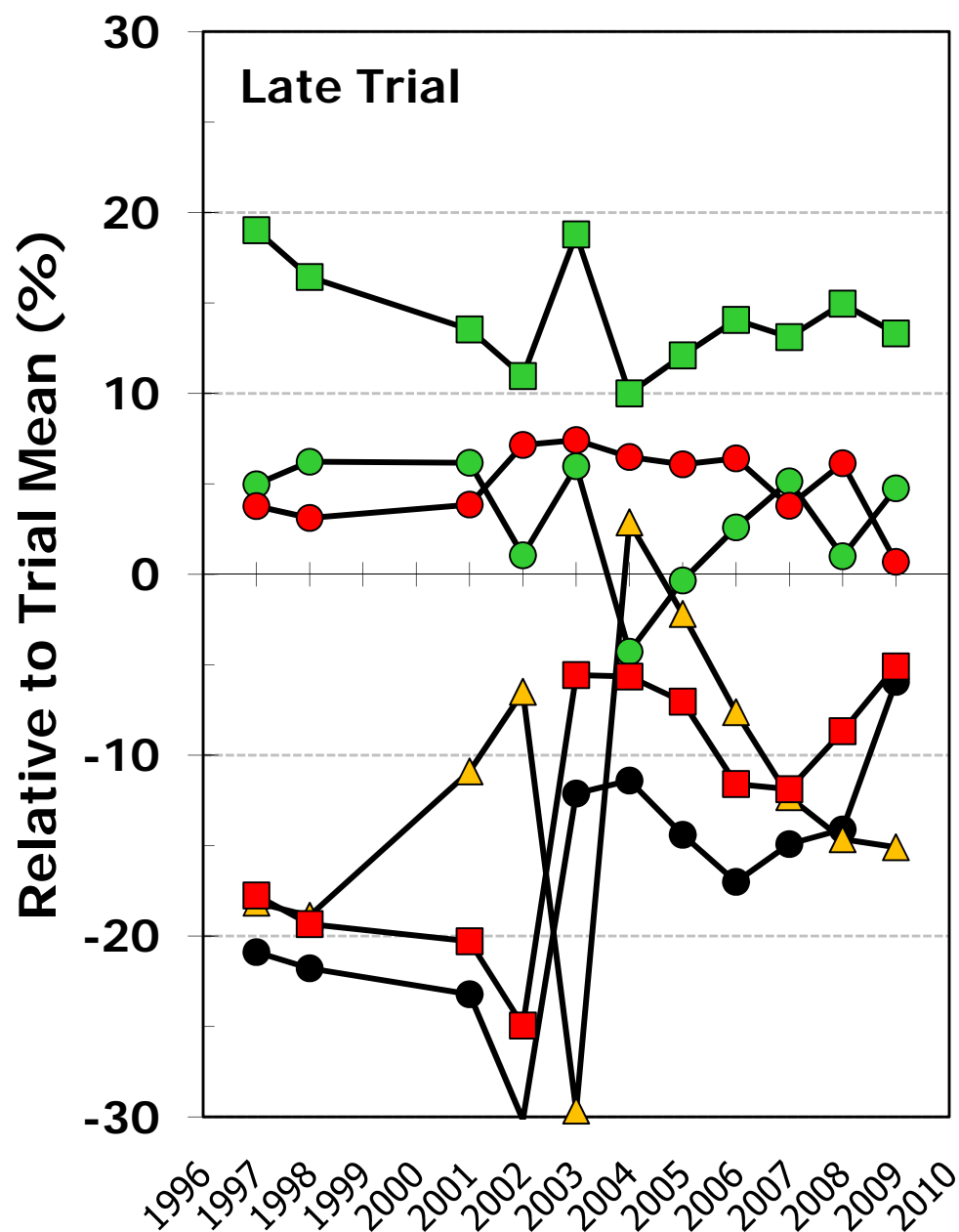
