

More Mileage From Corn Silage

- Hybrid selection
- Management for yield AND quality
 - *Population*
 - *Planting date*
 - *Row spacing*
 - *Soil fertility*
 - *Weed control*
 - *Irrigation*
- Harvest
 - *Timing*
 - *Cutting height*
 - *Special situations*
 - ◆ *Frost*
 - ◆ *Drought stress*
 - ◆ *Stalklage*
- Ensiling
 - *Feed-out problems*
 - *Inoculants and fermentation*



Desirable Forage Characteristics

- What makes a good forage?
 - *High yield*
 - *High energy (high digestibility)*
 - *High intake potential (low fiber)*
 - *High protein*
 - *Proper moisture at harvest for storage*
- Ultimate test is animal performance



Wisconsin Corn Hybrid Silage Performance Trial Measurements

- **Agronomic**
 - *Yield: Tons Dry matter / A*
 - *Moisture: %*
 - *Kernel milk stage: %*
- **Quality (NIR)**
 - *Crude protein : %*
 - *Acid detergent fiber: %*
 - *Neutral detergent fiber: %*
 - *In vitro true digestibility: %*
 - *Cell wall digestibility of stover: %*
- **Performance index**
 - *Milk per ton: The amount of milk production from one ton of silage using the quality measures. (Estimate is based on a standard cow body weight of 1350 pounds and milk production level of 90 pounds milk per day at 3.8 percent fat.)*
 - *Milk per acre = Milk per ton X Dry matter yield per acre*



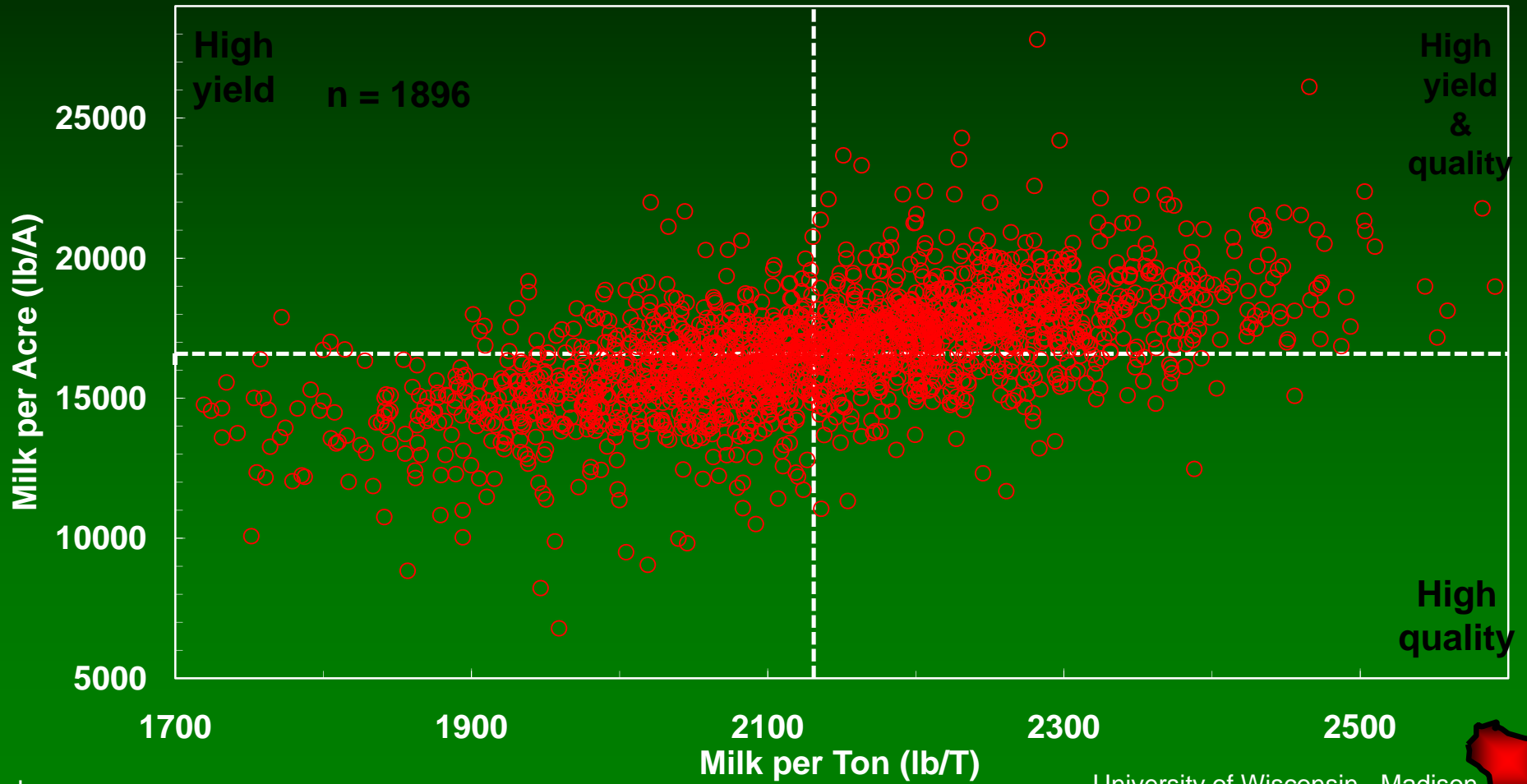
Table 11. Southern Zone - Early Maturity Silage Trial

