

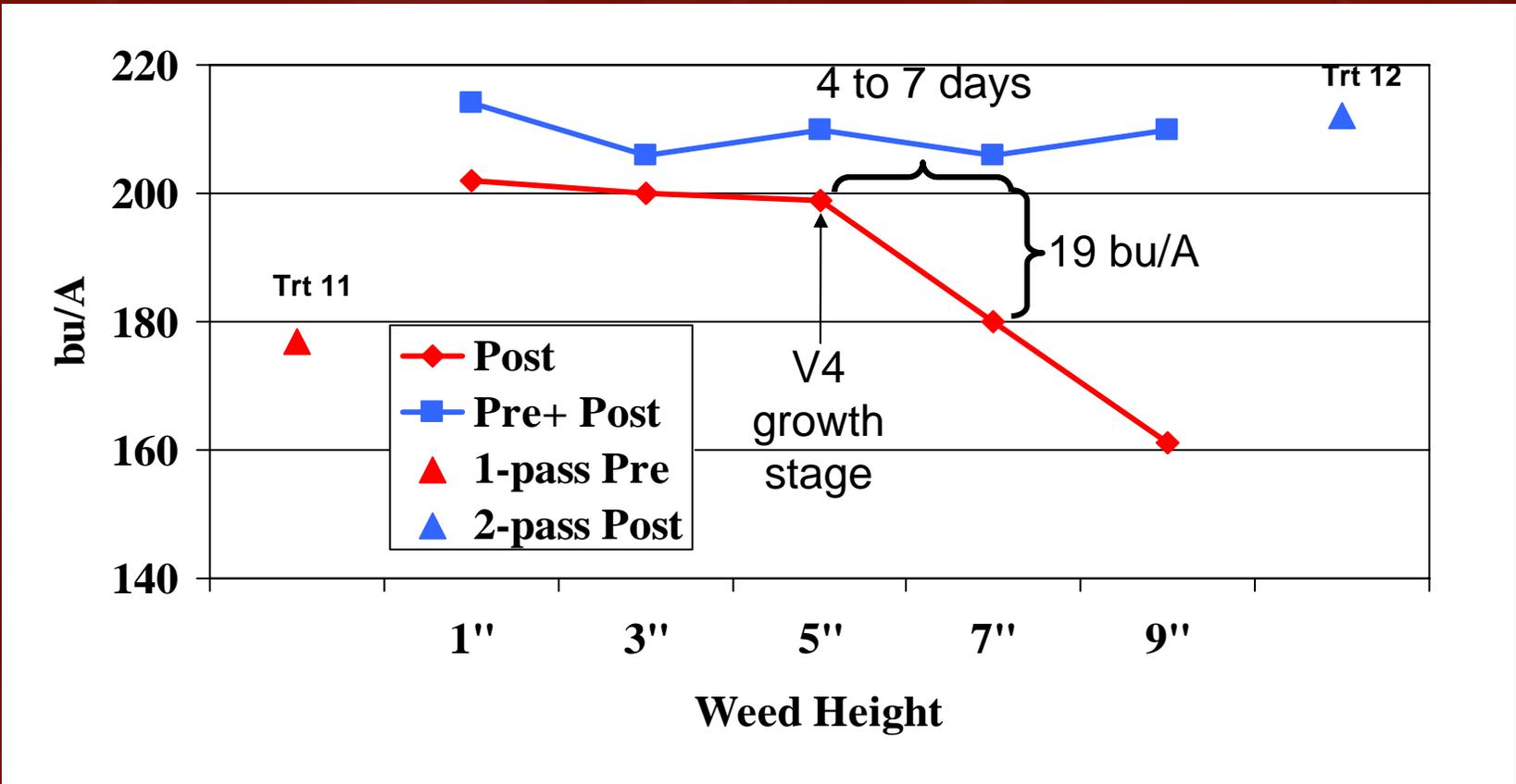
# Weed Emergence Patterns and the Effect of Time of Weed Removal, with Glyphosate, on Corn and Soybean Yield

