

# 2006 Agronomy Update Meetings

**Richland Center, Janesville, Madison, Fond du Lac,  
Kimberly, Wausau, Eau Claire, Sparta, Platteville**

**Joe Lauer**

**University of Wisconsin**

**Cooperating with Richland, Rock, Dane, Fond du Lac,  
Outagamie, Marathon, Eau Claire, Monroe, and Grant  
Counties**

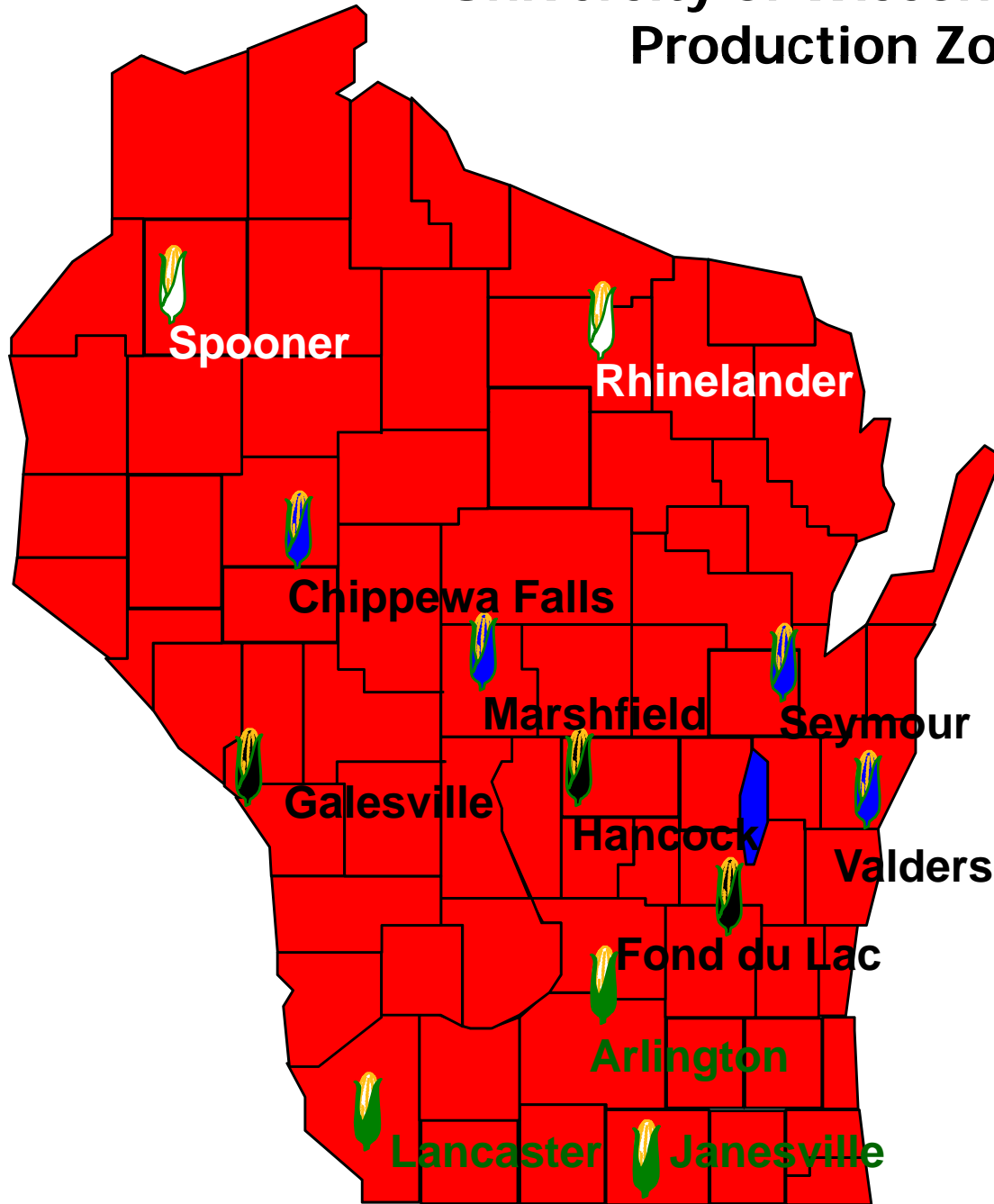
**January 3 – 10, 2006**

# Corn Production during 2005

- **Record grain yields in western Wisconsin**
- **Growing season**
  - ✓ Cool, dry spring
  - ✓ Drought stress, variable rains
  - ✓ Corn growth and development on target with normal GDU accumulation
  - ✓ Beautiful September and October harvest season
- **Hybrid Trials: New Grain Production Records**
  - ✓ Zone (n=9): High Cycle 7560Bt = 261 bu/A (SC)
    - ❑ Previous record: Pioneer 33A14 = 259 bu/A (S-1998)
    - ❑ Six hybrids from S and SC zone placed in Top 10 performances
  - ✓ Location (n=3): Dairyland Stealth 5204 = 288 bu/A (Hancock)
    - ❑ Previous record: Jung 2668 = 284 bu/A (Arlington-1998)
    - ❑ Six hybrids from Hancock placed in Top 10 performances