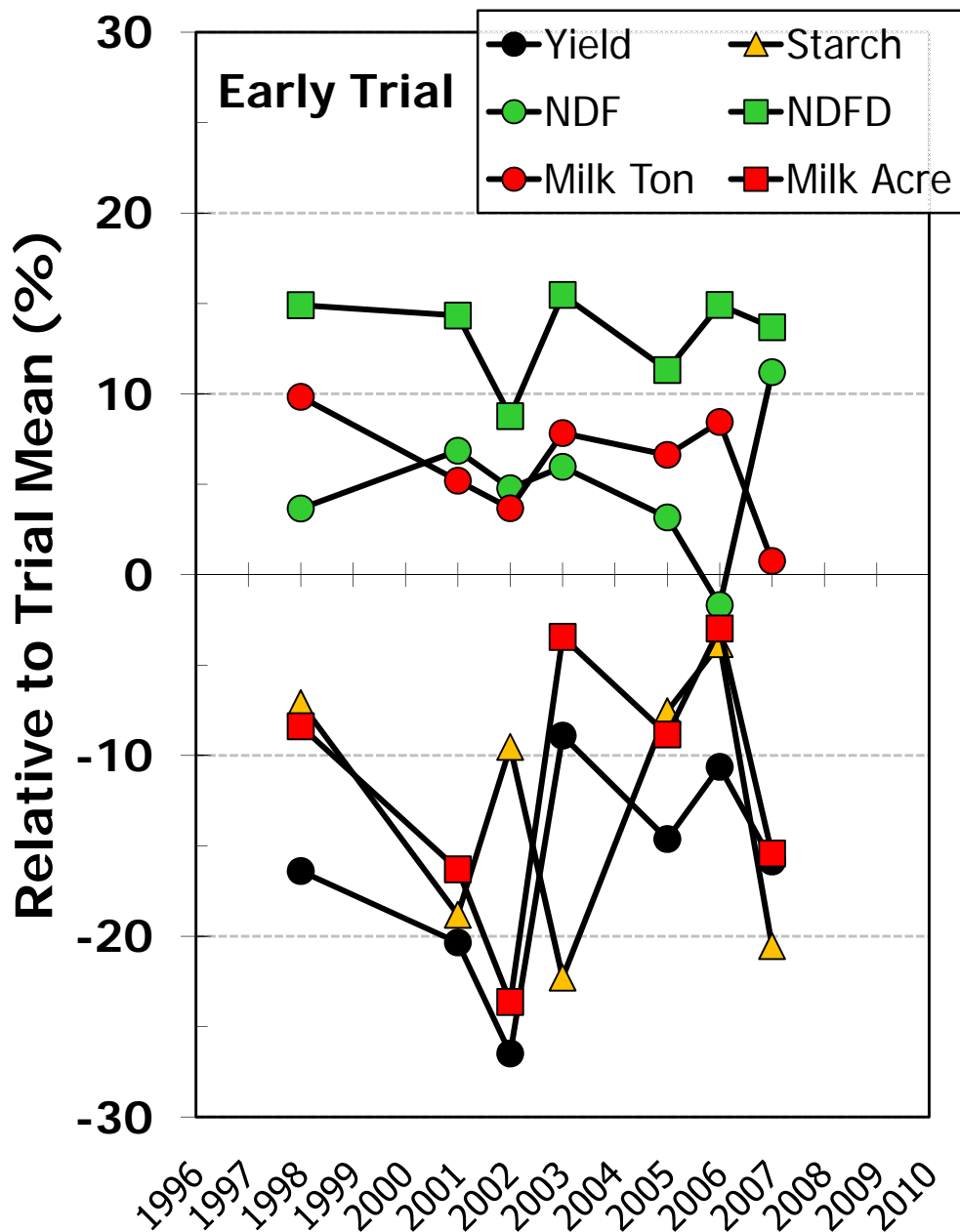