- In 2004 - 2006, research compared weed removal at 5 glyphosate timings (1", 3", 5", 7" and 9" weed heights), with and without a 1/2-rate of a PRE herbicide, on crop yield and economic returns
- Studies were conducted at four locations for corn and six locations for soybean in 2004; five locations for corn and soybean in 2005; four locations for corn and soybean in 2006

Table 5. Effects of Glyphosate Timing on Weed Control and Crop Yield in Corn in 2006

Trt	Herbicide <sup>1</sup>	Post Application Stage	Cost
1	Harness / Roundup WeatherMAX + AMS	1" Weeds	37.75
2	Roundup WeatherMAX + AMS	1" Weeds	17.85
3	Harness / Roundup WeatherMAX + AMS	3" Weeds	37.75
4	Roundup WeatherMAX + AMS	3" Weeds	17.85
5	Harness / Roundup WeatherMAX + AMS	5" Weeds	37.75
6	Roundup WeatherMAX + AMS	5" Weeds	17.85
7	Harness / Roundup WeatherMAX + AMS	7" Weeds	37.75
8	Roundup WeatherMAX + AMS	7" Weeds	17.85
9	Harness / Roundup WeatherMAX + AMS	9" Weeds	37.75
10	Roundup WeatherMAX + AMS	9" Weeds	17.85
11	Harness	-	19.89
12	Roundup WeatherMAX + AMS / Roundup WeatherMAX + AMS	3" Weeds / 2-4" regrowth	35.70
13	Weed Free	-	0.00
14	Weedy	-	0.00