# University of Wisconsin - Corn Agronomy Program Production Zones = S, SC, NC, and N





# 2005 Wisconsin Corn Performance Trials

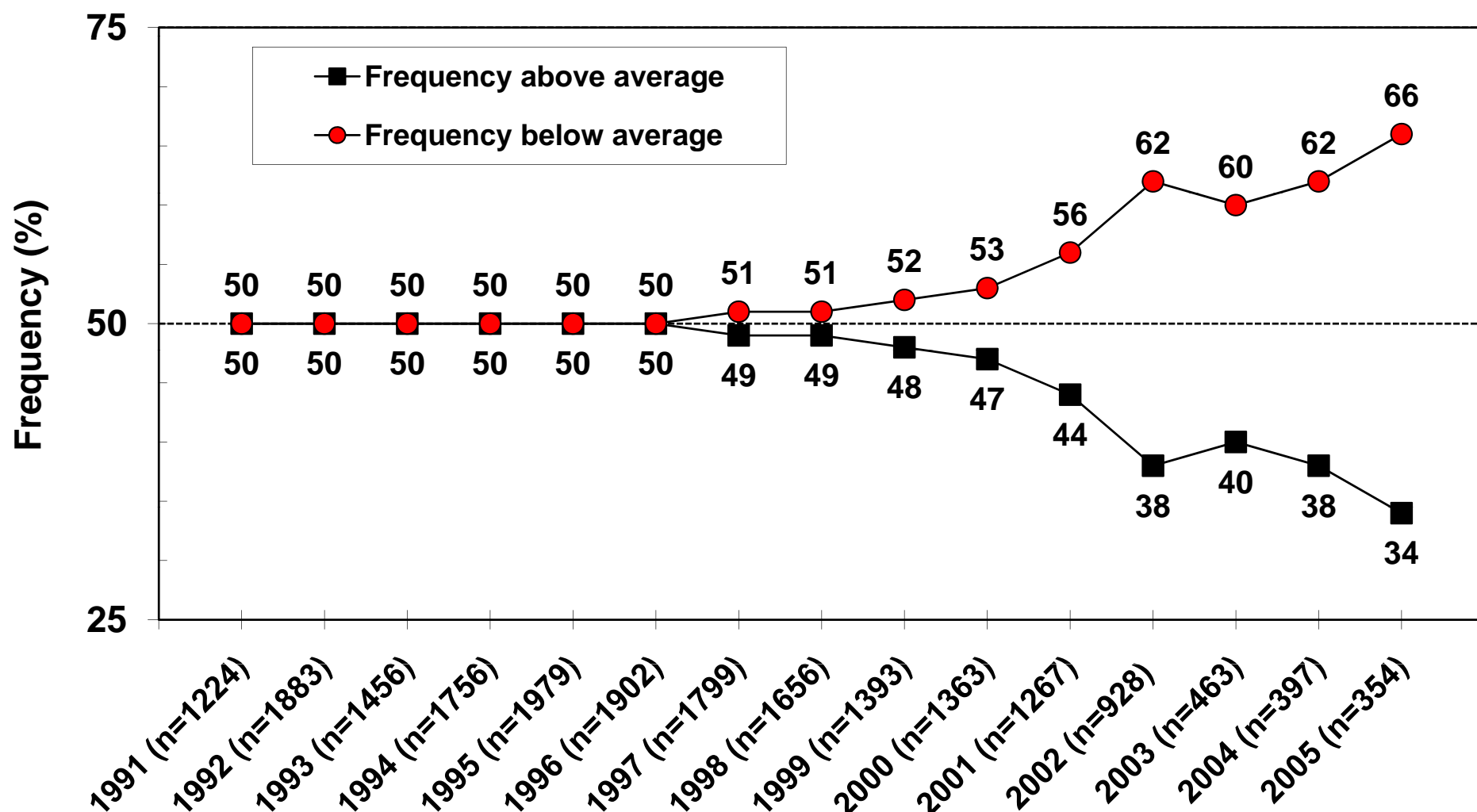
## Grain Summary

Location	<u>1995-2004</u>		<u>2005</u>		Percent change
	N	Yield	N	Yield	
Arlington	1838	198	167	227	15
Janesville	1837	198	167	217	10
Lancaster	1837	189	166	238	26
Fond du Lac	1637	171	149	207	21
Galesville	1634	178	149	238	34
Hancock	1633	197	149	255	29
Chippewa Falls	1528	149	142	130	-13
Marshfield	1362	158	142	180	14
Seymour	1204	161	142	169	5
Valders	1530	153	142	184	20
Spooner	1661	142	94	132	-7
White Lake/Rhineland	511	106	47	187	76

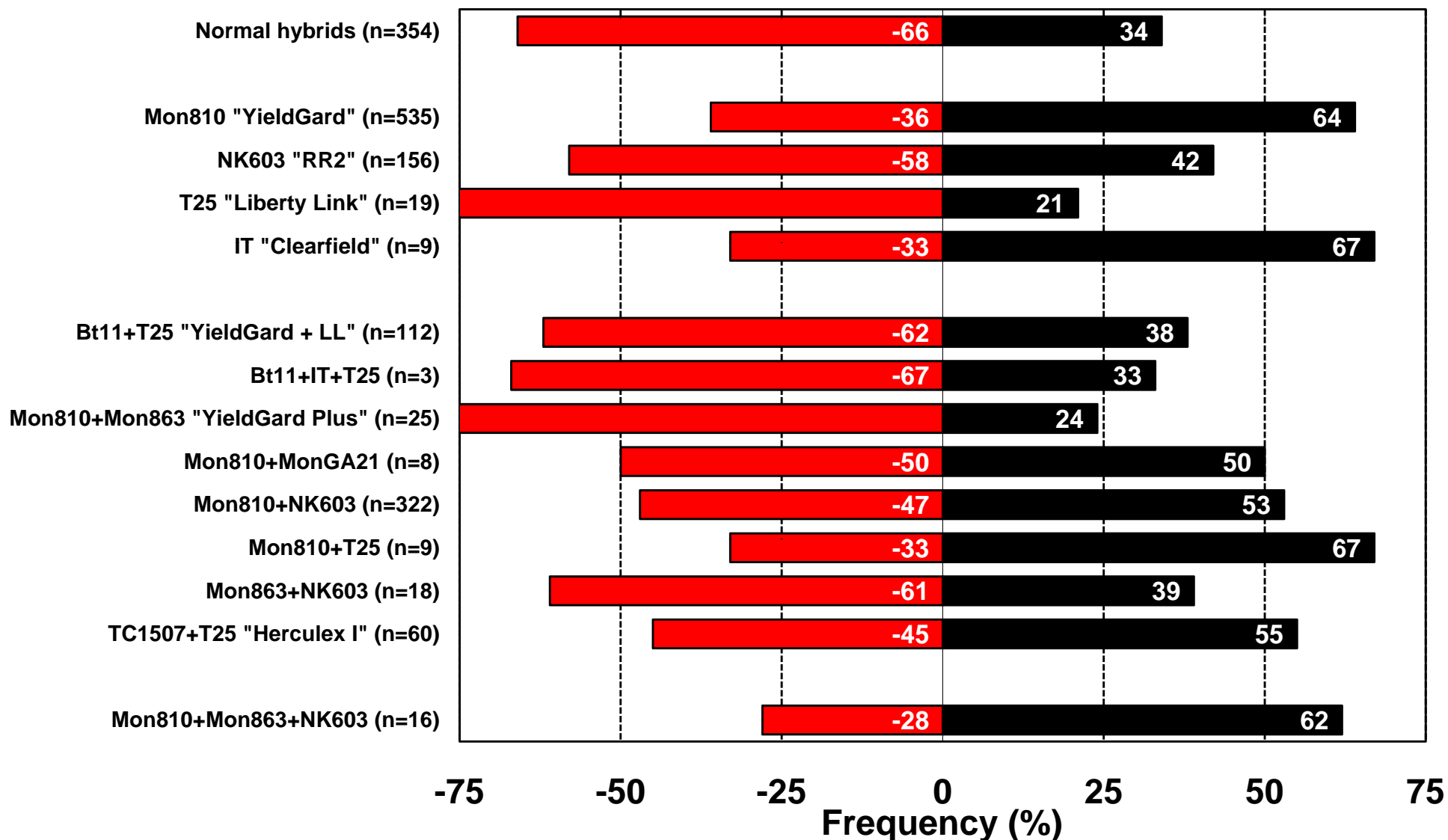
# 2005 Wisconsin Corn Performance Trials Silage Summary

<b>Location</b>	<u>1995-2004</u>		<u>2005</u>		Percent change
	N	Yield	N	Yield	
Arlington	543	9.5	56	8.9	-5
Lancaster	543	8.1	56	9.7	19
Fond du Lac	533	8.4	60	8.7	3
Galesville	538	8.6	60	10.1	17
Chippewa Falls	155	7.7	50	6.5	-15
Marshfield	543	6.8	50	7.7	13
Valders	543	6.8	50	7.4	9
Rhineland	69	6.3	22	8.7	38
Spooner	138	7.9	44	6.2	-22

