Herbicide performance in soybeans at Waseca, MN tall waterhemp site in 2002. Hoverstad, Thomas R and Jeffrey L. Gunsolus. The objective of this trial was to evaluate soybean weed management systems available to producers in southern Minnesota on a site that was heavily infested with tall waterhemp. The research site was a Webster clay loam soil containing 8% organic matter with a pH of 7.4 and soil test P and K levels of 75 and 248 ppm, respectively. The previous crop was soybean 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 '2103' soybeans were planted on May 15, 2002 in 30-inch rows. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Visual estimates of weed control were taken on September 10, 2002. Application dates, environmental conditions, crop and weed stages are listed below.

| Date | May 15 | May 17 | June 14 | June 24 | July 12 |
|---|---|---|---|---|---|
| Treatment | | | Post I | Post II | Post III |
| Application Stage | PPI | Pre | 4-inch weeds | 6-inch weeds | Crop canopy |
| air temp °F | 75 | 58 | 73 | 84 | 72 |
| soil temp (4-inch) | 70 | 53 | 70 | 76 | 72 |
| Relative humidity (%) | 40 | 25 | 30 | 25 | 45 |
| Wind | W 8 | N 5 | NW 10 | S 5 | N 5 |
| Soil moisture | Dry | Dry | Moist | Moist | Dry |
| Soybeans | | | | | |
| Stage | - | - | V2 | V4 | R1 |
| height (inch) | - | - | 5 | 7 | 14 |
| Tall waterhemp | | | | | |
| leaf no. | - | - | 3-4 | 6-8 | 3-4 |
| height (inch) | - | - | 3-4 | 6-7 | 4 |
| Rainfall after application (inch) | | | | | |
| week 1 | 0.00 | 0.00 | 2.19 | 1.15 | 0.00 |
| week 2 | 0.71 | 0.74 | 1.15 | 0.00 | 0.56 |
| week 3 | 2.52 | 2.49 | 0.00 | 0.89 | 1.24 |

Preemergence [sulfentrazone & cloransulam] either tank mixed with [S-metolachlor and metribuzin] or followed by [Fluazifop-P & fenoxaprop] failed to provide adequate tall waterhemp control. Pendimethalin followed by imazamox plus acifluorfen resulted in better tall waterhemp control than pendimethalin followed by imazamox plus cloransulam. One-pass glyphosate resulted in poor season long tall waterhemp control but still provided good soybean yields. Any of the various premergence products evaluated followed by glyphosate provided better control of tall waterhemp than the one-pass glyphosate treatment. (University of Minnesota, Southern Research and Outreach Center, Waseca, MN and Dept of Agronomy and Plant Genetics, University of Minnesota, St Paul).

Table. Herbicide performance in soybeans at Waseca, MN tall waterhemp site in 2002 (Hoverstad and Gunsolus).