105 DAY RELATIVE MATURITY OR EARLIER, BASED ON COMPANY RATING

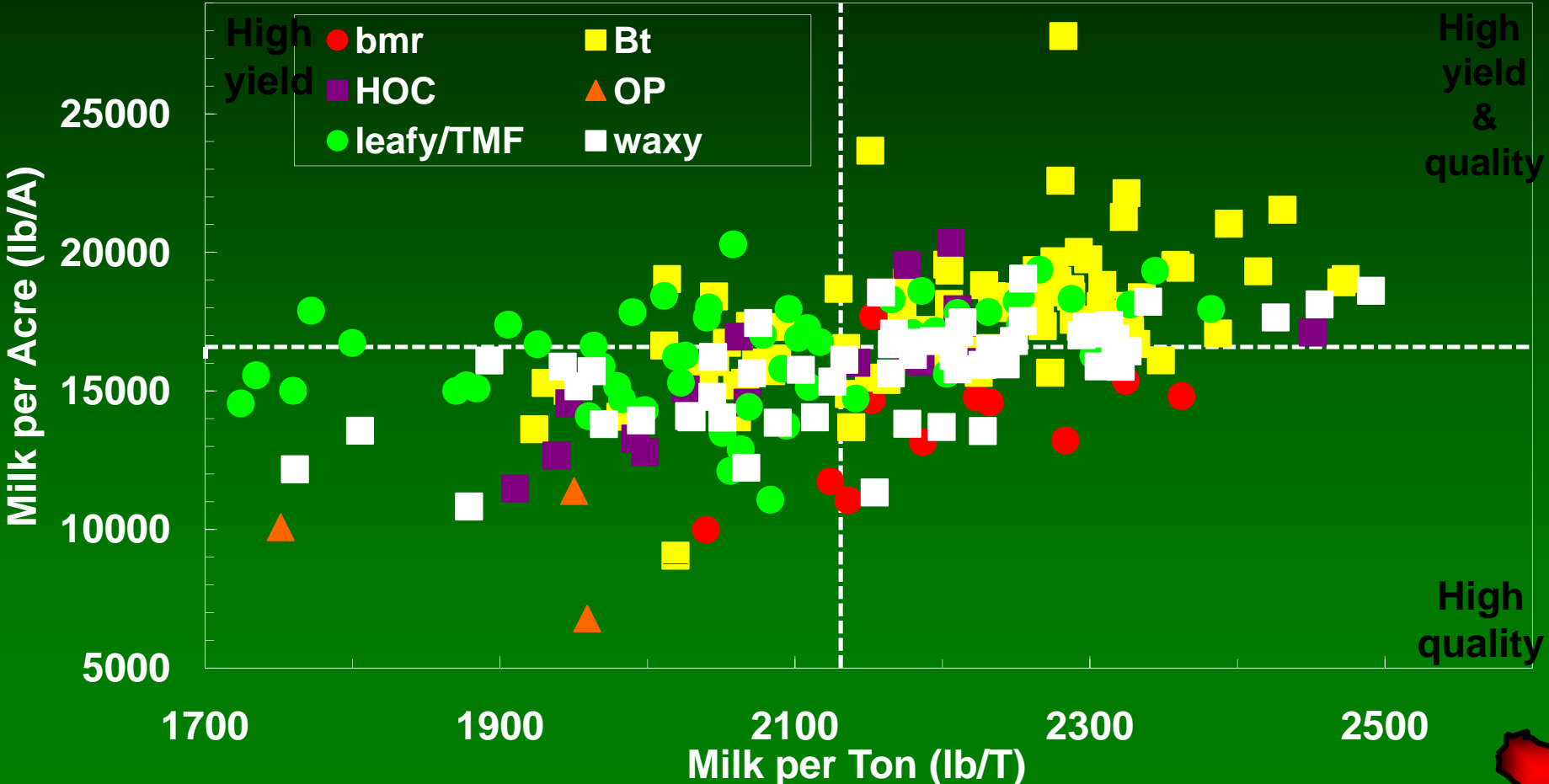
		1998													
		AVERAGE										ARL	LAN		
		Kernel								MILK PER		Yield	Yield		
BRAND	HYBRID	Yield	Moist	Milk	CP	ADF	NDF	IVD	CWD	TON	ACRE	T/A	T/A		
		T/A	%	%	%	%	%	%	%						
Dairyland	Stealth 1406	12.0 *	53.7	10	6.6	20	40	79	49	2350 *	27100 *	12.0	12.0 *		
Brunner	S-5474	12.0 *	54.7	10	6.7	20	41	79	49	2320	28200 *	13.0 *	11.0 *		
Carharts Blue Top	CX105A	10.0	58.8	20	7.0	19	38	80	49	2490 *	25900 *	11.0	9.6 *		
Kaltenberg	K5109	10.0	61.3	30	6.8	19	40	80	50	2420 *	24700 *	12.0 *	8.2 *		
Cargill	4111	9.9	61.7	20	6.9	21	41	78	48	2230	22300	11.0	8.5 *		
Dekalb	DK591	12.0 *	61.8	30	7.3	22	43	79	50	2190	26500 *	13.0 *	11.0 *		
105-DAY HYBRID TRIAL AVERAGE ##			61.9												
Garst	8640	10.0	62.4	10	6.8	21	41	79	48	2300	23900	12.0 *	8.5 *		
Top Farm	TFs x2103	9.9	64.7	20	7.0	20	41	79	48	2300	23000	11.0	8.5 *		
Cargill	F657	8.8	65.2	40	7.1	21	43	81	56	2330	20600	9.3	8.3 *		
Trelay	7004	9.2	69.5	30	7.5	21	42	79	50	2280	21100	11.0	7.5		
MEAN		10.0	61.4	20	7.0	20	41	79	50	2320	24300	12.0	9.3		
LSD(0.10)**		1.6	8.0	10	0.4	2	2	1	2	150	4100	1.7	3.5		



Normalized Corn Hybrid Silage Yield and Quality During 1990-1999 in Wisconsin



Corn Specialty Hybrid Silage Yield and Quality During 1990-1999 in Wisconsin



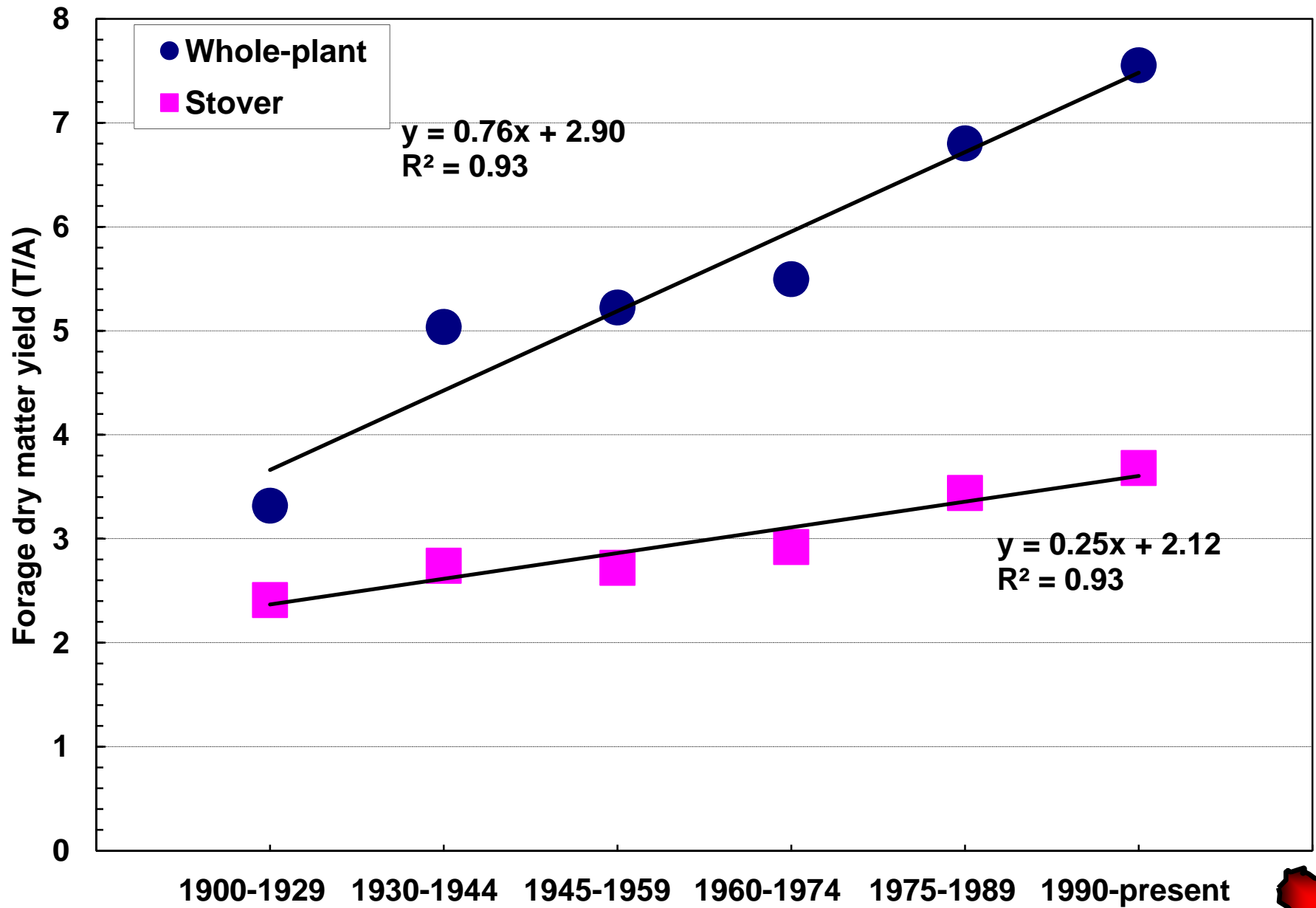


Figure 1. Relationship between corn forage dry matter yield and era of release for whole-plant and stover.



