

Evaluation of conventional weed control programs in corn. Abendroth, Julie A., Alex R. Martin, and Kevin T. Horky. A field study was conducted to evaluate the efficacy and crop response of PRE alone, PRE+POST, and POST alone herbicide programs in conventionally-tilled corn. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Colo silt loam with 2.4% organic matter and a pH of 6.9. Seedbed preparation consisted of disking prior to planting and one field cultivation the day of planting. Individual plots consisted of six 30-inch rows, each 30 feet long. 'DeKalb DKC58-78' corn was planted May 22 at a population of 20,600 seeds/acre. Treatments were applied with a tractor-mounted sprayer traveling 3.0 mph. Application, crop, weed, and environmental data are presented:

| Date | May 22 | June 9 | June 19 |
|-------------------------------|----------|----------|----------|
| Treatment | PRE | EPOST | MPOST |
| Sprayer | | | |
| gpa | 15 | 15 | 15 |
| psi | 30 | 30 | 30 |
| Temperature (°F) | | | |
| Air | 74 | 88 | 77 |
| Soil (4 inch) | 61 | 70 | 73 |
| Soil Moisture | Adequate | Adequate | Adequate |
| Wind (mph) | 11 | 10 | 3 |
| Sky (% cloudy) | 45 | 0 | 0 |
| Relative Humidity (%) | 31 | 25 | 59 |
| Precip. after appl. | | | |
| Week 1 (inch) | 0.04 | 2.01 | 2.13 |
| Week 2 (inch) | 0.8 | 2.25 | 0.36 |
| Corn | | | |
| Leaf no. | -- | 2 | 5 |
| Height (inch) | -- | 4 | 12 |
| Velvetleaf | | | |
| Leaf no. | -- | 2 | 5 |
| Height (inch) | -- | 1-2 | 4 |
| Infestation (m ²) | -- | 47 | 50 |
| Pigweed species | | | |
| Leaf no. | -- | 4 | 16+ |
| Height (inch) | -- | 1-2 | 6-7 |
| Infestation (m ²) | -- | 61 | 10 |
| Common sunflower | | | |
| Leaf no. | -- | 4 | 8 |
| Height (inch) | -- | 2 | 5-6 |
| Infestation (m ²) | -- | <1 | 1 |
| Annual grasses | | | |
| Leaf no. | -- | 1 | 5 |
| Height (inch) | -- | 1-2 | 5-6 |
| Infestation (m ²) | -- | 21 | 6 |

Summary comments: Moisture was adequate throughout May and June; July and August saw limited amounts, with 1.03" and 1.31" respectively. The majority of Amaranthus species, AMASS, were Palmer amaranth with some waterhemp. Annual grasses, GGGAN, were primarily green and giant foxtail. Crop injury was noted on June 27 for the PRE+MPOST treatments, which showed 2-5% chlorosis; there was no significant difference between them. No crop injury was seen after June 27. Across the four weed species, there is no significant difference in efficacy between foramsulfuron and foramsulfuron & iodosulfuron treatments. However, when mesotrione or dicamba & diflufenzopyr are added to the above treatments, efficacy appears to be reduced. The PRE + MPOST treatment composed of S-metolachlor & atrazine, nicosulfuron & rimsulfuron + mesotrione + atrazine exceeded the percent weed control of all other treatments. Results of the study are summarized in the following table. (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln)

Table. Evaluation of conventional weed control programs in corn (Abendroth, Martin, and Horky).