| Treatment[a] | Rate | AMATU | Yield |
|---|---|---|---|
| | (lb/A or %) | (% control) | Bu/A[b] |
| Preplant incorporate 2X/POST I (4-inch weeds) | | | |
| Pend/Immx+Acif+NIS+AMS | 1.0/0.031+0.1875+0.25%+3.4 | 92 | 56.2 |
| Pend/Immx+Clsm+NIS+AMS | 1.0/0.031+0.01+0.25%+3.4 | 79 | 18.4 |
| Pend/[Glyt&imep]+NIS+AMS | 1.0/[0.75&0.063]+0.25%+2.6 | 94 | 54.5 |
| Preemergence | | | |
| [Suen&clsm]/[S-meto&metr] | [0.25&0.03]/[0.8&0.2] | 66 | 20.5 |
| Preemergence/ POST I (4-inch weeds) | | | |
| Flsm/Clsm+Clet+Lact+ NIS+AMS | 0.05/0.016+0.125+0.125+ 0.25%+2.5 | 81 | 41.1 |
| [Suen&clsm]/ [Flfp-P&fenx]+COC+AMS | [0.25&0.03]/ [0.156&0.04]+1%+2.5 | 62 | 35.2 |
| Flmx/Clsm+Lact+Clet+ NIS+AMS | 0.078/0.016+0.125+0.125+ 0.25%+2.5 | 86 | 43.2 |
| [S-meto&metr]/ Fome+[Flfp-P&fenx]+COC+AMS | [0.8&0.2]/ 0.235+[0.156&0.04]+1%+2.5 | 89 | 54.0 |
| Suen/ Fome+Qufp-P+ COC+AMS | 0.21/0.235+0.06+ 1%+2.5 | 94 | 58.5 |
| Preemergence/ POST I (6-inch weeds) | | | |
| Suen/Glyt+Clim+AMS | 0.16/0.76+0.015+2.5 | 96 | 58.7 |
| Flms/Glyt[2]+AMS | 0.05/0.75+2.5 | 95 | 55.9 |
| [Suen&clsm]/Glyt[2]+AMS | [0.13&0.016]/0.75+2.5 | 93 | 59.2 |
| Flmx/Glyt+AMS | 0.06/0.75+2.5 | 96 | 60.7 |
| [S-meto&metr]/Glyt[3]+AMS | [0.8&0.2]/0.75+2.5 | 93 | 57.7 |
| [Foe-5043&metr]/Glyt+AMS | [0.15&0.225]/0.56+2.5 | 95 | 60.0 |
| Suen/Glyt+AMS | 0.19/0.76+2.5 | 87 | 60.3 |
| POST I (4-inch weeds) | | | |
| Fome+[Flfp-P&fenx]+Thif+COC+AMS | 0.23[0.156&0.044]+0.002+1%+2.5 | 91 | 54.7 |
| POST I (4-inch weeds)/POST III(Canopy) | | | |
| Glyt+AMS/Glyt+AMS | 0.75+2.5 / 0.75+2.5 | 99 | 60.6 |
| POST II (6-inch weeds) | | | |
| Glyt[2]+Carf+AMS | 0.75+0.004+2.5 | 83 | 51.3 |
| Glyt[2]+Clms+AMS | 0.75+0.016+2.5 | 91 | 55.9 |
| [Imep&Glyt]+NIS+AMS | [0.063&0.75]+0.125%+2.5 | 71 | 51.3 |
| Glyt+AMS | 0.76+2.5 | 66 | 58.7 |
| Checks | | | |
| Weedy Check | | 0 | 19.8 |
| Hand-Weeded | | 99 | 59.8 |
| | LSD (0.10) | 18 | 4.4 |

[a] Acif = acifluorfen = Ultra Blazer 2L; Fome= fomesafen = Flexstar 1.88L; Suen = sufentrazone = Authority 75DF; Carf = carfentrazone = Aim EW; Clim = clorimuron = Classic 75DF; Glyt = glyphosate = Roundup Ultra Max 3.75L; Glyt[2] = glyphosate = Glyphomax Plus 3L; Glyt[3]= glyphosate = Touchdown IQ; Pend = pendimethalin = Prowl 3.8 H2O; Clsm = cloransulam = FirstRate 84WG; [Glyt&imep] = [glyphosate & imazethapyr] = Extreme 2.17L; [Flfp-P&fenx] =[fluazifop-P & fenoxaprop = Fusion 2.56L; Flms = flumetsulam = Python 80DF; [S-meto&metr] = [S-metolachlor & metribuzin] = Boundary 6.5L; [FOE-5043&metr] = [FOE-5043&metribuzin] = Domain 60 DF; Flmx = flumioxazin = Valor 50DF; [Suen&clsm] = [sulfentrazone & cloransulam] = Guantlet; Immx = imazomox = Raptor 1L; Clet = clethodim = Select 2EC; Lact = lactofen = Phoenix 2L; Qufp-P = quizalofop-P = Assure II 0.88L; Thif = thifensulfuron = Harmony GT 75DF; = COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; AMS = spray grade ammonium sulfate.

[b] Yield adjusted to 13% moisture.