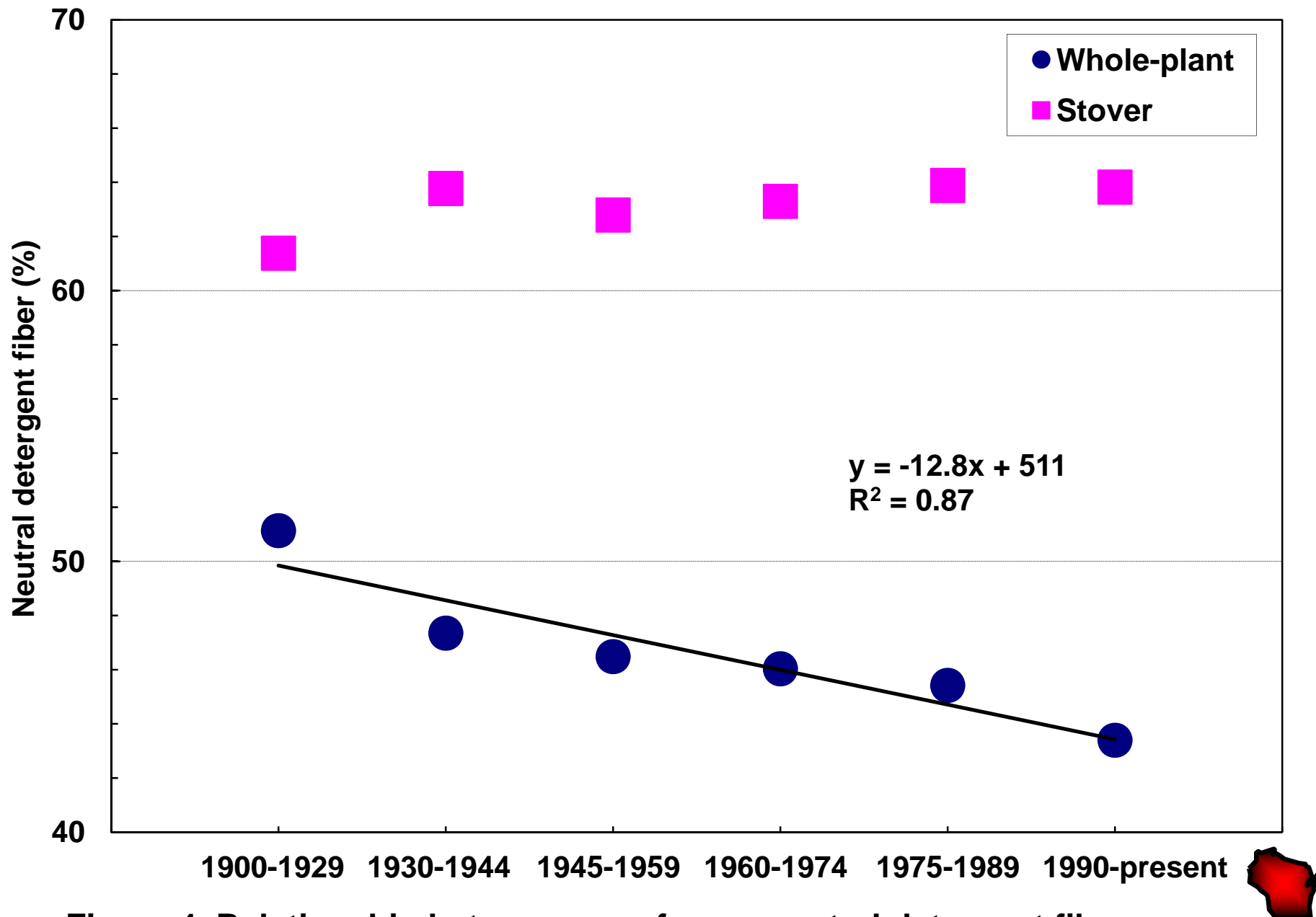


Figure 4. Relationship between corn forage neutral detergent fiber concentration and era of release for whole-plant and stover.

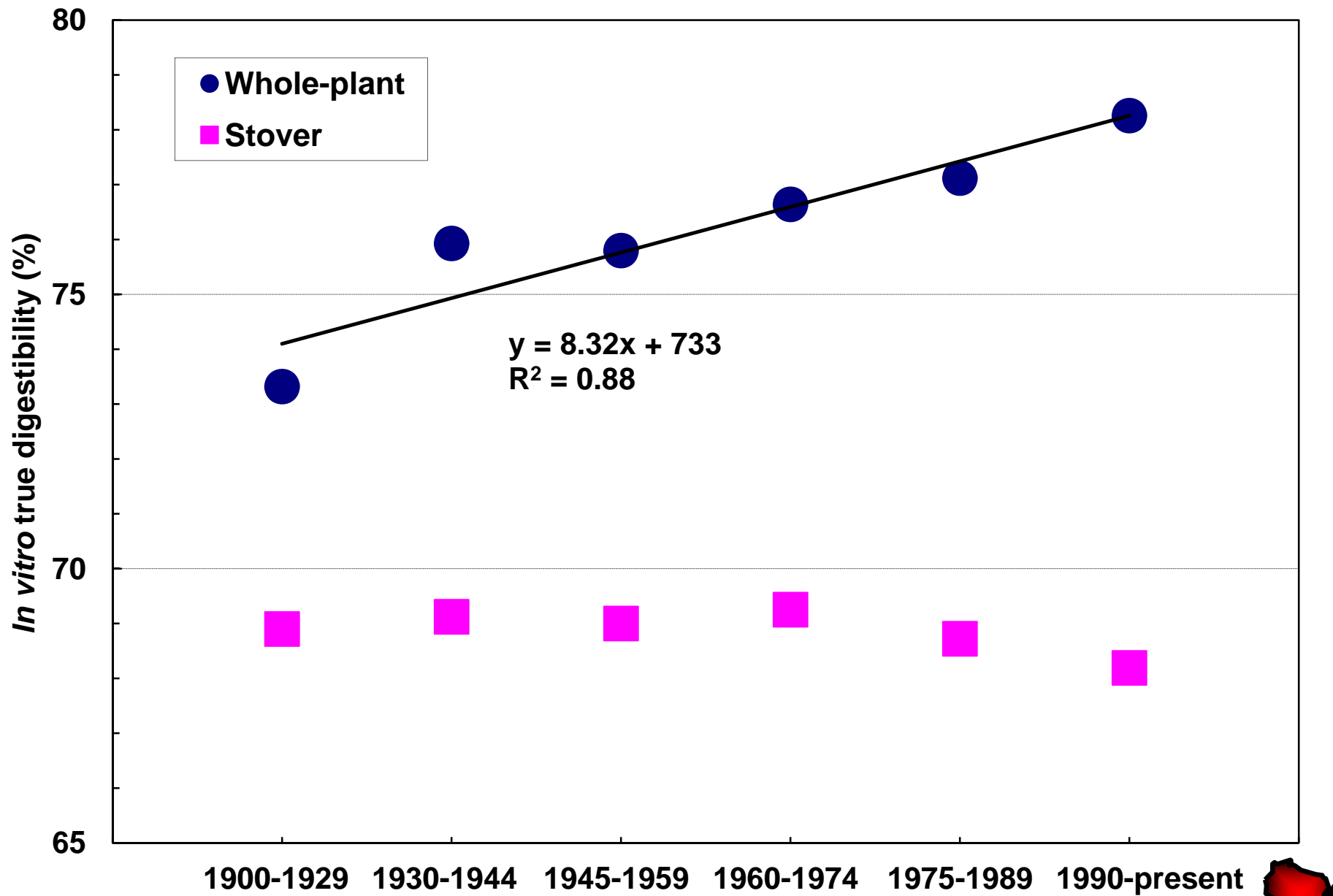


Figure 6. Relationship between corn forage *in vitro* true digestibility and era of release for whole-plant and stover.