Relative performance of bmr corn hybrids to the trial mean



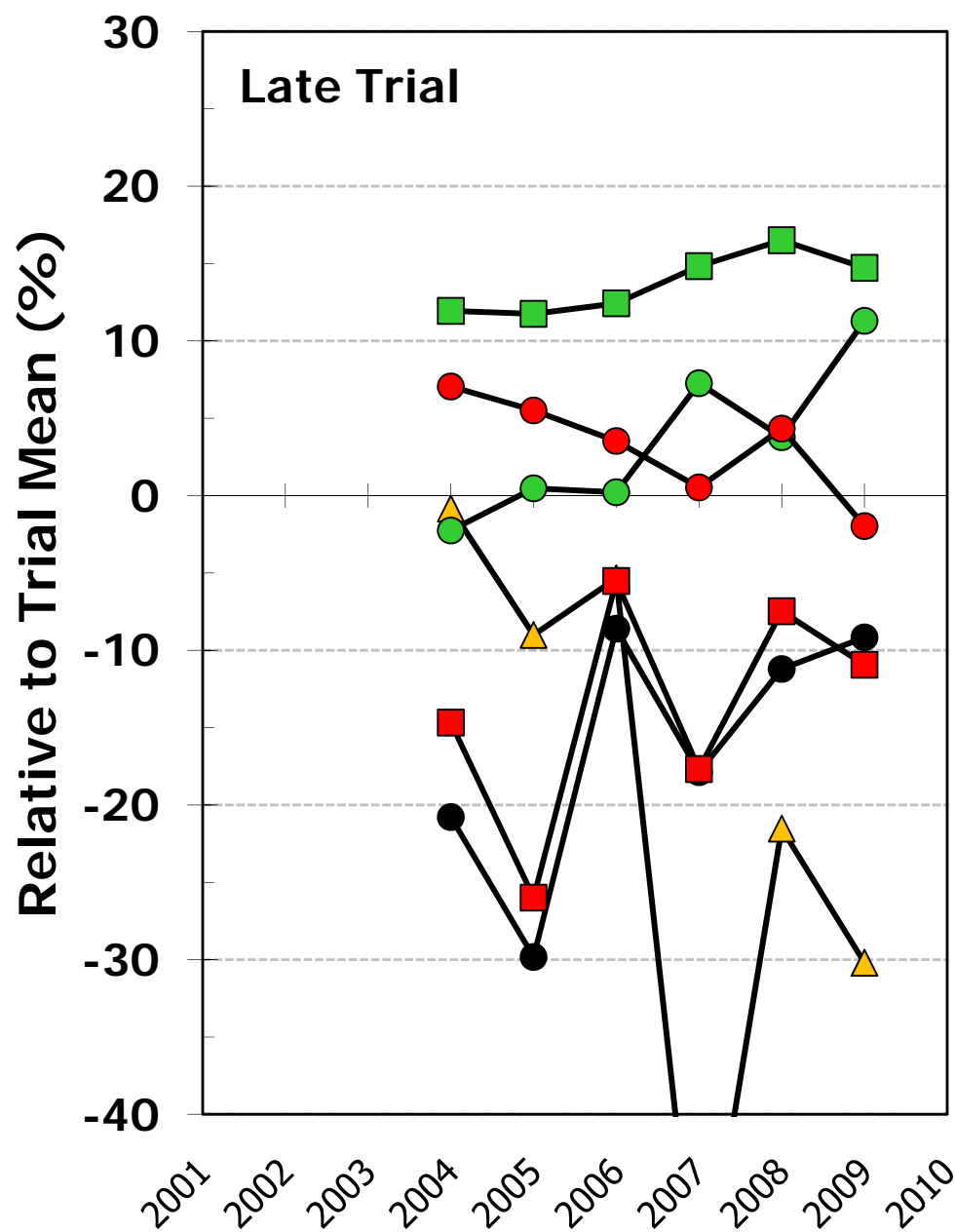