# Glyphosate Timing and Corn Yield Across Locations, 2004 – Excluding Rochester



# Weed Emergence Patterns and the Effect of Time of Weed Removal on Corn

Lamberton, 3-4 inch weed removal date - June 18, 2005

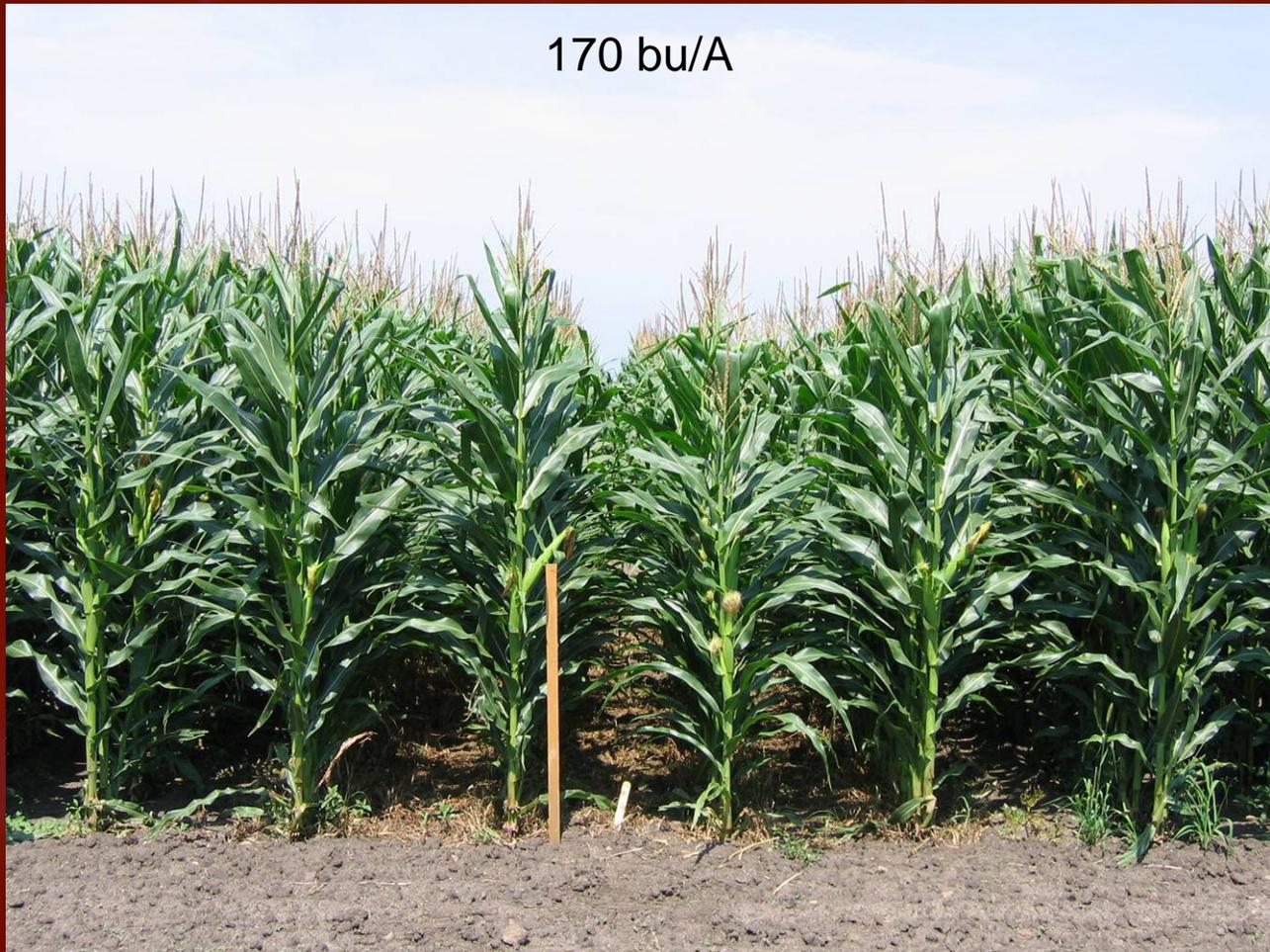
204 bu/A



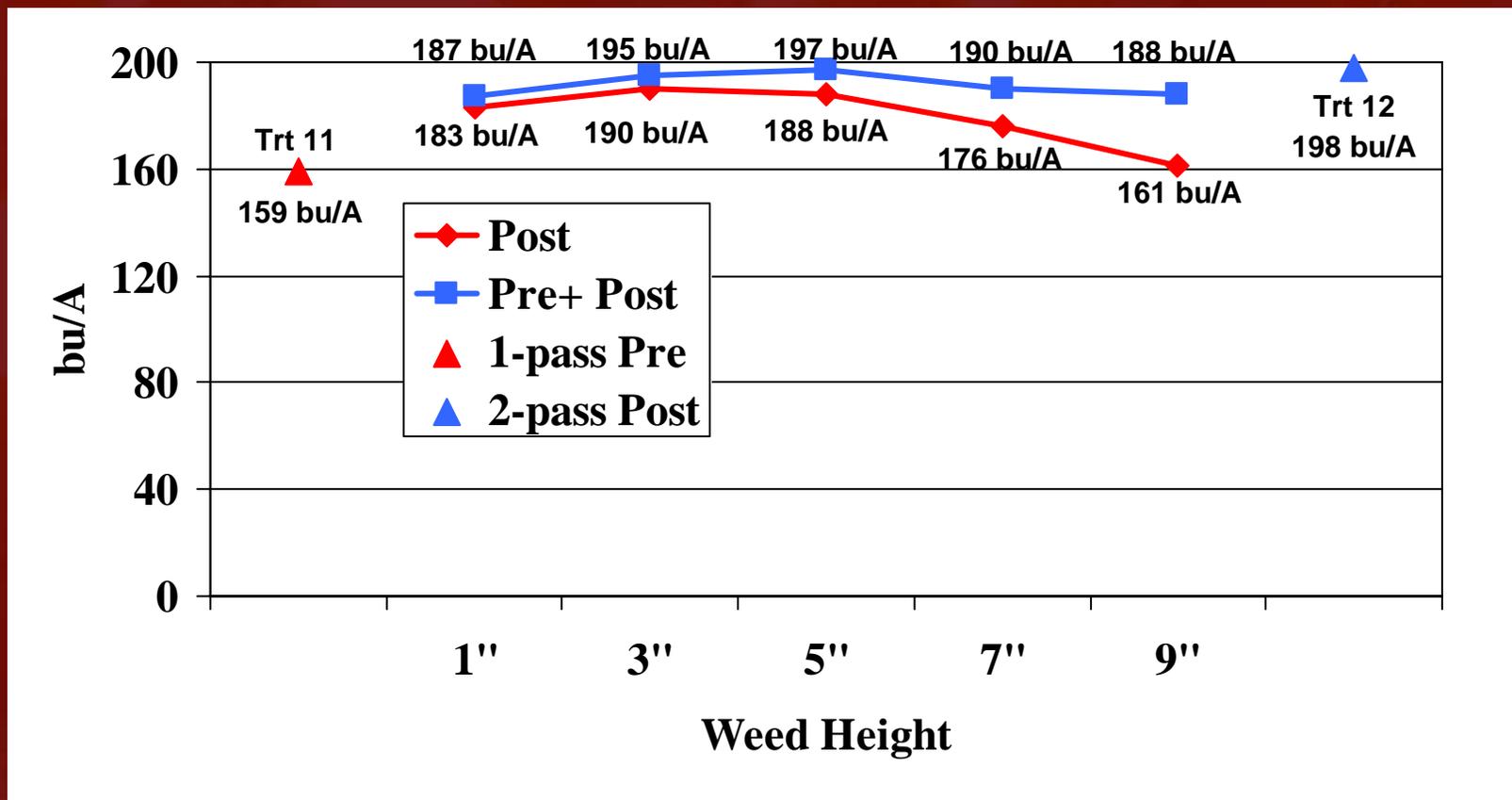
# Weed Emergence Patterns and the Effect of Time of Weed Removal on Corn