Milk yield (lb milk / A)

Milk quality (lb milk / A)

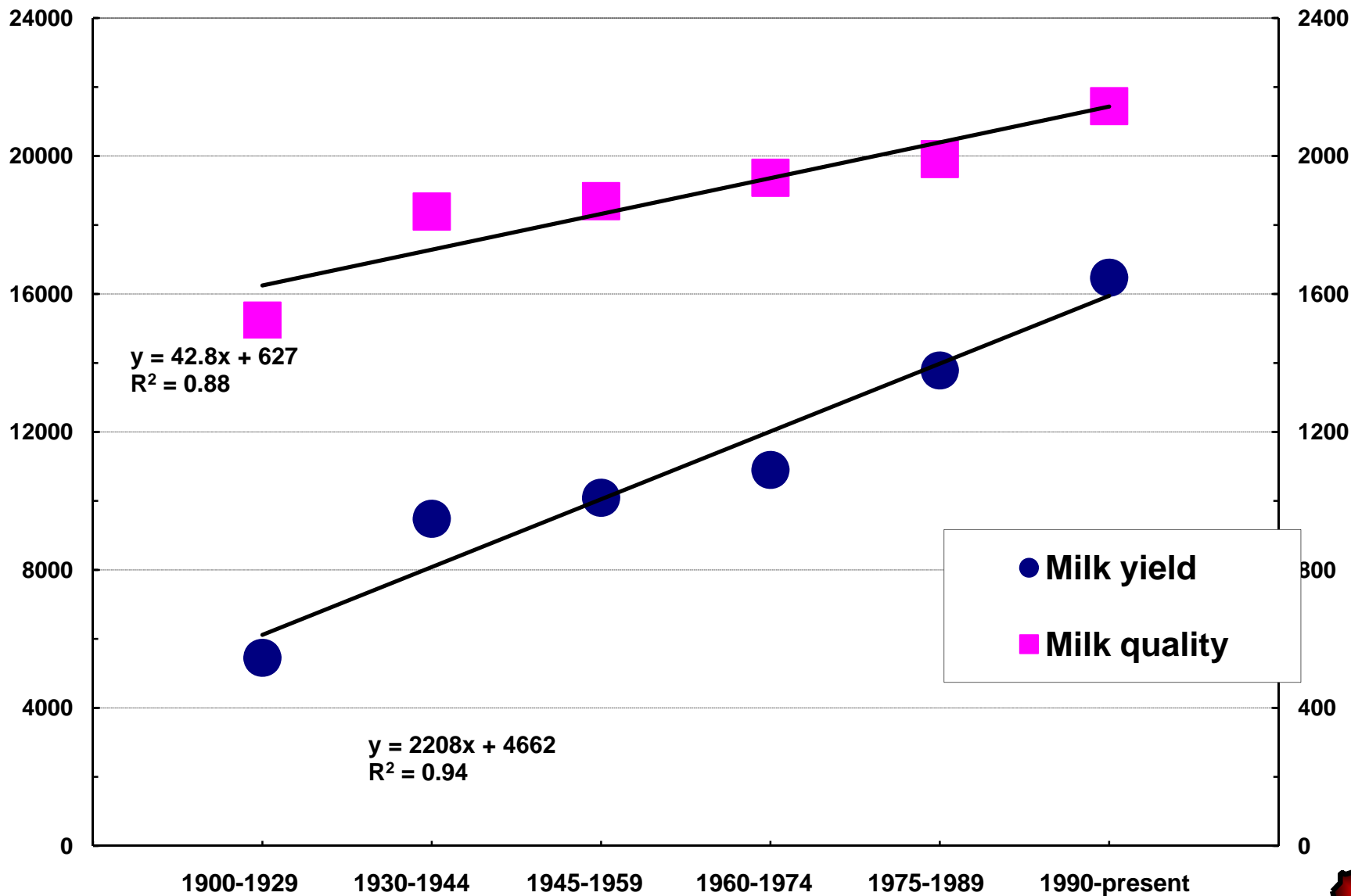


Figure 7. Relationship between corn forage milk yield/quality and era of release.



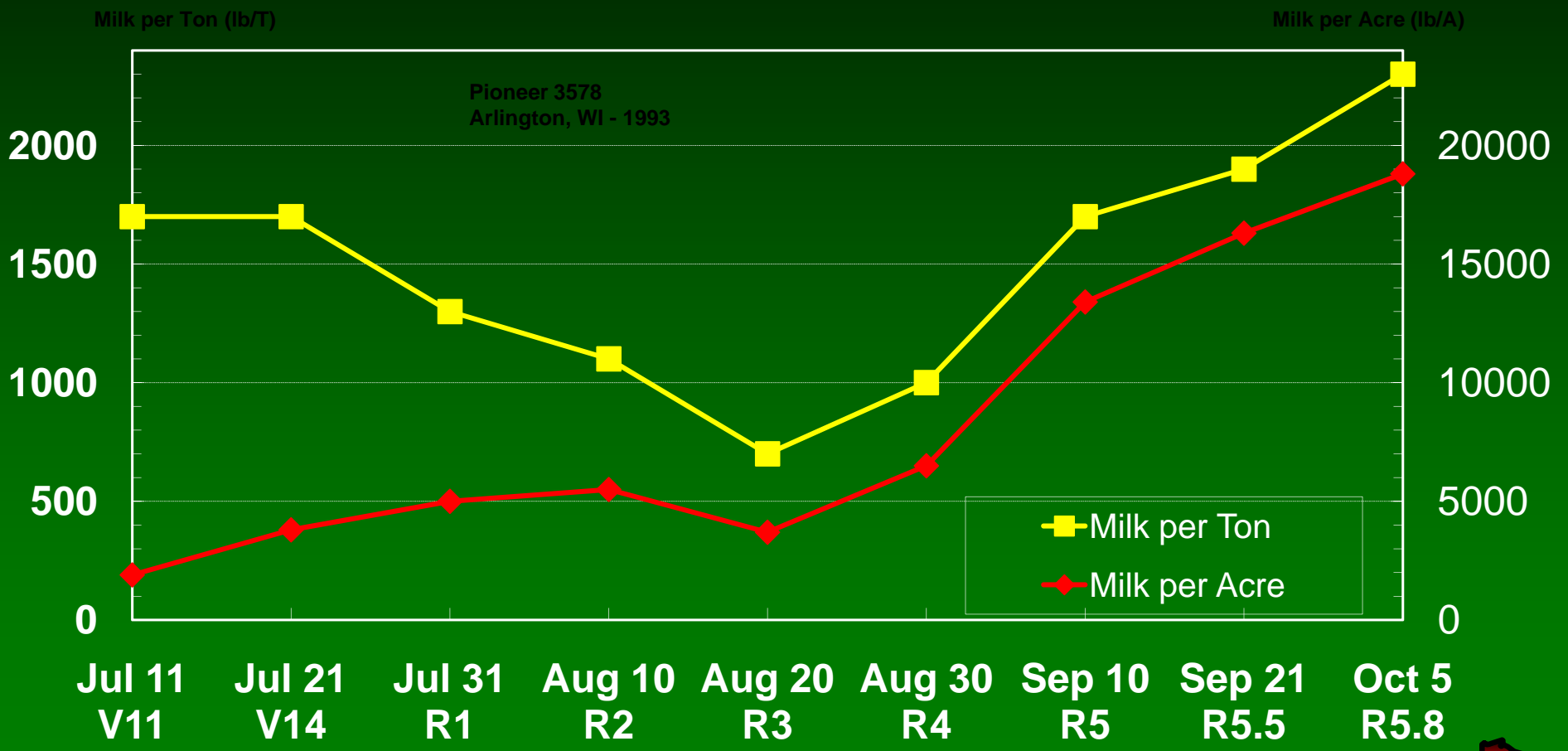
Criteria for Selecting Silage Hybrids

- Grain yield: allows flexibility (dual purpose)
- Whole plant silage yield
- Relative maturity: 5-10 days later than grain hybrids
- Standability: allows flexibility
- Pest resistance
- Silage quality