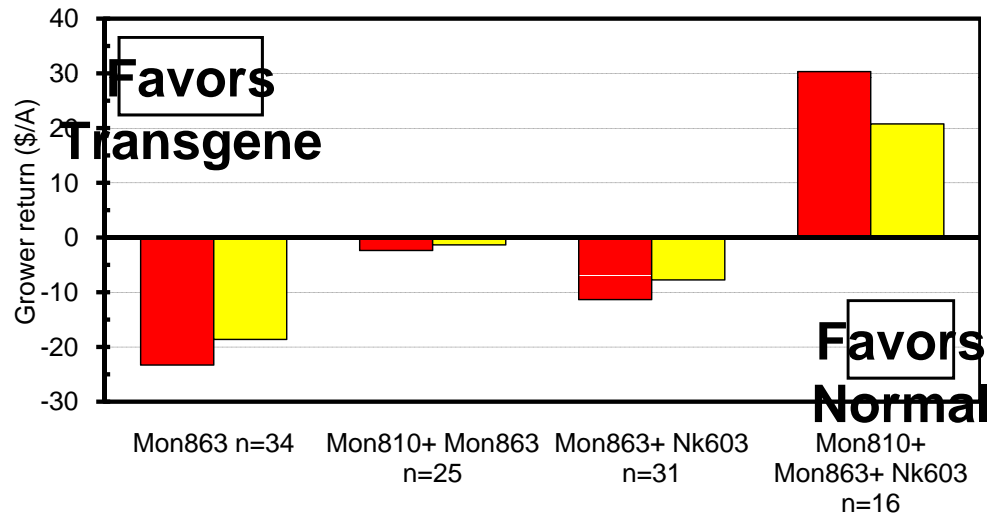
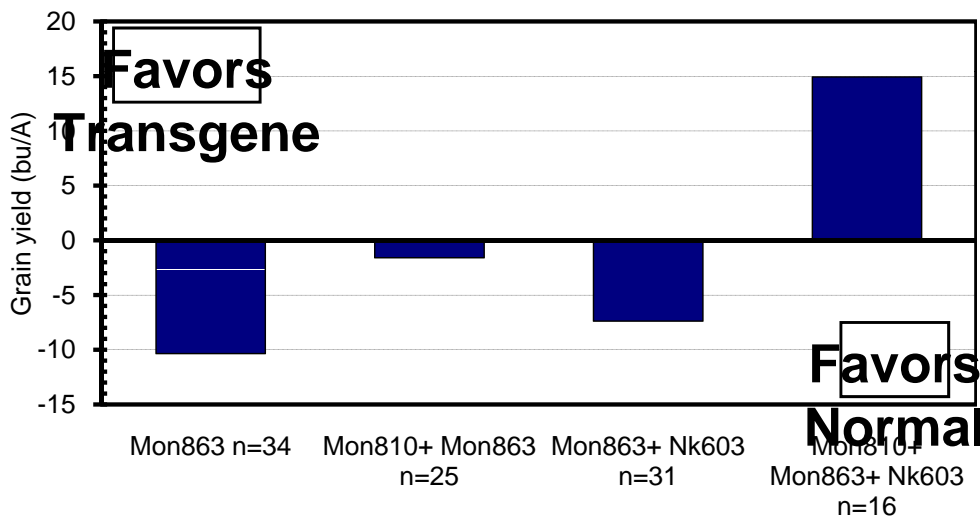
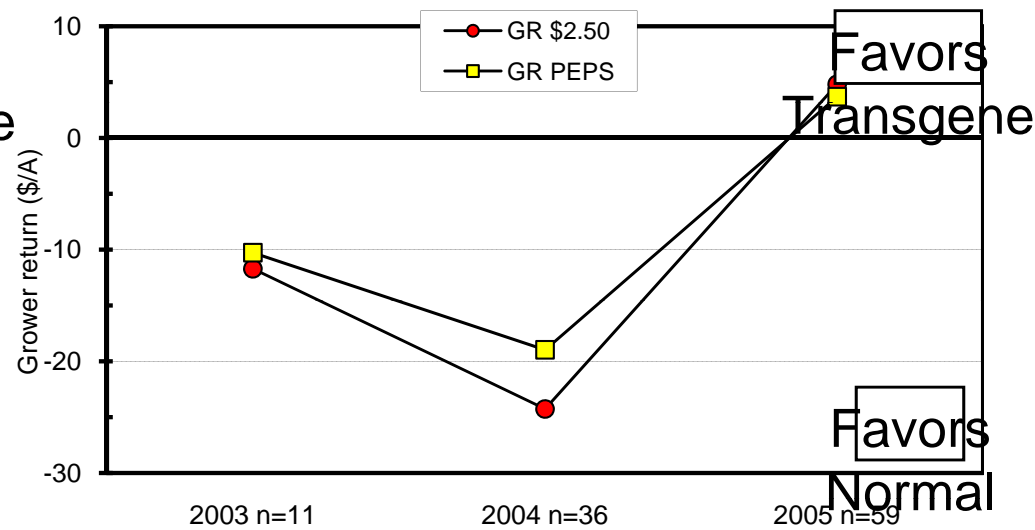
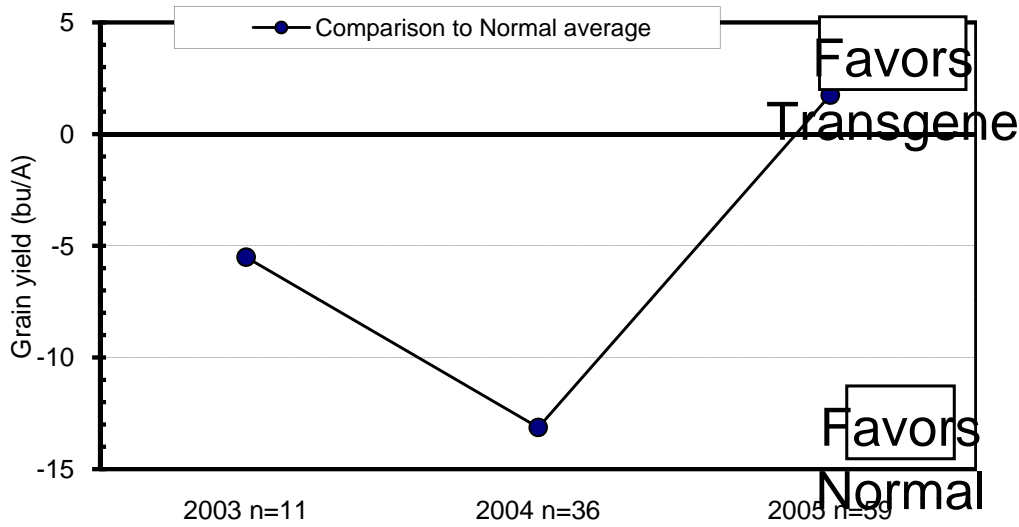
# Frequency of 'Normal' Corn Hybrids Yielding Above and Below the Trial Average in the UW Corn Trials