Lamberton, 9-12 inch weed removal date – July 1, 2005

170 bu/A



# Glyphosate Timing and Corn Yield Across Locations 2004 - 2006



**Average nitrogen sequestered by corn and giant foxtail across nitrogen sources. Rate of N applied was 170 lbs./A.**

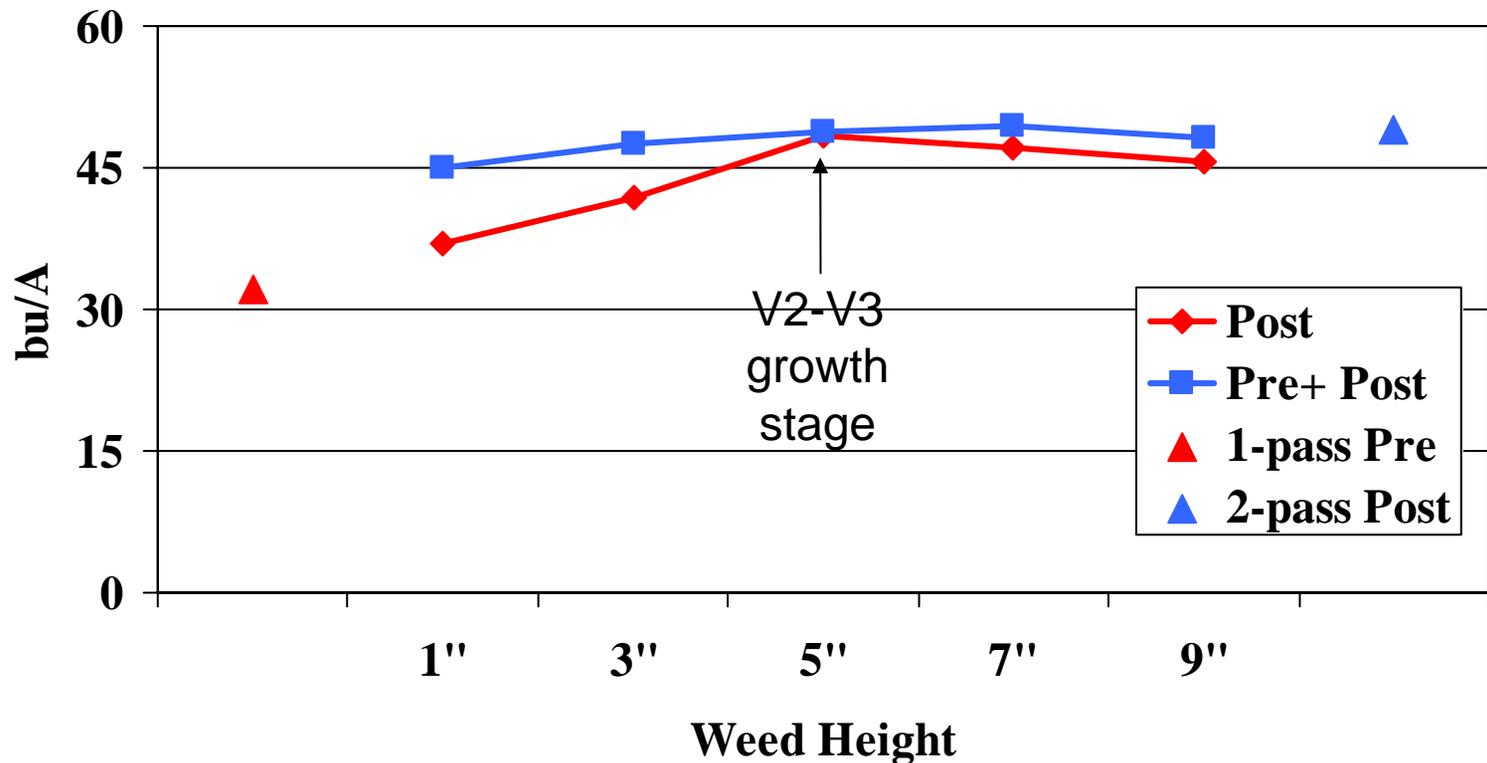
Height of foxtail (in)*	1995		1996**	
	corn	foxtail	corn	foxtail
	.....Lbs. of N / A.....			
2	1.48	3.27	---***	---***
4	3.50	15.04	9.15	11.94
6	11.92	<b>44.82</b>	19.63	<b>29.60</b>
LSD <sub>(0.05)</sub>	1.45	9.84	---	---

\* Height at which nicosulfuron was applied.

\*\* Comparisons not done due to limited degrees of freedom.

\*\*\* Lost due to excessive rain.

# Glyphosate Timing and Soybean Yield Across Locations 2004-2006



Pre + Post - Boundary (1.5 pt/A) + Touchdown Total (24 oz/A) + AMS

Post - Touchdown Total (24 oz/A) + AMS

Pre - Boundary (1.5 pt/A)

2-pass Post - Touchdown Total + AMS / Touchdown Total + AMS at 3"/ 2-4" regrowth

# 2004 - 2006 Summary

## Corn

One-pass glyphosate does not maximize yield or returns.

Longer the duration of early-season competition the greater impact on yield.

PRE/POST (5 inch weeds) gave the best economic returns.

Two pass glyphosate can work but has more time management risk than PRE/POST (5 inch weeds).

## Soybean

One-pass glyphosate (5 inch weeds) could maximize yield and return.

Application of glyphosate too early (less than 5 inch weeds) reduced crop yield and economic return.

PRE/POST (5 inch weeds or larger) provided less favorable economic returns.

Two pass glyphosate is very effective and risk efficient.

# What is at Risk when Developing Herbicide Programs?

- **Loss of:**
  - Yield and Profit
- **Replenished weed seed banks**
- **Stress**
  - Lack of Time
  - Fatigue and Operator Error
- **Other Farm Operations**
  - Cutting Hay
  - Soil Compaction
  - Etc.
- **Weed species shifts**



Photo by Liz Stahl – Regional Extension Educator  
Minnesota Extension Service