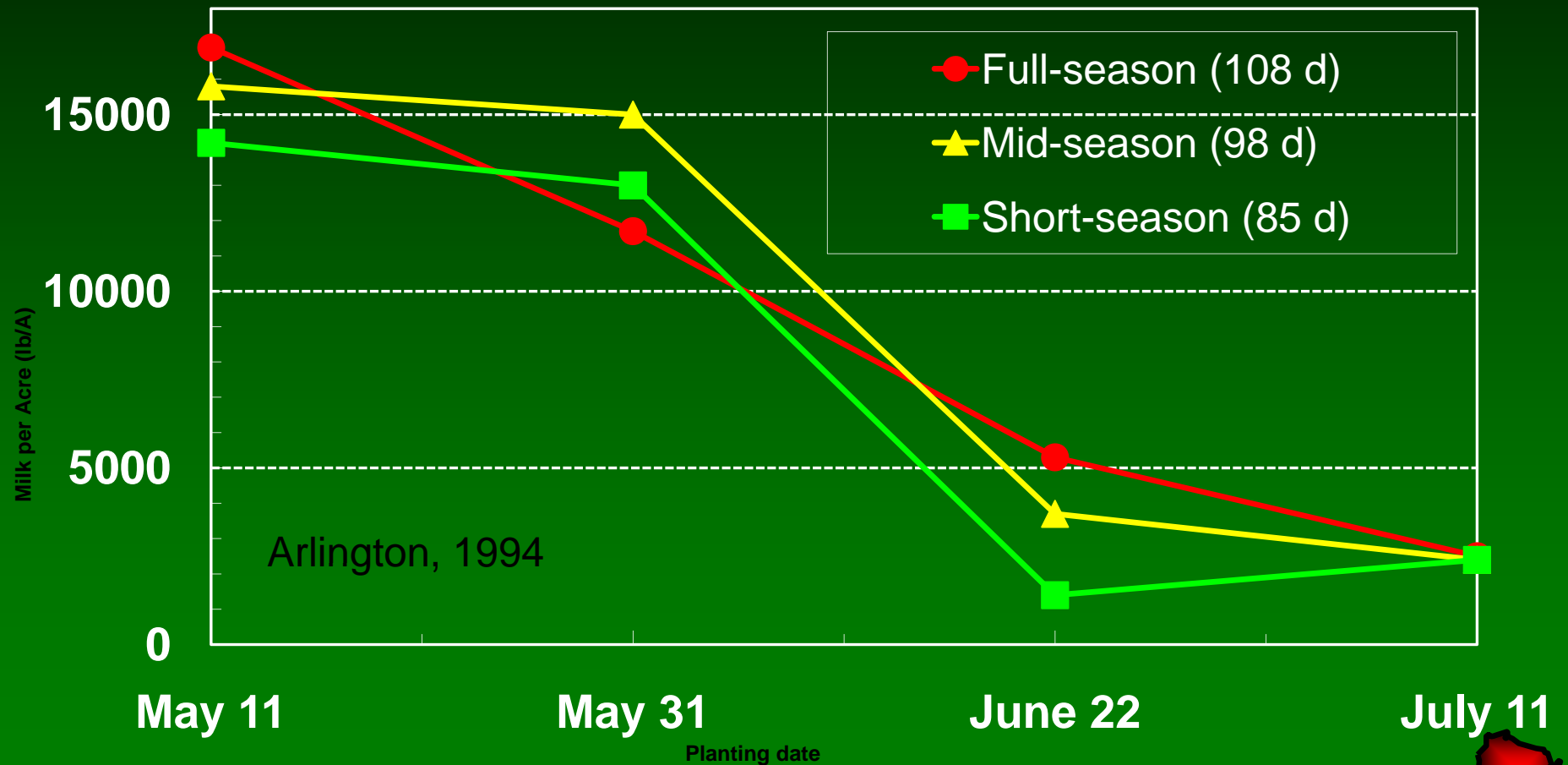
“Variation for silage yield and quality exists among commercial hybrids in Wisconsin.”



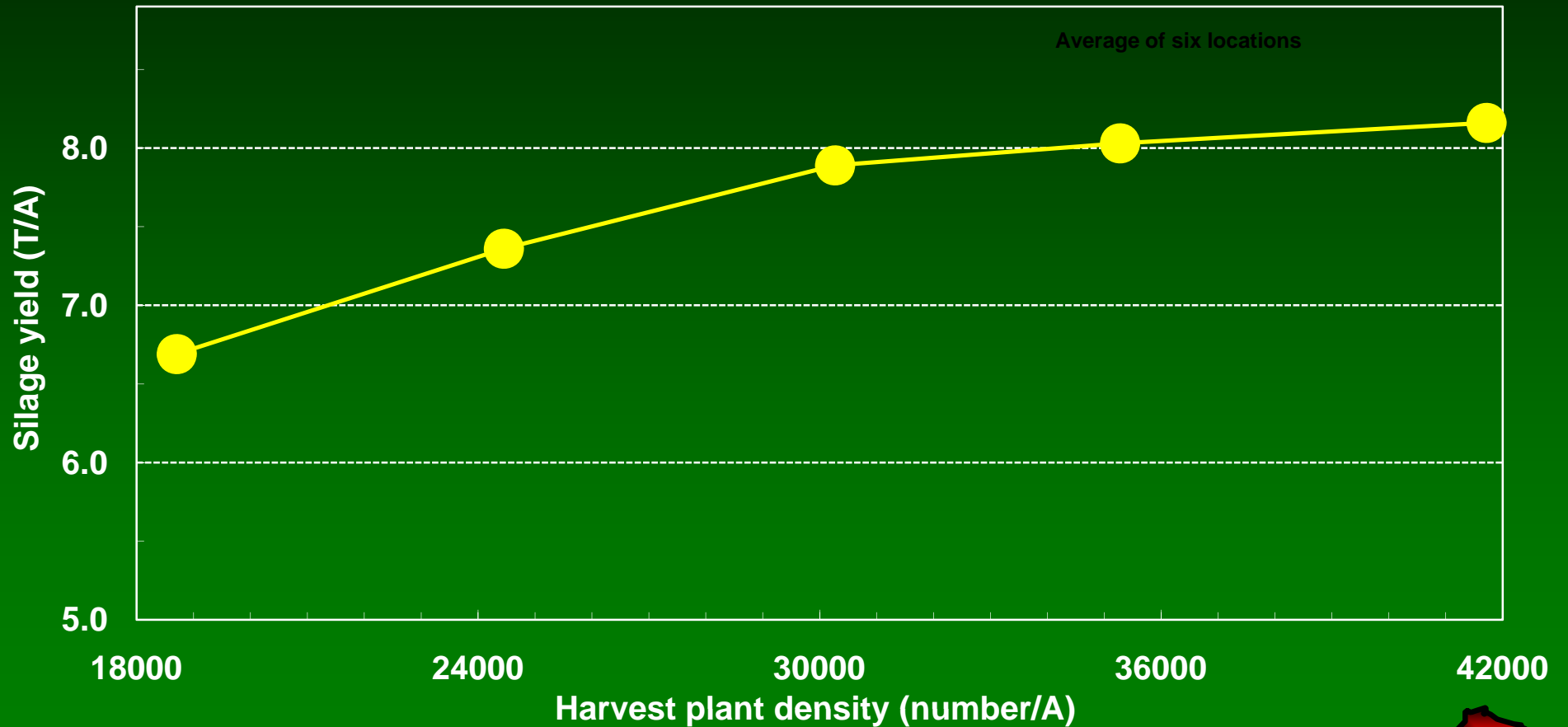
Corn Silage Yield and Quality Changes During Development