# Frequency of Transgenic Hybrids Yielding Above the Trial Average in the 2005 UW Corn Trials



# Transgene "Mon863" Hybrids Compared to Normal Hybrids in the UW Corn Trials

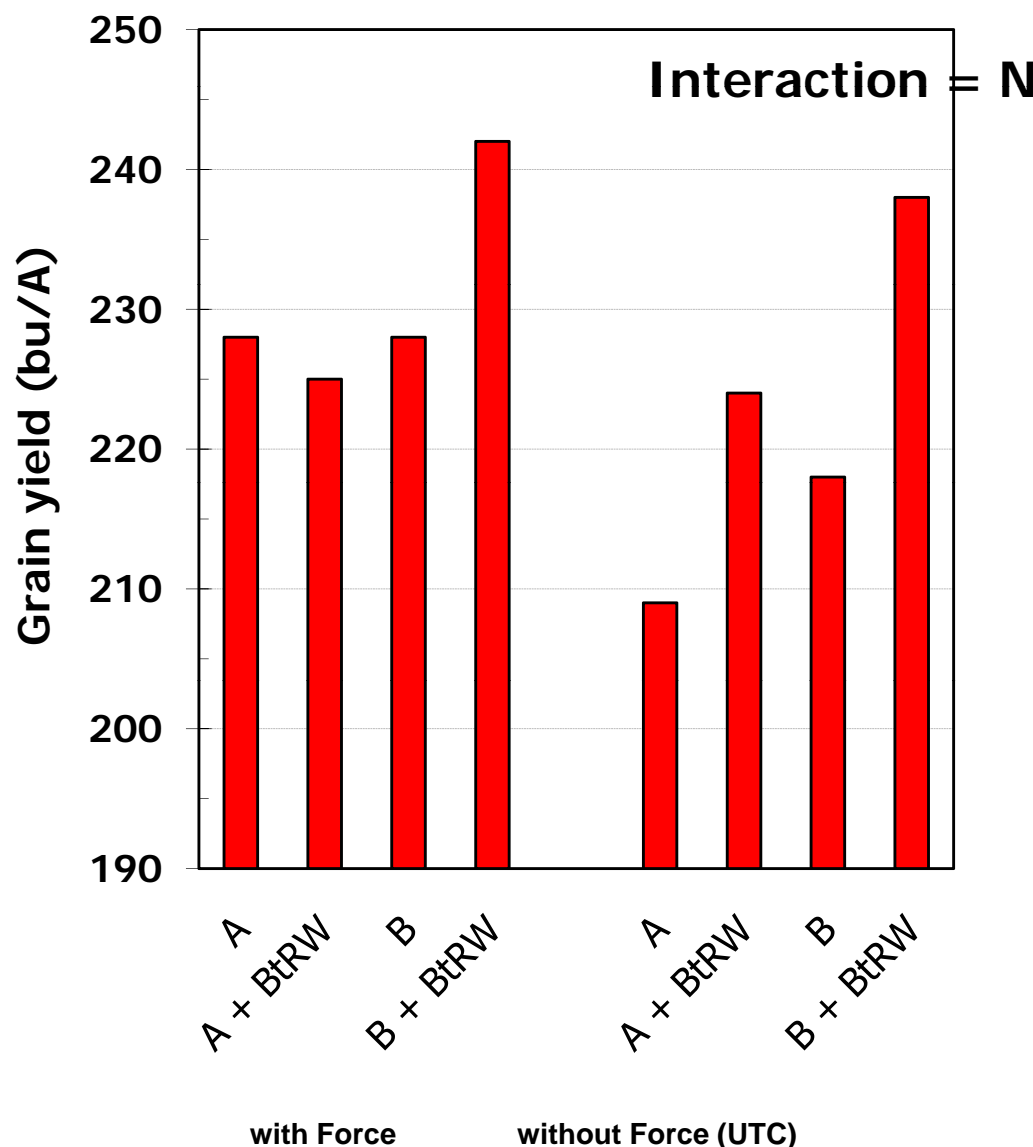




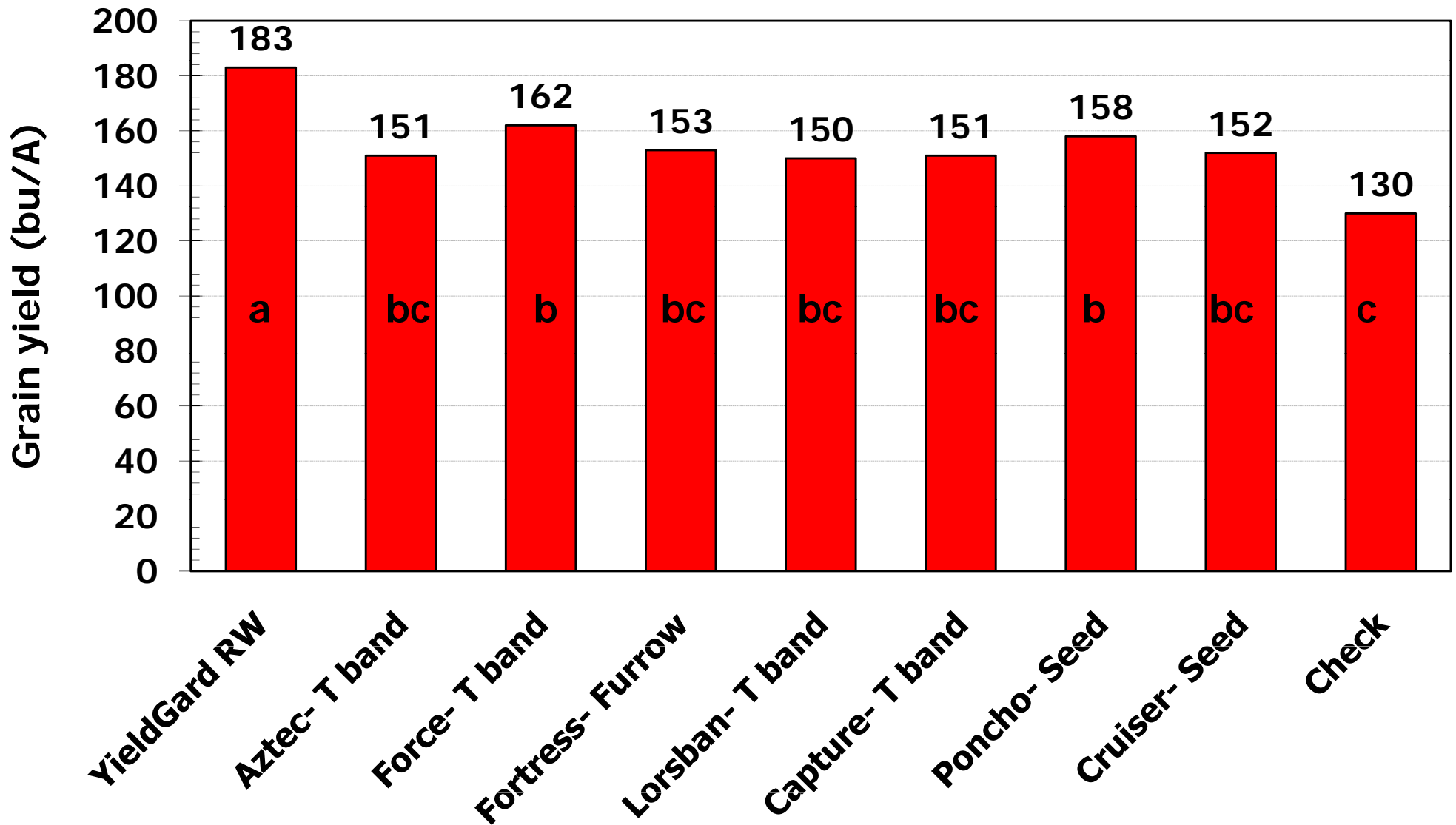
# UW Specialty Trial using Bt-CRW

## Cullen and Lauer

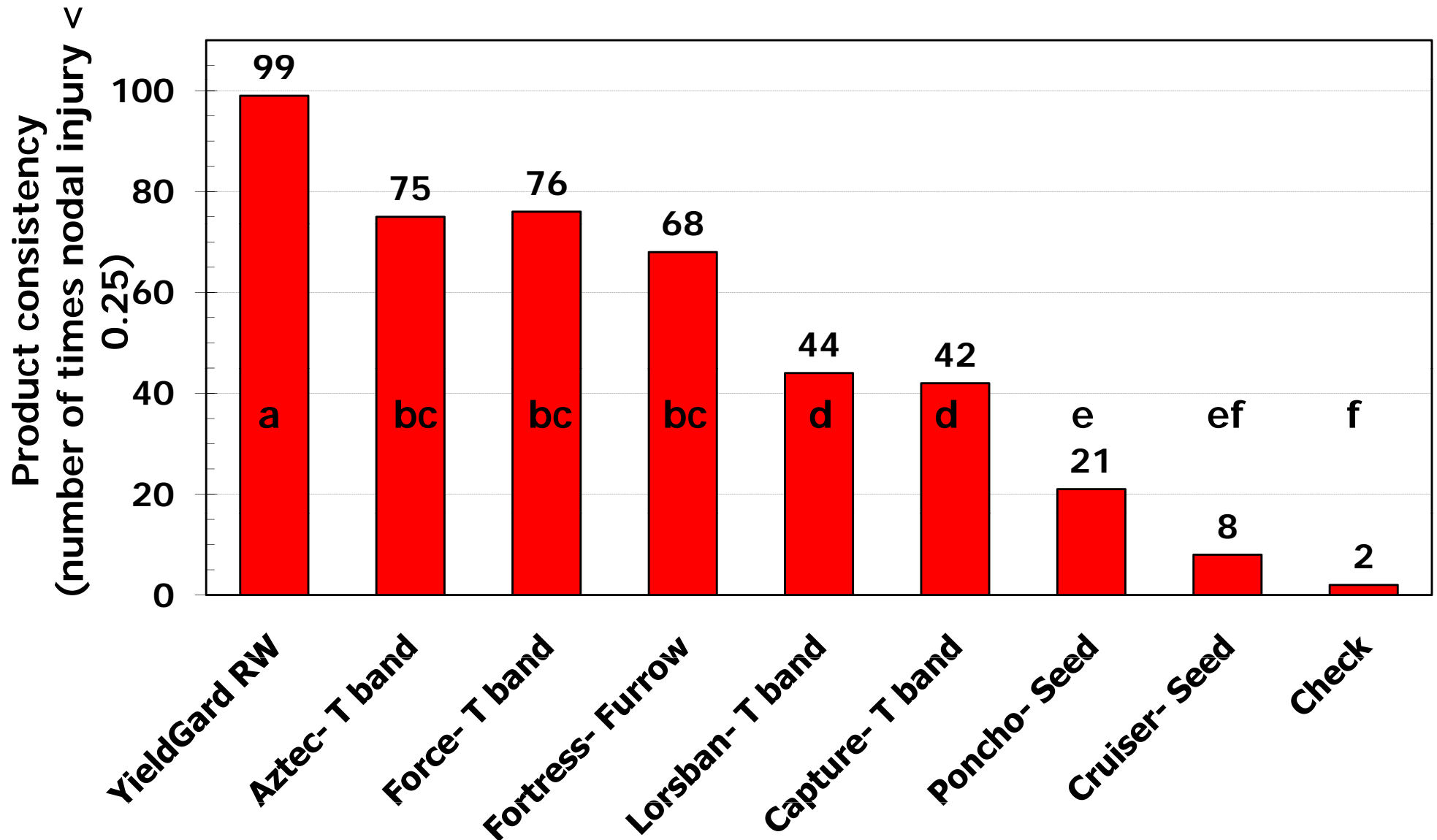
- 2004 and 2005
