Herbicide performance in glyphosate-resistant corn at Lamberton, MN in 2001. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate corn herbicide combinations for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.4% organic matter, pH 6.2 and soil test P and K levels of 60 and 422 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to oats in 2000 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 11, 2001, Dekalb '520RR' glyphosate-resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

| Date | May 12 | June 16 | June 19 | July 3 |
|---|---|---|---|---|
| Treatment | PRE | POST I | POST II | POST III |
| Temperature (F) | | | | |
| air | 50 | 52 | 52 | 68 |
| soil (4 inch) | 50 | 60 | 62 | 68 |
| Relative humidity (%) | 71 | 100 | 88 | 88 |
| Wind (mph) | calm | W 0-5 | W 0-5 | calm |
| Sky | clear | clear | clear | clear |
| Soil moisture | moist | moist | dry | moist |
| Corn | | | | |
| leaf no. | - | 4-collar | 4-collar | 8-collar |
| height (inch) | - | 6 | 7 | 24 |
| Yellow foxtail | | | | |
| leaf no. | - | 2 to 4 | 2 to 5 | 2 to 4 |
| height (inch) | - | 2 to 4 | 3 to 5 | 2 to 4 |
| no./$ft^2$ | - | 52 | 64 | 2 |
| Common lambsquarters | | | | |
| leaf no. | - | 2 to 4 | 2 to 6 | - |
| height (inch) | - | 1 to 3 | 2 to 4 | - |
| no./$ft^2$ | - | 6 | 3 | - |
| Rainfall after application (inch) | | | | |
| 1 week | 0.00 | 0.01 | 0.01 | 0.00 |
| 2 week | 1.15 | 0.33 | 0.50 | 0.00 |
| 3 week | 0.31 | 0.17 | 0.00 | 6.00 |

None of the herbicide treatments caused visible crop injury. In September, all treatments provided 94% or greater yellow foxtail control. All treatments provided excellent common lambsquarters control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in glyphosate-resistant corn at Lamberton, MN in 2001 (Getting and Potter).

| | | SETLU | | | | CHEAL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Treatment[a] | Rate | 6/11 | 6/28 | 7/9 | 9/11 | 6/11 | 6/28 | 7/9 | 9/11 | Yield |
| PRE/POST I (2 to 4" weeds) | (lb/A or %) | ----------(% control)---------- | | | | | | | | (bu/A)[b] |
| Acetochlor[1]/glyphosate[1]+AMS | 1.6/0.75+2.5 | 97 | 97 | 96 | 96 | 90 | 100 | 100 | 100 | 152 |
| S-meto/glyphosate[2]+AMS | 1.28/0.56+1.7 | 91 | 97 | 97 | 95 | 84 | 99 | 100 | 100 | 159 |
| S-meto/glyphosate[2]+AMS | 1.28/0.75+1.7 | 90 | 97 | 97 | 97 | 88 | 99 | 100 | 100 | 147 |
| Dimt-P/[Dica&SAN 1269H] +NIS+AMS | 0.94/[[0.128&0.051] +0.25%+1.0 | 93 | 94 | 94 | 94 | 90 | 98 | 100 | 100 | 161 |
| S-meto/[Prim&Dica] +COC+28%N | 1.91/[0.023&0.125] +1.0%+2.5% | 91 | 94 | 94 | 95 | 85 | 96 | 99 | 100 | 157 |
| PRE/POST II (2 to 6" weeds) | | | | | | | | | | |
| Acetochlor[2]/glyphosate[3]+AMS | 1.09/0.75+2.5 | 94 | 98 | 98 | 100 | 92 | 99 | 100 | 100 | 160 |
| POST I (2 to 4" weeds) | | | | | | | | | | |
| Glyphosate[3]+AMS | 0.75+2.5 | - | 97 | 93 | 95 | - | 100 | 100 | 100 | 146 |
| Acetochlor[2]+glyphosate[3]+AMS | 1.09+0.75+2.5 | - | 97 | 96 | 95 | - | 100 | 100 | 100 | 146 |
| S-meto+glyphosate[2]+AMS | 1.28+0.56+1.7 | - | 97 | 95 | 96 | - | 100 | 100 | 100 | 150 |
| POST II (2 to 6" weeds) | | | | | | | | | | |
| Glyphosate[2]+AMS | 0.75+1.7 | - | 99 | 99 | 99 | - | 100 | 100 | 100 | 148 |
| POST I (2 to 4" weeds) /POST III (regrowth) | | | | | | | | | | |
| Glyphosate[3]+AMS/ glyphosate[3]+AMS | 0.75+2.5/ 0.56+2.5 | - | 97 | 99 | 99 | - | 100 | 100 | 100 | 142 |
| Glyphosate[2]+AMS/ glyphosate[2]+AMS | 0.75+1.7/ 0.75+1.7 | - | 97 | 97 | 99 | - | 100 | 100 | 100 | 139 |
| Checks | | | | | | | | | | |
| Weedy check | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 |
| Weed-free | | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 167 |
| | LSD (0.10) | 1.7 | 1.7 | 2.0 | 2.1 | 5.6 | 1.3 | 0.5 | ns | 19.8 |

[a] Acetochlor[1] = Surpass 6.4EC; Acetochlor[2] = Harness 7E; [Dica&SAN 1269H] or [dicamba & SAN 1269H] = Distinct 70WG; Dimt-P or dimethenamid-P = Outlook 6L; glyphosate[1] = Glyphomax Plus 3L; glyphosate[2] = Touchdown 3L; glyphosate[3] = Roundup Ultra Max 3.75L; [Prim&Dica] or [primsulfuron & dicamba] = Northstar 47.4WG; S-meto or S-metolachlor = Dual II Magnum 7.64EC; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

[b] Yield adjusted to 15.5% moisture.