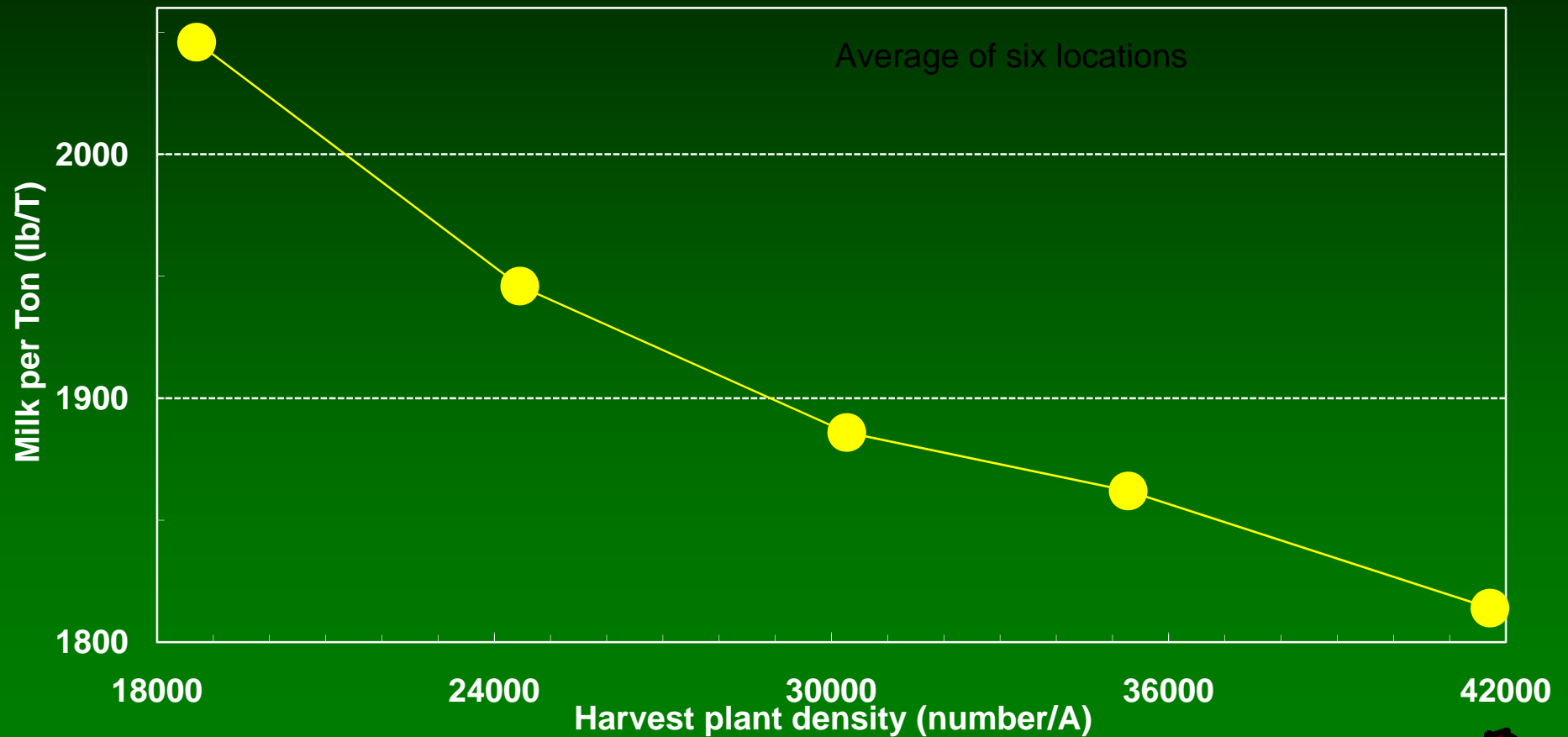
Corn Silage Yield and Quality Response to Planting Date



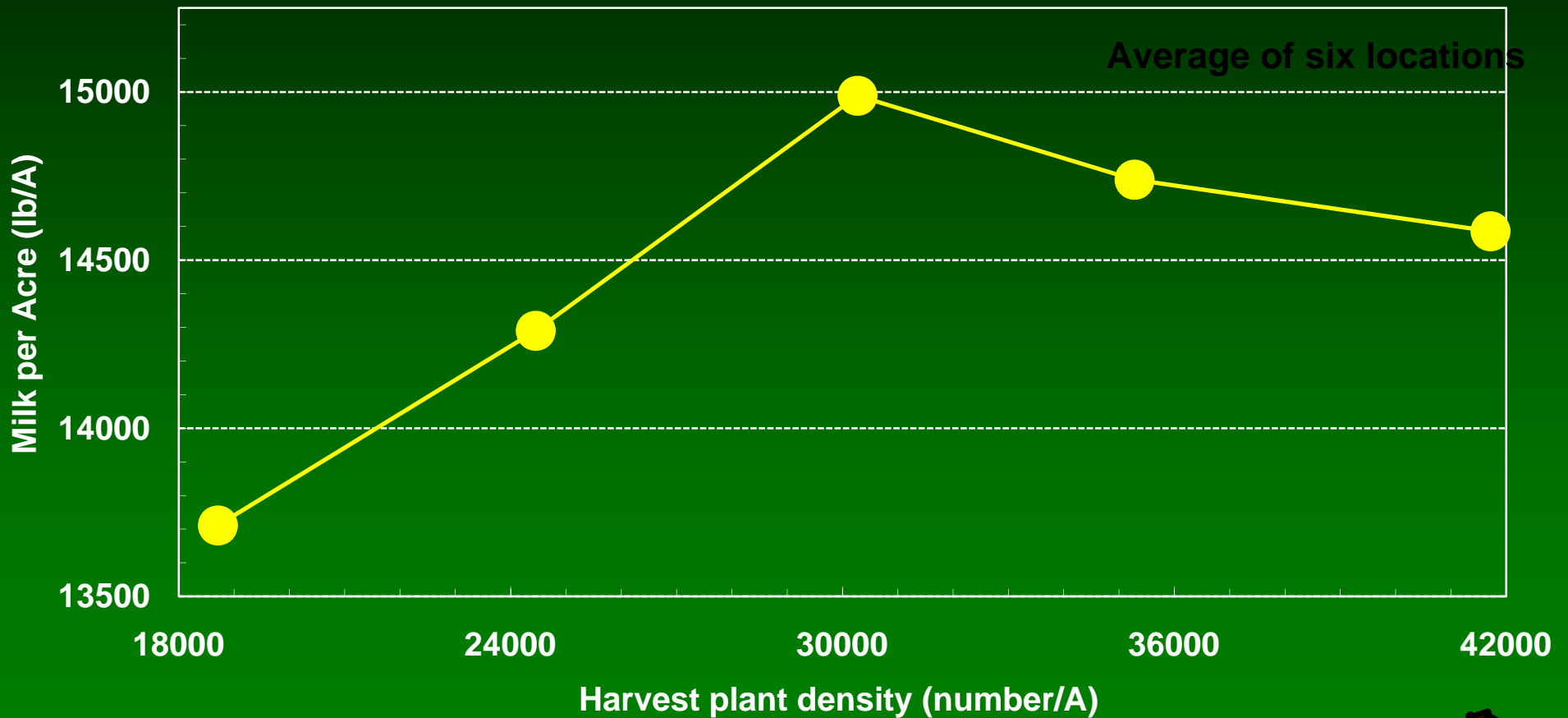
Relationship between corn silage yield and plant density in Wisconsin (1994 to 1996)