- Three CRW environments
  - ✓ Corn following soybean (ARL)
  - ✓ Corn following corn (JAN)
  - ✓ Corn following a “trap” crop (ARL)
- Main plots: Insecticide
- Split-plots: Hybrids with and without Mon863



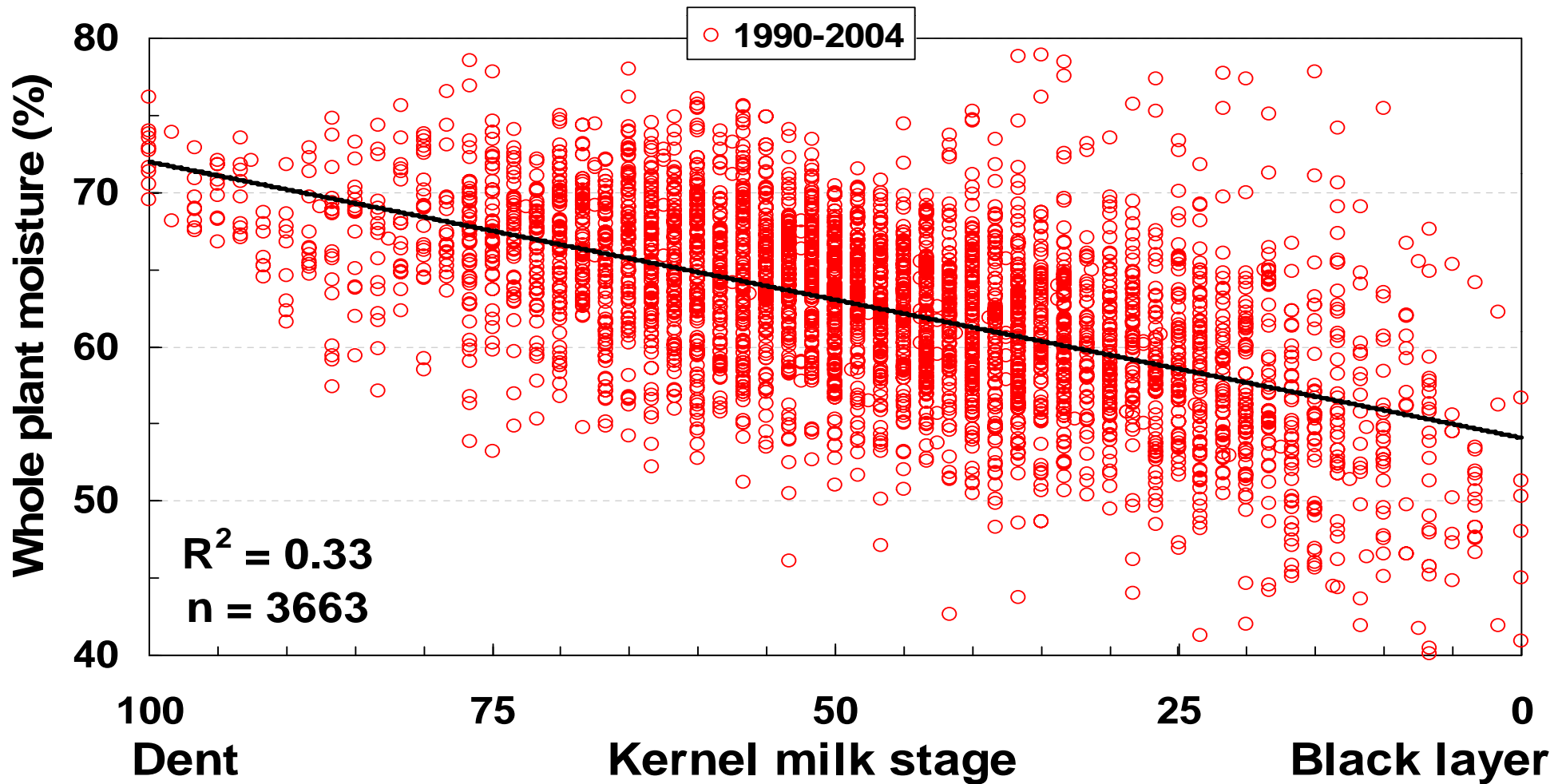
# Three-year summary (2003-2005, 7 locations) of corn rootworm control products in Iowa. Derived from Rice and Oleson, 2005.