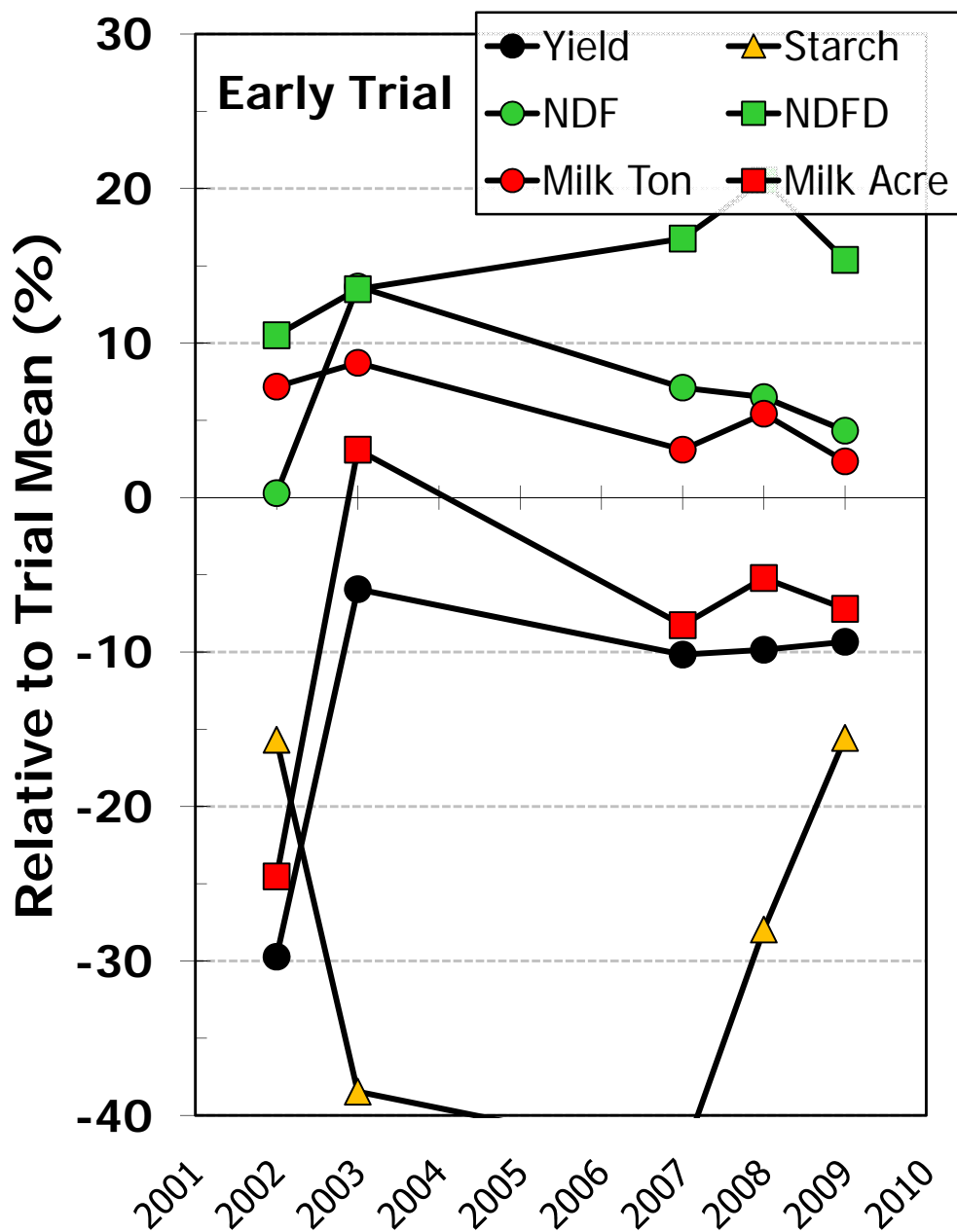
Source: Lauer (Southern Zone)