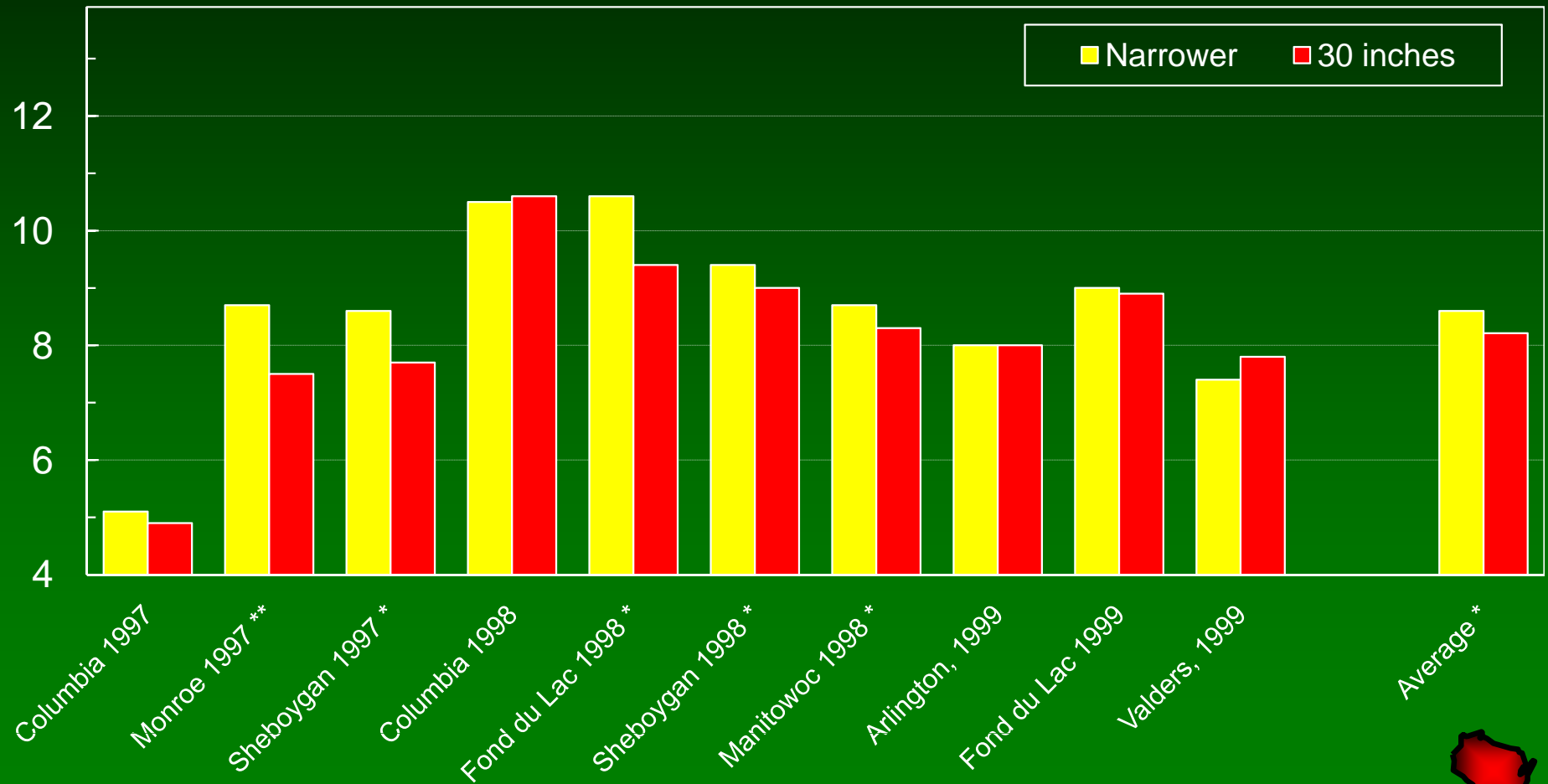
Relationship between corn silage Milk per Ton and plant density in Wisconsin (1994 to 1996)



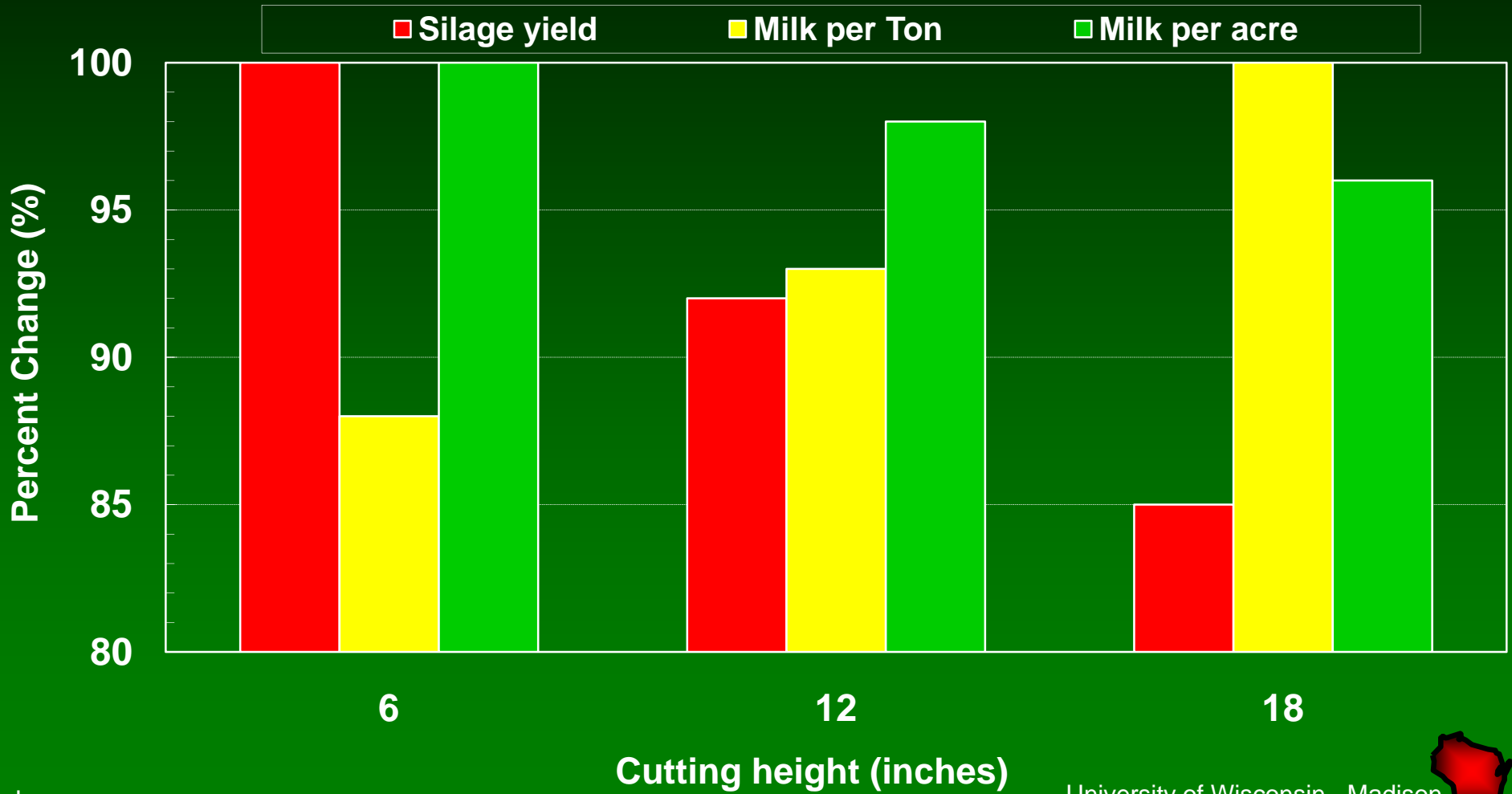
Relationship between corn silage Milk per acre and plant density in Wisconsin (1994 to 1996)