# Three-year summary (2003-2005, 7 locations) of corn rootworm control products in Iowa. Derived from Rice and Oleson, 2005.



# Relationship Between Forage Moisture and Kernel Milk Stage in the UW Corn Trials

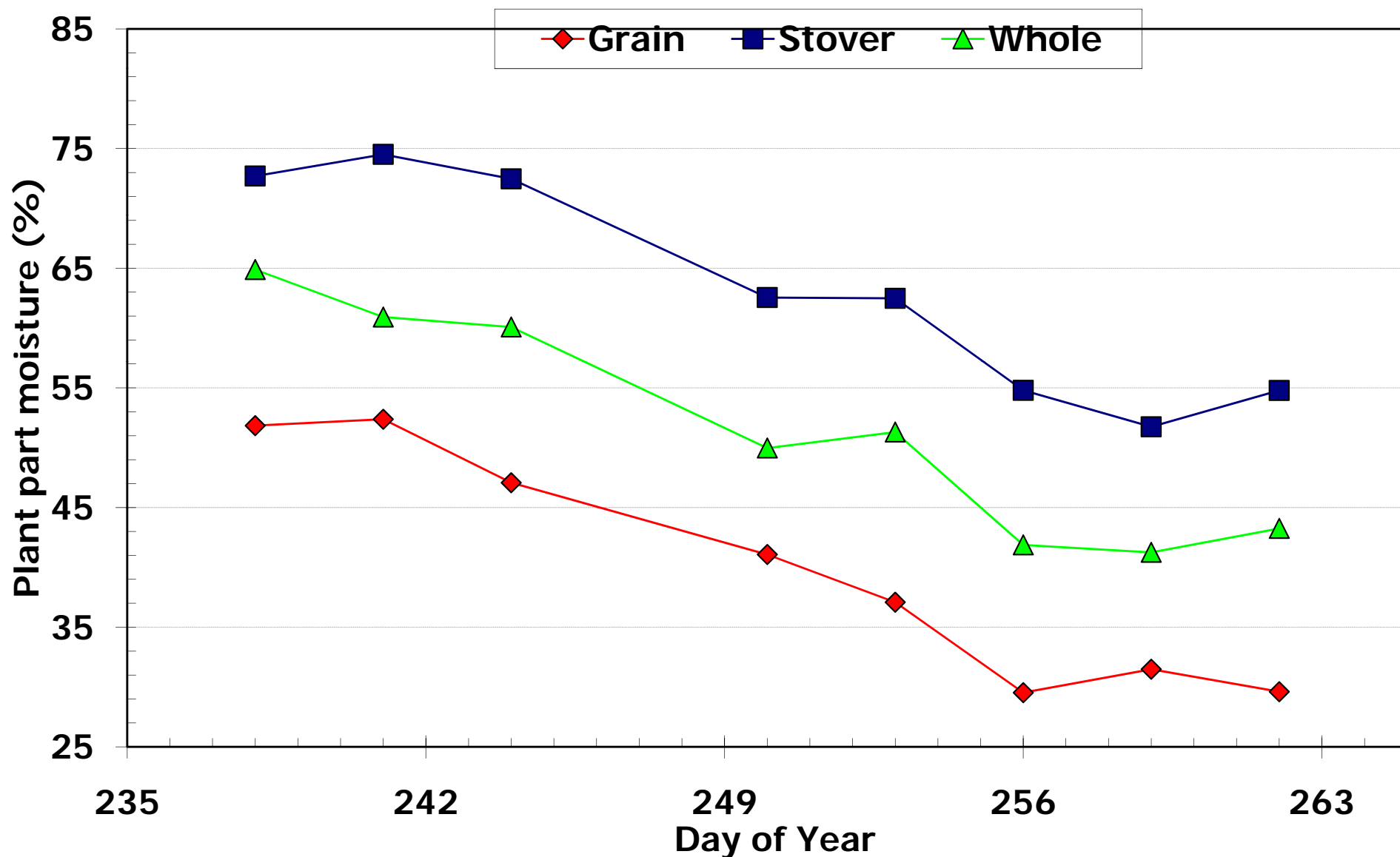


# Objective

- **To identify visual plant characteristics that are reliable indicators of forage moisture.**
  - ✓ To evaluate kernel and stover maturity rating versus forage moisture,
  - ✓ To test the reliability a visual indicator of forage moisture.



# Moisture change of corn plant parts during 2005 at Arlington, WI.





# Visual Maturity Rating System

- **KMR = Kernel milk score x 5**
  - ✓ Range = 5 to 0
  - ✓ Kernel milk score is the proportion of milk in the kernel (%)
- **SMR = Intensity score x Greenness score**
  - ✓ Range = 5 to 0
  - ✓ Intensity score
    - ❑ 5 = 100% of leaves at the collar inclined
    - ❑ 4 = 75% of leaves at the collar inclined
    - ❑ 3 = 50% of leaves at the collar inclined and ear leaf declined
    - ❑ 2 = 25% of leaves at the collar inclined
    - ❑ 1 = 0% of leaves at the collar inclined
  - ✓ Greenness score is the proportion of leaves and stalks green (%)
- **VMR = KMR + SMR**
  - ✓ Range = 10 to 0

# Visual Maturity Rating



Image taken on September 24. Corn (AgriGold 6333Bt - 104 d RM) planted June 1 at Arlington

$$\text{KMR} = 0.70 \times 5 = 3.50$$

$$\text{SMR} = 5 \times 0.9 = 4.50$$

$$\text{VMR} = 3.50 + 4.50 = 8.00$$

**Actual Moisture = 72.8%**

# How would you rate this cornfield?

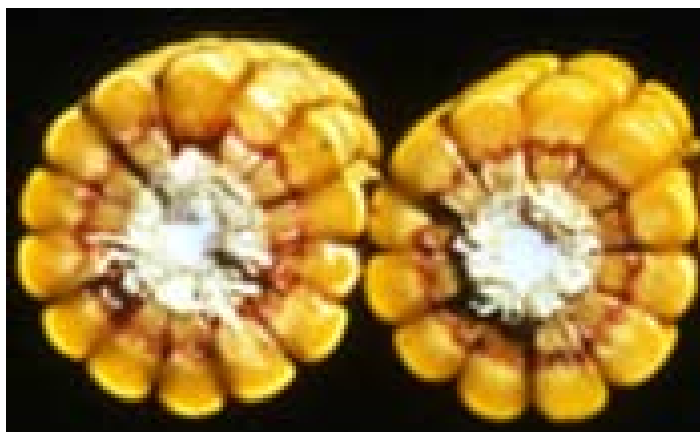


Image taken on October 4. Corn (Pioneer 27R71 - 99 d RM) planted May 20 at Arlington at 45000 plants/A.

