

## Postemergence Weed Control in Corn

**Evaluation of postemergence weed control systems in corn at Rochester, MN in 2002.** Breitenbach, Fritz R, and Lisa M. Behnken. The objective of this trial was to evaluate the performance of postemergence herbicide systems for weed control in corn in southeastern Minnesota. The research site was a Lawler loam soil, containing 2.4% organic matter, pH of 6.2, and soil test P and K levels of 35 and 132 ppm, respectively. The previous crop was corn. In the fall of 2001, the area was fertilized with 200 lb/A Pel-lime, 200 lb/A potash, and 8 tons/A of turkey manure, then disked twice and chisel plowed once. Spring tillage consisted of one pass with a field cultivator. The corn hybrid, DeKalb 39-00, was planted on April 30, 2002, at a 2-inch depth in 30-inch rows at a population of 30,000 seeds/A. A randomized complete block design with four replications was used. Preemergence (PRE) and postemergence (POST I and POST II) treatments were applied with a tractor-mounted sprayer, delivering 20 gallons per acre at 32 psi using TurboTee 11002 nozzles. Evaluations of the plot were taken on May 20, June 12 and 24, and July 3. Application dates, environmental conditions, crop and weed stages are listed below.

Date	April 30	May 29	June 24
Treatment	PRE	POST I	POST II
Temperature (F)			
air temp	60	80	72
soil temp	---	---	---
Relative Humidity (%)	42	54	48
Wind (mph)	7	6	7
Soil Moisture	adequate	adequate	adequate
Corn			
Stage	---	2-collar	7-8-collar
height (inch)	---	4.0	20.0
Giant ragweed			
weed density/ft <sup>2</sup>	---	10	10
height (inch)	---	3.75	6.0
Common lambsquarter			
weed density/ft <sup>2</sup>	---	37	37
height (inch)	---	1.0	3.0
Common waterhemp			
weed density/ft <sup>2</sup>	---	43	43
height (inch)	---	0.5	3.0
Woolly cupgrass			
weed density/ft <sup>2</sup>	---	30	30
height (inch)	---	1.25	3.0
Rainfall after application (inch)			
week 1	0.38	3.64	0.55
week 2	0.64	0.89	0.05
week 3	0.05	0.86	0.48

### Results:

1. The two sequential POST I/POST II herbicide treatments, Touchdown followed by Touchdown and Roundup Ultra Max followed by Roundup Ultra Max, resulted in the best overall, 95-98%, season long control of the four weed species.
2. Sequential versus single applications with Touchdown and Roundup Ultra Max
  - a. Sequential PRE/POST and POSTI/POSTII treatments with Touchdown and Roundup Ultra Max provided better common waterhemp and woolly cupgrass control than single applications of Touchdown or Roundup Ultra Max.T
  - b. The addition of a soil residual product, Dual II Mag with Touchdown, or Harness Xtra with Roundup Ultra Max, resulted in comparable weed control to the sequential PRE/POST and POST I/POST II applications of Touchdown and Roundup Ultra Max.
3. Giant Ragweed
 

All of the herbicide treatments resulted in very good to excellent control, 88-99%.

4. Common Lambsquarters
  - a. Seven of the herbicide treatments resulted in excellent control, 97-99%.
  - b. The single application of Roundup Ultra Max, Touchdown, and Dual II Mag + Touchdown provided good control, 81-87%.
5. Common Waterhemp
  - a. The two sequential POST I/POST II herbicide treatments and POST I Callisto + Accent + Aatrex gave excellent control, 96-98%.
  - b. The single applications of Touchdown and Roundup Ultra Max resulted in fair control, 68-73%. However, adding Dual II Mag to Touchdown and Harness Xtra to Roundup Ultra Max increased control to 84 and 87%, respectively.
  - c. Northstar + Accent and Northstar + Accent + Aatrex gave poor control, 41-43%.
6. Woolly Cupgrass
  - a. The two sequential herbicide treatments, Touchdown followed by Touchdown and Roundup Ultra Max followed by Roundup Ultra Max, gave excellent control, 95 and 98%, respectively. The other herbicide treatments resulted in only fair to good control.
  - b. The single applications of Touchdown and Roundup Ultra Max resulted in fair control, 67 and 69%, respectively. Once again, adding Dual II Mag to Touchdown and Harness Xtra to Roundup Ultra Max increased control to 81 and 87%, respectively.
7. Yield
  - a. The two treatments that included Northstar had reduced yields. The Northstar + Accent + Aatrex treatment had a higher yield than Northstar + Accent, 135 bu/A compared to 112 bu/A, respectively. Both treatments resulted in poor common waterhemp control, 41-43%; however, the treatment with Aatrex provided faster burn down and better early season common waterhemp and giant ragweed control. The June 12, 2002 common waterhemp and giant ragweed control rating for Northstar + Accent was 70% and 90% respectively. With the addition of atrazine to the tank mix the ratings were 85%, and 98% for common waterhemp and giant ragweed respectively. It is possible that the improved early season weed control was responsible for the difference in yield.
  - b. The wide range of woolly cupgrass control, from 67 to 98%, appeared to have no impact on yield.
  - c. PRE Dual II Mag followed by POST Touchdown had a higher yield than the POSTI Dual II Mag + Touchdown, 153 bu/A compared to 132 bu/A, respectively. The PRE Dual II Mag treatment provided early season weed control compared to the POST treatment. It is likely that this early season control reduced competition and was responsible for the increased yield.

Table. Performance of postemergence herbicides for weed control in corn on July 3 at Rochester, MN in 2002 (Breitenbach and Behnken)

<i>Treatment</i>	<i>Rate</i>	<i>Giant ragweed control</i>	<i>Common lambsquarters control</i>	<i>Common waterhemp control</i>	<i>Woolly cupgrass control</i>	<i>Corn yield</i>
	(rate/A)	(%)	(%)	(%)	(%)	(bu/A)
<b><u>PRE/POST I</u></b>						
Dual II Mag / Touchdown + AMS	1 pt / 1 qt + 2.5 lb	93	89	91	83	153
<b><u>POST I</u></b>						
Callisto + Steadfast + Aatrex + COC + UAN	3 oz + 0.75 oz + 8 oz + 1% + 2.5%	99	99	90	80	143
Callisto + Accent + Aatrex + COC + UAN	3 oz + 0.5 oz + 8 oz + 1% + 2.5%	99	99	96	76	139
Northstar + Accent + COC +UAN	5 oz + 0.33 oz + 1% + 2.5%	98	97	43	81	112
Northstar + Accent + Aatrex + COC + UAN	5 oz + 0.33 + 24 oz + 1% + 2.5%	98	98	41	78	135
Touchdown + AMS	1 qt + 2.5lb	91	87	68	67	142
Dual II Mag + Touchdown + AMS	1 pt + 1 qt + 2.5 lb	91	87	84	81	132
Roundup Ultra Max + AMS	26 oz + 2.5 lb	92	81	73	69	140
Harness Xtra + Roundup Ultra Max + AMS	1.5 qt + 26 oz + 2.5 lb	88	97	87	87	139
<b><u>POST I/POST II</u></b>						
Touchdown + AMS / Touchdown + AMS	1 qt + 2.5 lb / 0.75 qt + 2.5 lb	96	97	97	95	145
Roundup Ultra Max + AMS / Roundup Ultra Max + AMS	26 oz + 2.5 lb / 20 oz + 2.5 lb	98	97	98	98	152
Untreated						3
	LSD (0.10)	4	6	7	7	14