| Treatment | Application | | ----ABUTH---- | | | ----AMASS ^a ---- | | | ----HELAN---- | | | ----GGGAN ^b ---- | | |
|---|--|---------------|---------------|------|------|-----------------------------|------|------|---------------|------|------|-----------------------------|------|------|
| | Rate (lb/A) | Timing | 6/30 | 7/24 | 8/13 | 6/30 | 7/24 | 8/13 | 6/30 | 7/24 | 8/13 | 6/30 | 7/24 | 8/13 |
| -----% weed control----- | | | | | | | | | | | | | | |
| Isoxaflutole+ acetochlor& atrazine | 0.047 2.36 1.17 | PRE | 87 | 83 | 79 | 100 | 98 | 99 | 75 | 87 | 90 | 96 | 96 | 94 |
| Isoxaflutole+ acetochlor&MON 4660& atrazine | 0.047 1.78 1.44 | PRE | 87 | 79 | 79 | 100 | 100 | 97 | 98 | 93 | 93 | 97 | 97 | 95 |
| S-metolachlor&CGA-154281& atrazine+ isoxaflutole | 1.26 1.63 0.047 | PRE | 81 | 79 | 78 | 96 | 95 | 97 | 78 | 83 | 86 | 97 | 95 | 92 |
| S-metolachlor&CGA-154281& atrazine+ flumetsulam& clopyralid | 1.26 1.63 0.035 0.11 | PRE | 35 | 38 | 28 | 89 | 85 | 89 | 93 | 90 | 91 | 83 | 83 | 73 |
| S-metolachlor&CGA-154281& atrazine/ nicosulfuron& rimsulfuron+ mesotrione+ atrazine+ COC ^c + AMS ^d | 0.45 0.58 0.023 0.012 0.063 0.5 1% 2 | PRE/ MPOST | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 92 | 98 | 98 |
| S-metolachlor&CGA-154281& atrazine/ nicosulfuron& rimsulfuron+ dicamba& diflufenzopyr+ atrazine+ COC+ AMS | 0.45 0.58 0.023 0.012 0.063 0.025 0.5 1% 2 | PRE/ MPOST | 98 | 96 | 93 | 94 | 96 | 95 | 99 | 100 | 100 | 97 | 98 | 98 |
| Nicosulfuron& rimsulfuron& atrazine+ mesotrione+ COC+ AMS | 0.024 0.011 0.75 0.063 1% 2 | EPOST | 99 | 98 | 97 | 89 | 86 | 82 | 100 | 100 | 100 | 100 | 100 | 100 |
| S-metolachlor&CGA-154281& atrazine+ nicosulfuron& rimsulfuron+ mesotrione+ NIS ^e + AMS | 0.6 0.78 0.023 0.012 0.063 0.25% 2 | EPOST | 98 | 94 | 95 | 100 | 100 | 96 | 100 | 97 | 98 | 98 | 94 | 94 |
| S-metolachlor&CGA-154281& atrazine+ nicosulfuron& rimsulfuron+ dicamba& atrazine+ COC+ AMS | 0.6 0.78 0.023 0.012 0.14 0.26 1% 2 | EPOST | 90 | 82 | 82 | 88 | 85 | 88 | 100 | 100 | 100 | 98 | 97 | 91 |

(continued)

Table. Evaluation of conventional weed control programs in corn (Abendroth, Martin, and Horky), continued.

| Treatment | Application | | ----ABUTH---- | | | ----AMASS ^a ---- | | | ----HELAN---- | | | ----GGGAN ^b ---- | | |
|--|--|--------|--------------------------|------|------|-----------------------------|------|------|---------------|------|------|-----------------------------|------|------|
| | Rate | Timing | 6/30 | 7/24 | 8/13 | 6/30 | 7/24 | 8/13 | 6/30 | 7/24 | 8/13 | 6/30 | 7/24 | 8/13 |
| | (lb/A) | | -----% weed control----- | | | | | | | | | | | |
| Check | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Foramsulfuron+ MSO ^f + UAN ^g | 0.033 1.25% 2 qt | EPOST | 92 | 94 | 92 | 15 | 15 | 15 | 99 | 100 | 100 | 98 | 99 | 100 |
| Foramsulfuron& iodosulfuron+ MSO+ UAN | 0.028 0.0019 1.25% 2 qt | EPOST | 90 | 94 | 91 | 35 | 20 | 13 | 100 | 100 | 100 | 92 | 95 | 92 |
| Foramsulfuron+ dicamba& diflufenzopyr+ MSO+ UAN | 0.033 0.063 0.025 1.25% 2 qt | EPOST | 87 | 67 | 78 | 86 | 75 | 75 | 98 | 97 | 98 | 88 | 82 | 80 |
| Foramsulfuron& iodosulfuron+ dicamba& diflufenzopyr+ MSO+ UAN | 0.028 0.0019 0.063 0.025 1.25% 2 qt | EPOST | 91 | 83 | 78 | 82 | 77 | 68 | 98 | 100 | 97 | 94 | 97 | 92 |
| Foramsulfuron+ mesotrione+ MSO+ UAN | 0.033 0.047 1.25% 2 qt | EPOST | 98 | 95 | 94 | 94 | 87 | 86 | 100 | 97 | 97 | 91 | 80 | 77 |
| Foramsulfuron& iodosulfuron+ mesotrione+ MSO+ UAN | 0.028 0.0019 0.047 1.25% 2 qt | EPOST | 97 | 96 | 92 | 94 | 93 | 92 | 100 | 100 | 100 | 91 | 77 | 70 |
| Foramsulfuron+ atrazine+ MSO+ UAN | 0.033 1 1.25% 2 qt | EPOST | 94 | 93 | 95 | 33 | 28 | 18 | 100 | 100 | 100 | 97 | 96 | 93 |
| Foramsulfuron& iodosulfuron+ atrazine+ MSO+ UAN | 0.028 0.0019 1 1.25% 2 qt | EPOST | 95 | 91 | 93 | 43 | 60 | 20 | 100 | 100 | 100 | 99 | 96 | 97 |
| LSD (P=.05) | | | 8 | 9 | 10 | 11 | 9 | 8 | 14 | 10 | 9 | 8 | 10 | 12 |

^aAMASS = primarily Palmer amaranth, with some waterhemp

^bGGGAN = green and giant foxtail, with some fall panicum and large crabgrass

^cCOC = Prime Oil by Agrilience

^dAMS=N Pa-K by Agrilience

^eNIS = Preference by Agrilience

^fMSO = Destiny by Agrilience

^gUAN = Class 28% by Agrilience