$$\text{KMR} = 0.10 \times 5 = 0.50$$

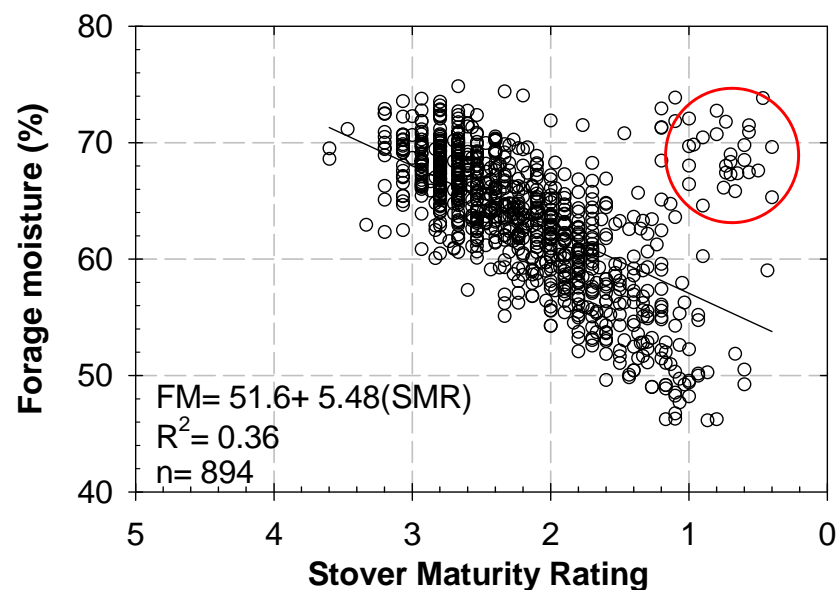
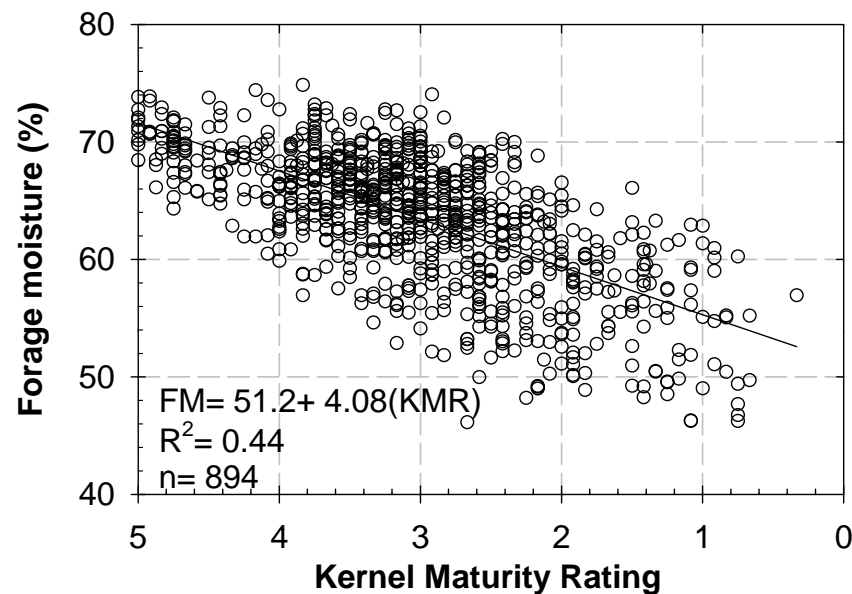
$$\text{SMR} = 3 \times 0.40 = 1.20$$

$$\text{VMR} = 0.50 + 1.20 = 1.70$$

**Actual Moisture = 57.4%**

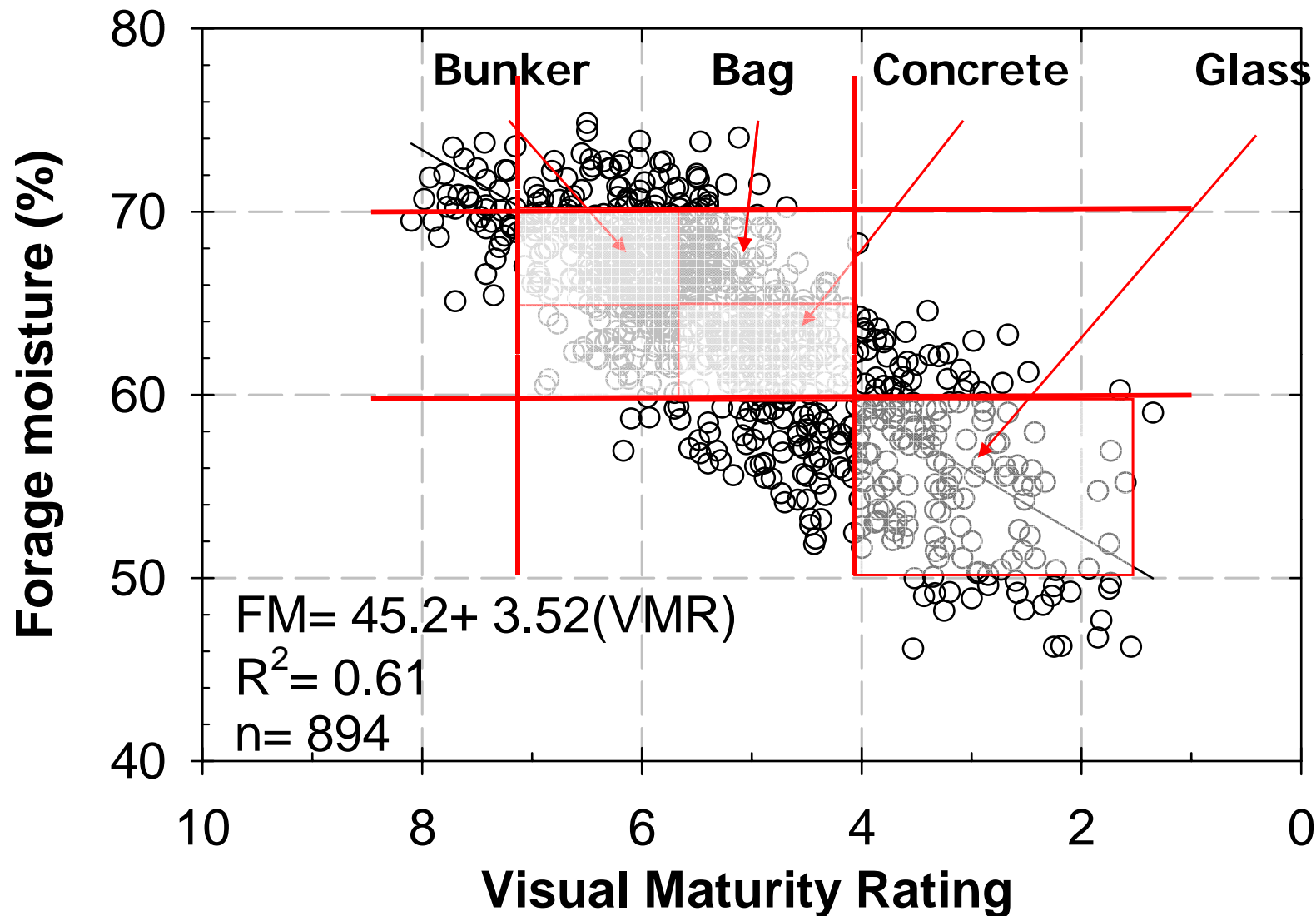
# Visual Indicators for Estimating Corn Silage Moisture (data source: UW Silage trials 2004-2005).