Relative performance of bmr corn hybrids to the trial mean



Source: Lauer (South Central Zone)

Relative performance of bmr corn hybrids to the trial mean



Source: Lauer (North Central Zone)

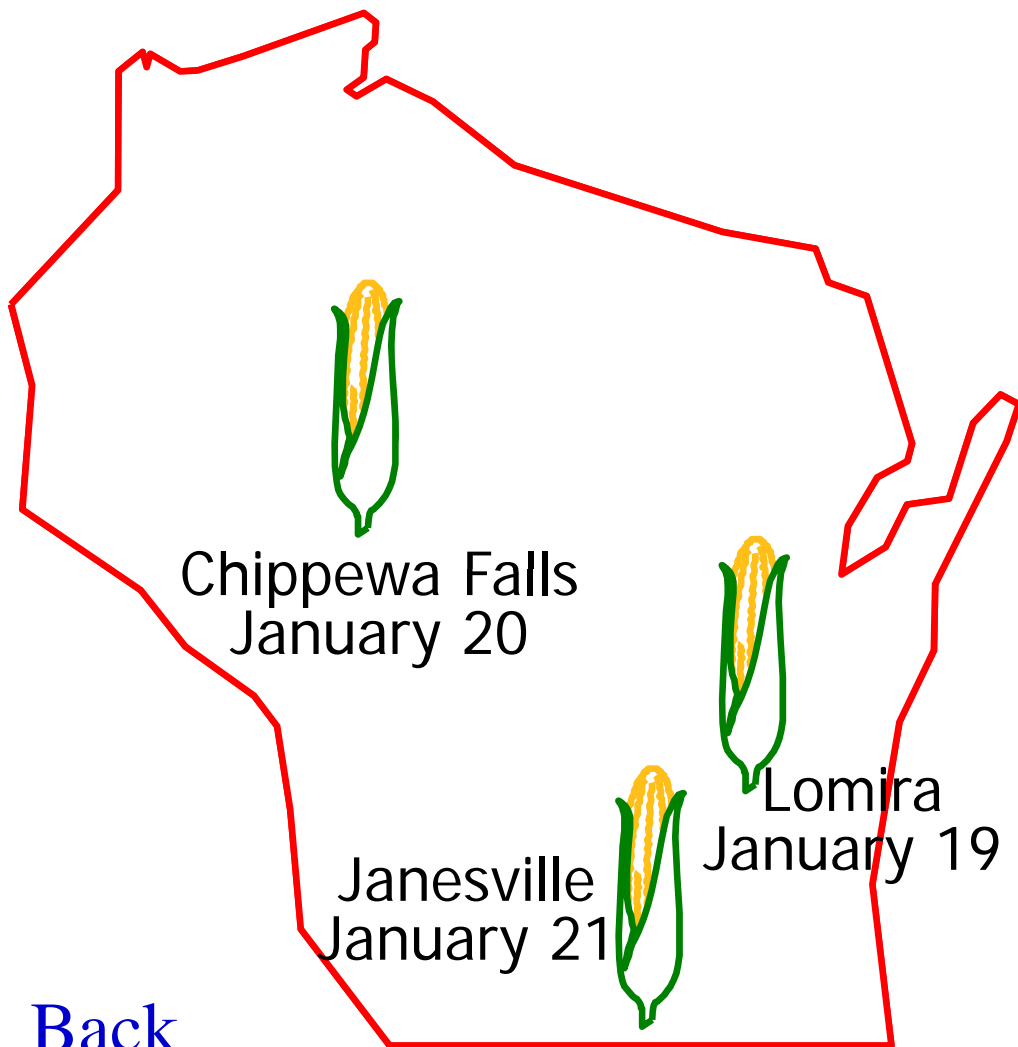
Summary

- **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 it attractive to dairy operations
 - ✓ Agronomic research is needed

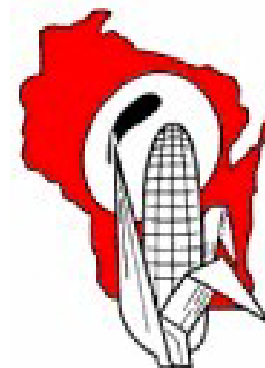


Thanks for your attention!
Questions?

2010 Corn Conferences



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**January 28-29, 2010
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