

Effect of Time of Weed Removal on Corn Yield

(multiple locations)

One pass or two? What would a PRE do?

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

- Different weeds emerge at different times during the growing season
- If left uncontrolled, weeds emerging before or with the crop are more competitive than weeds that emerge after crop emergence
- Weed effects on yield will depend upon:
 - Weed species
 - Weed density
 - Environmental conditions
 - Duration of weed/crop competitive period

Question: What effect does time of weed removal have on corn yield?

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

- In 2004, research compared 5 glyphosate timings (1", 3", 5", 7" and 9" weed heights), with and without a ½-rate of a PRE herbicide on crop yield and economic returns
- Studies were conducted at four locations
- Major Weeds at each location:

Lamberton: yellow foxtail, common lambsquarters, redroot pigweed, wild buckwheat

Morris: green foxtail, common lambsquarters, Powell amaranth, wild mustard

Rochester: giant foxtail, giant ragweed, common waterhemp, common lambsquarters

Waseca: giant foxtail, common ragweed, redroot pigweed common lambsquarters, velvetleaf,

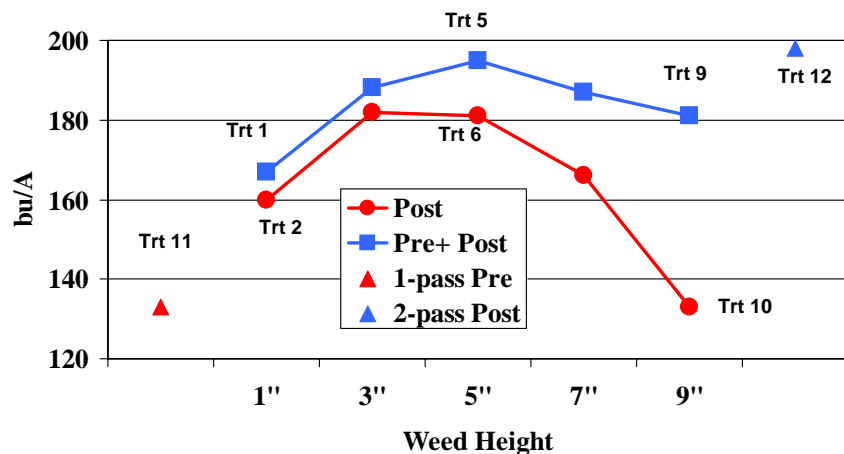
Treatments and Timing of Application

Trt	Description	Timing
1	Harness/Roundup WeatherMax + AMS	PRE / 1" weeds
2	Roundup WeatherMax + AMS	1" weeds
3	Harness/Roundup WeatherMax + AMS	PRE / 3" weeds
4	Roundup WeatherMax + AMS	3" weeds
5	Harness/Roundup WeatherMax + AMS	PRE / 5" weeds
6	Roundup WeatherMax + AMS	5" weeds
7	Harness/Roundup WeatherMax + AMS	PRE / 7" weeds
8	Roundup WeatherMax + AMS	7" weeds
9	Harness/Roundup WeatherMax + AMS	PRE / 9" weeds
10	Roundup WeatherMax + AMS	9" weeds
11	Harness	PRE
12	Roundup WeatherMax / Roundup WeatherMax	3" weeds 2-4" regrowth

Harness at 1.25 pt/A

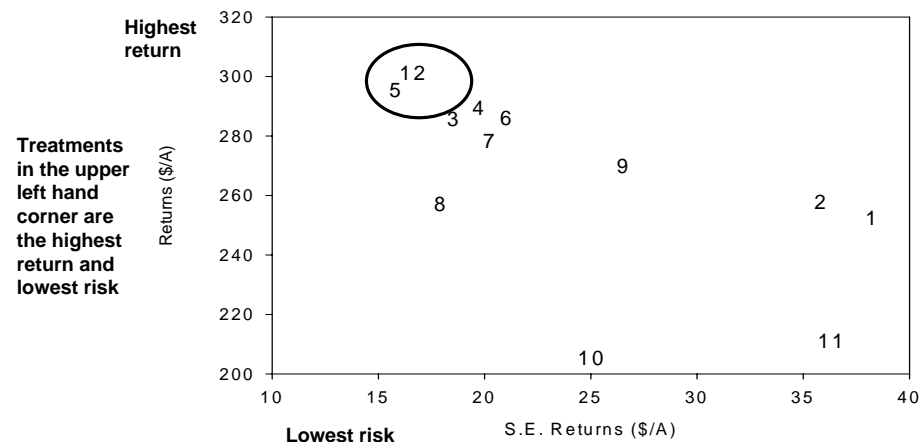
Roundup WeatherMax at 22 oz/A + AMS at 2.5 lb/A

Glyphosate Timing and Corn Yield Across Locations, 2004



Trt 5 – Harness (1.25 pt./A) / Roundup WeatherMax (22 oz/A) + AMS at 5 inch weeds
 Trt 11 – Harness PRE
 Trt 12 – Roundup WeatherMax + AMS / Roundup WeatherMax + AMS at 3"/ 2-4" regrowth