- **Kernel maturity rating:**  
Kernel milk line variation is similar to previous observations in other studies ( $R^2 = 0.44$ ).
- **Stover maturity rating:**  
Change in stover maturity more variable than kernel changes ( $R^2 = 0.36$ ).
  - ✓ Drought seems to affect rating. The crop looks drier than it actually is.





# Optimum forage moistures for various ensiling structures in relation to VMR (data source: UW Silage trials 2004-2005).



## Frequency (%) of correct decisions to harvest a cornfield using VMR (ST:2004-2005).

Location	N	Frequency of correct decision (%)			
		Bunker	Bag	Concrete	Glass
Structure:		70-65%	70-60%	65-60%	60-50%
Moisture:		7.0-5.6	7.0-4.2	5.6-4.2	4.2-1.4
VMR:					
Arlington	123	73	62	67	73
Chippewa Falls	114	78	79	76	88
Fond du Lac	127	65	83	62	87
Galesville	121	58	85	63	98
Lancaster	108	81	87	75	93
Marshfield	102	81	87	75	90
Rhineland	55	45	64	42	87
Spooner – Irr.	22	82	86	68	86
Spooner – Dry	20	45	80	55	85
Valders	<u>102</u>	<u>88</u>	<u>73</u>	<u>67</u>	<u>62</u>
All locations	894	72	78	67	85



## Frequency (%) of correct decisions to harvest a cornfield using VMR (ST:2004-2005).

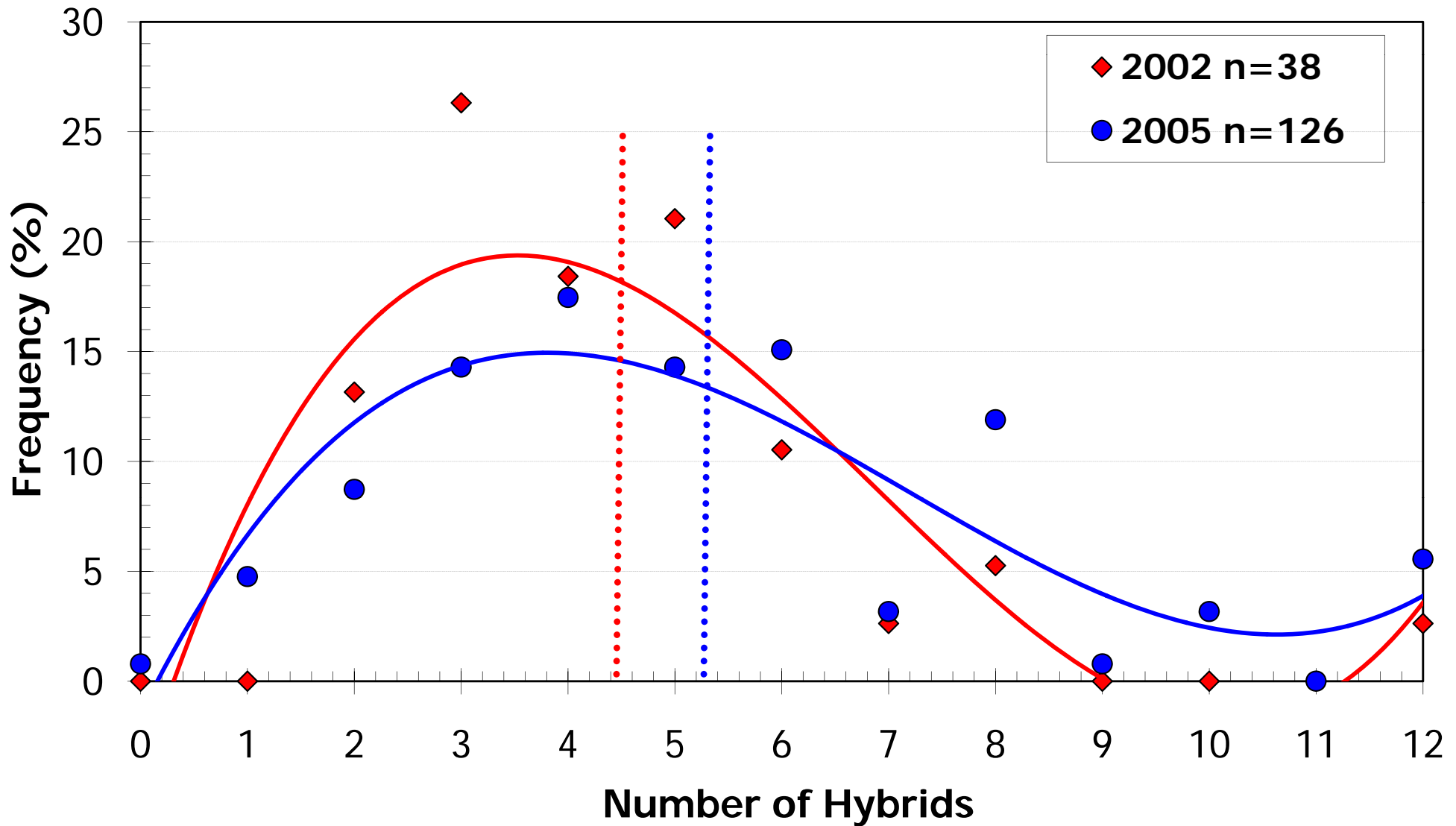
Hybrid group	N	Frequency of correct decision (%)			
		Bunker	Bag	Concrete	Glass
Structure:		70-65%	70-60%	65-60%	60-50%
Moisture:		7.0-5.6	7.0-4.2	5.6-4.2	4.2-1.4
VMR:					
Normal	309	70	77	64	84
Bt11	17	71	88	82	100
Bt11+T25	38	79	38	63	68
Mon810	267	71	82	72	90
Mon810+Nk603	76	82	72	64	70
Nk603	51	78	80	75	86
TC1507+T25	40	73	80	68	88
Bm3	26	54	62	46	88
Leafy	<u>12</u>	<u>75</u>	<u>75</u>	<u>50</u>	<u>75</u>
All hybrid groups	894	72	78	67	85

# Summary

- At every location, adding stover maturity ratings to the kernel maturity rating improved the forage moisture prediction.
- Will VMR replace corn silage drydown days?
  - ✓ Is it adequate to be correct 67 to 85% of the time?
- “Stay Tuned”



# How many corn hybrids do farmers plant on their farm ( $\geq 10$ acres)?



# The End of the Row – Questions? Thanks for your attention!