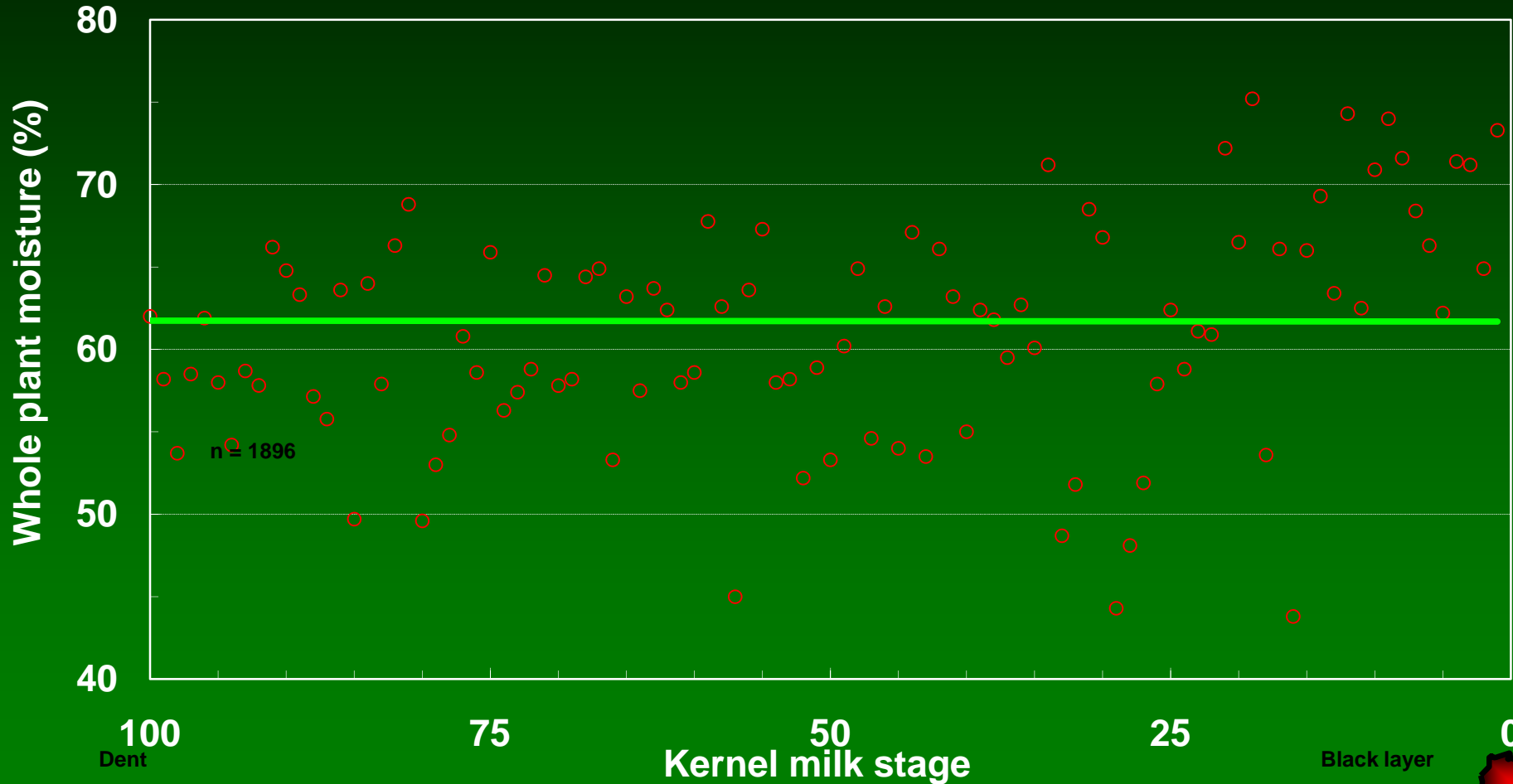
Corn Silage Yield (T/A) Response to Row Spacing in Wisconsin



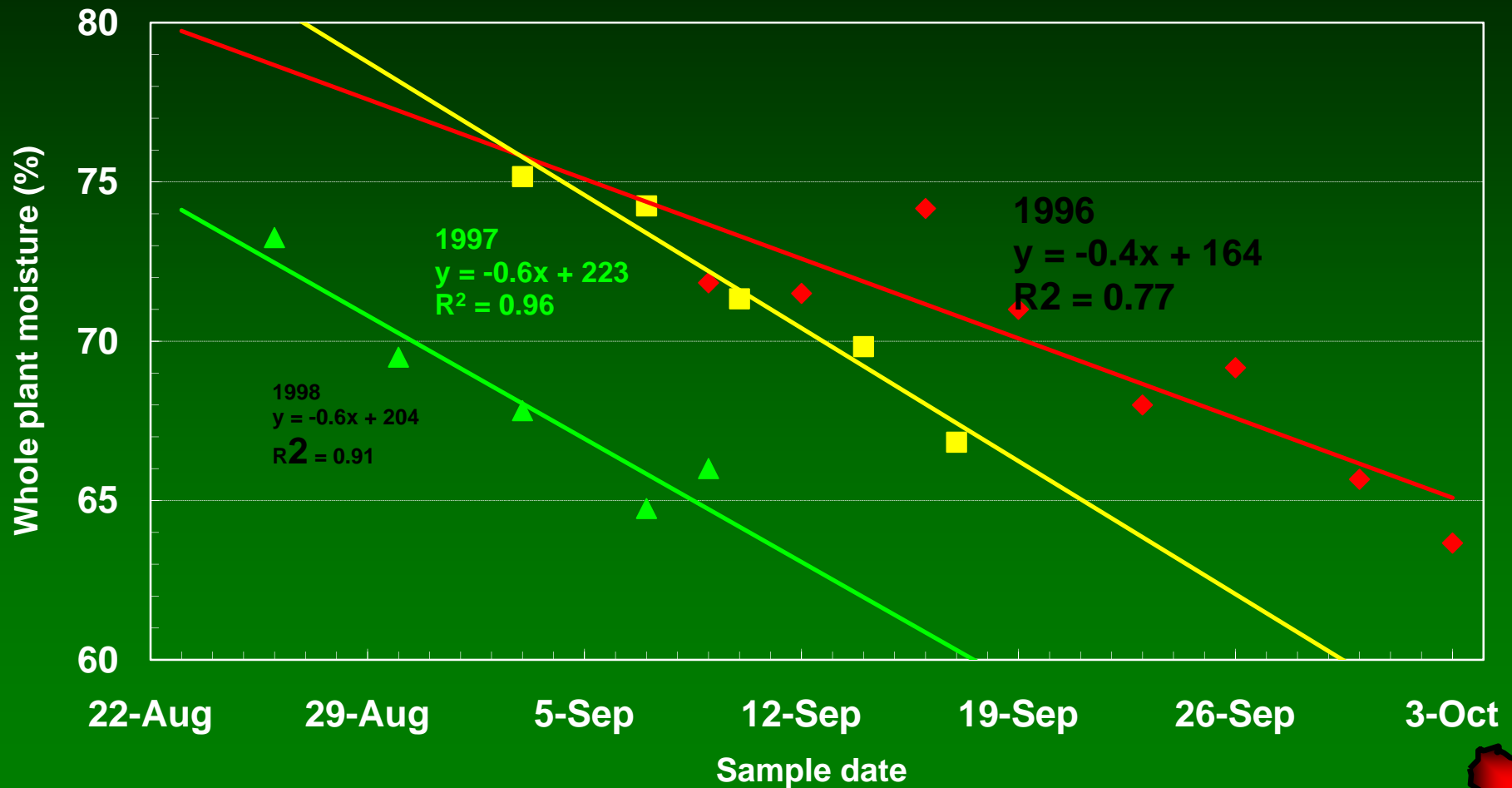
Relative change in silage yield and quality at different cutting heights during 1996



Relationship between whole plant moisture and kernel milk stage (1990 - 1999)



Silage drydown in Manitowoc County, WI.



Kernel milk “triggers” for timing silage harvest

Silo structure	Recommended moisture content for ensiling	Kernel milk stage "trigger"
	%	%
Horizontal bunker	70 to 65	80
Bag	70 to 60	80
Upright concrete stave	65 to 60	60
Upright oxygen limiting	60 to 50	40

"trigger": kernel milk stage to begin checking silage moisture

Silage moisture decreases at an average rate of 0.5% per day during September