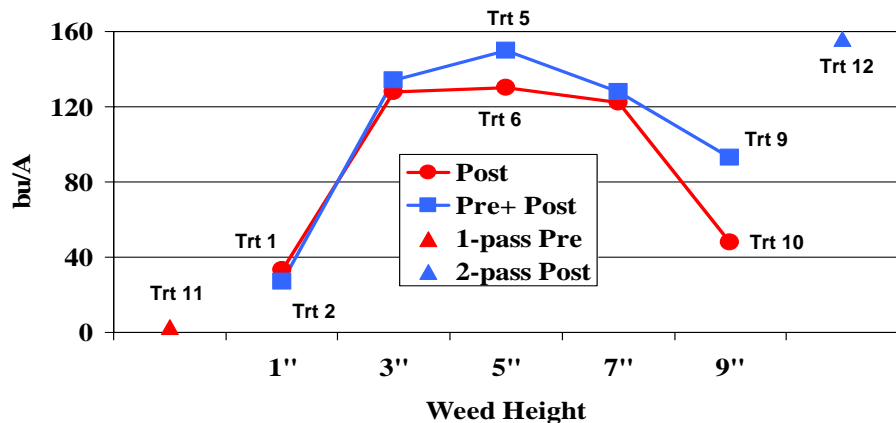
Mean returns vs. standard error of mean returns for corn treatments across locations, 2004



Trt 5 – Harness (1.25 pt./A) / Roundup WeatherMax (22 oz/A) + AMS at 5 inch weeds

Trt 12 – Roundup WeatherMax + AMS / Roundup WeatherMax + AMS at 3"/ 2-4" regrowth

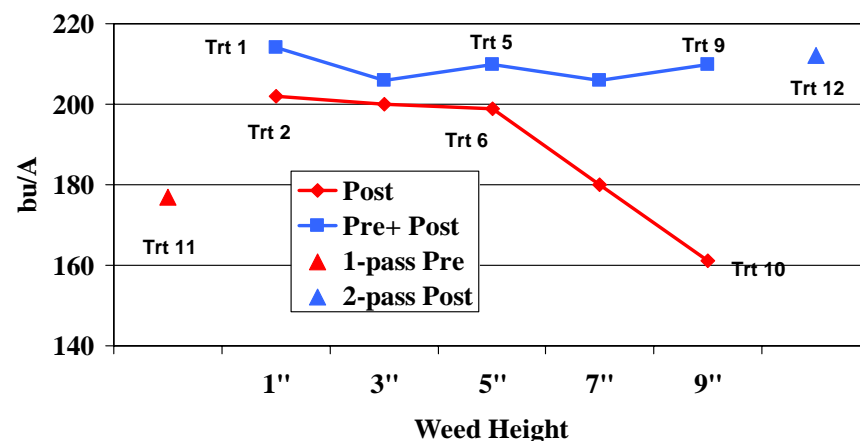
Glyphosate Timing and Corn Yield Rochester, 2004



Trt 5 – Harness (1.25 pt./A) / Roundup WeatherMax (22 oz/A) + AMS at 5 inch weeds
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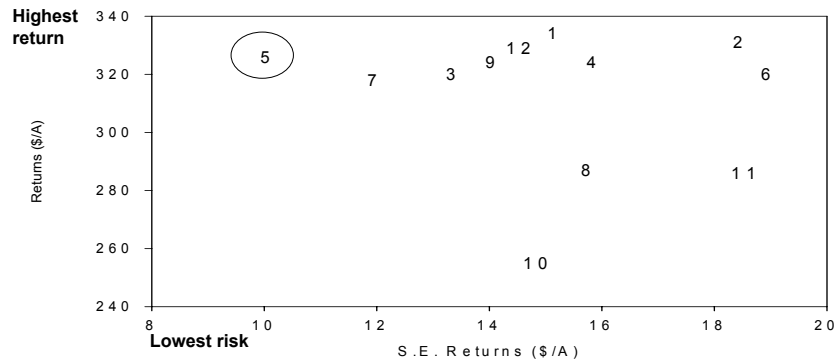
* Heavy giant ragweed competition key factor at this site.

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



Trt 5 – Harness (1.25 pt./A) / Roundup WeatherMax (22 oz/A) + AMS at 5 inch weeds
 Trt 11 – Harness PRE
 Trt 12 – Roundup WeatherMax + AMS / Roundup WeatherMax + AMS at 3"/ 2-4" regrowth

**Mean returns vs. standard error of mean returns for
corn treatments across locations, 2004
Excluding Rochester**



Trt 5 – Harness (1.25 pt./A) / Roundup WeatherMax (22 oz/A) + AMS at 5 inch weeds

Trt 12 – Roundup WeatherMax + AMS / Roundup WeatherMax + AMS at 3”/ 2-4” regrowth

2004 Summary – All locations

Under Cool & Wet Conditions:

Corn

One-pass glyphosate does not maximize yield or returns.

The longer the duration of competition the greater impact on yield.

PRE/POST sequential applications gave the best economic returns (average over all locations).

Two pass glyphosate system can work (high yield) but has more economic risk than PRE / POST III (5 inch weeds).