

Tall waterhemp control in glyphosate tolerant soybeans at Waseca, MN in 1999. Hvoerstad, Thomas R. The objective of this trial was to evaluate tall waterhemp control in soybeans using conventional herbicides and glyphosate or ICIA-0224. The research site was a Lester clay loam soil containing 4.5% organic matter. The previous crop was corn that had been fall chisel plowed. The entire area was field cultivated once in the spring prior to herbicide application. Following preplant incorporated treatments the entire area was field cultivated twice to a depth of 3 to 4 inches to incorporate herbicides and prepare a seedbed. Asgrow '2101' soybeans were planted on May 25, 1999 in 30-inch rows. The entire experimental area was treated with sethoxydim on June 17 to remove grass weeds. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Application dates, environmental conditions, crop and weed stages are listed below.

| Date | My 26 | My 26 | June 24 | June 29 | July 2 | July 6 | July 12 |
|--|-------|-------|-----------------------------|------------------------------|-------------------------------|------------------------------|--------------------------------|
| Treatment | PPI | Pre | Post I (2-inch Weeds) | Post II (4-inch weeds) | Post III (6-inch weeds) | Post IV (8-inch weeds) | Post V (2-inch regrowth) |
| Air temp °F | 71 | 73 | 89 | 68 | 73 | 81 | 82 |
| Soil temp (4-inch) | 55 | 65 | 83 | 62 | 64 | 75 | 82 |
| Relative humidity (%) | 19 | 15 | 23 | 54 | 79 | 30 | 30 |
| Wind | Calm | NW2 | W2 | W2 | S 2 | NW9 | S 4 |
| Soil moisture | moist | moist | dry | moist | moist | moist | dry |
| Soybeans | | | | | | | |
| Stage | - | - | V1 | V2 | V3 | R1 | R1 |
| height (inch) | - | - | 4 | 5 | 7 | 7 | 12-14 |
| Tall Waterhemp | | | | | | | |
| leaf no. | - | - | 3 | 4-6 | 4-10 | 4-16 | 8 |
| height (inch) | - | - | 2 | 3-4 | 5-7 | 6-12 | 2-4 |
| Rainfall after application (inch) | | | | | | | |
| Week 1 | 0.50 | 0.50 | 0.30 | 1.97 | 2.38 | 0.53 | 1.47 |
| week 2 | 0.77 | 0.77 | 1.85 | 0.53 | 0.04 | 2.47 | 1.07 |
| week 3 | 2.14 | 2.14 | 0.53 | 1.62 | 2.43 | 0.87 | 0.85 |

Soil applied treatments that provided good control of tall waterhemp included V53482 or USA 1999 plus sulfentrazone. Preplant incorporated sulfentrazone, trifluralin or clomazone all resulted in poor tall waterhemp control. Glyphosate or ICIA 0224 provided excellent control of tall waterhemp. (MN Agric. Exp. Sta. Paper No. 991051003, Msc Journ Series, University of MN, St Paul).

Table. Tall Waterhemp Control in Glyphosate Tolerant Soybeans at Waseca, MN in 1999. Hvoerstad.

| Treatmenta | Rate | Tavh Aug 2 | Tavh Sept 22 | Yieldb |
|---|-----------------------------|---------------|-----------------|--------|
| Preplant incorporate 2X/POST II (4-inch weeds) | | % control | | Bt/A |
| Trif/Inep+M0+28%N | 0.75/0.063+0.94+1.25% | 65 | 40 | 32.2 |
| Clonl/Inep+M0+28%N | 0.75/0.031+0.94+1.25% | 22 | 0 | 16.7 |
| Suen/[Cln&Thif]+NIS+28%N | 0.21/[0.005&0.0016]+0.25+5% | 44 | 24 | 28.8 |
| Suen/Inep+M0+28%N | 0.21/0.047+0.94+1.25% | 26 | 9 | 19.7 |
| Preplant incorporate 2X/POST III (6-inch weeds) | | | | |
| Trif/Glyt+AM | 0.75/0.75+2.5 | 99 | 99 | 43.8 |
| [Inep&Pend]/Glyt+AM | [0.063&0.84] /0.38+2.5 | 99 | 99 | 41.9 |
| Suen/Glyt+AM | 0.14/0.75+2.5 | 99 | 99 | 42.2 |
| Preemergence | | | | |
| V-53482 | 0.094 | 92 | 81 | 37.7 |
| Clonl | 0.75 | 9 | 1 | 17.9 |
| V-53482+Clonl | 0.078+0.75 | 91 | 84 | 42.2 |
| V-53482+Clonl | 0.094+0.75 | 95 | 94 | 38.4 |
| V-53482+CGA77102 | 0.094+1.43 | 95 | 93 | 39.9 |
| Pre/Post II (4-inch weeds) | | | | |
| USA 1999+Suen/Glyt+AM | 0.34+0.19/0.56+2.5 | 98 | 99 | 39.9 |
| POST I (2-inch weeds)/POST V (2-inch regrowth) | | | | |
| Glyt+AM/Glyt+AM | 0.56+2.5/0.56+2.5 | 99 | 99 | 43.2 |
| POST II (4-inch weeds) | | | | |
| Inep+Fon+M0+28%N | 0.063+0.235+0.5+2.5% | 97 | 95 | 37.2 |

| | | | | |
|-------------------------|------------|-----|-----|------|
| Glyt+AM | 0.75+2.5 | 98 | 98 | 42.3 |
| POST III (6-inch weeds) | | | | |
| Glyt+AM | 0.75+2.5 | 99 | 98 | 43.8 |
| ICIA 0224+AM | 1+2.5 | 99 | 99 | 41.6 |
| POST IV (8-inch weeds) | | | | |
| Glyt+AM | 0.75+2.5 | 99 | 98 | 40.6 |
| Check Plots | | | | |
| Weedy Check | - | 0 | 0 | 18.6 |
| Hand-Weeded | - | 100 | 100 | 40.7 |
| | LSD (0.10) | 6 | 10 | 5.6 |

a Clon1 = Command 4E; Clon2 = Command 3E; CGA77102=Dual II Magnum 7.64E; Fone = Flexstar 1.88L; Suen = Authority 75DF; Glyt = Roundup Ultra 3L; ICIA 0224 = Touchdown 5 5L; Inep = Pursuit 2AS; [Inep&Pend] = Pursuit Plus 2.9E; [Thif&Clin] = Synchrony STS 42DF; Trif = Treflan 4E; M50=methylated seed oil, ; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AM = spray grade ammonium sulfate.

b Yield adjusted to 13% moisture.