

Weed management in imidazolinone-tolerant corn. Waltz, Aaron L., Alex R. Martin, and Jess J. Spotanski. A field study was conducted to evaluate sequential pre/post and postemergent weed control in conventionally-tilled, imidazolinone-tolerant field corn. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Kennebec silt loam with 2.4% organic matter and a pH of 6.9. Seedbed preparation consisted of disking one week prior to planting and one field cultivation the day of planting. Individual plots consisted of six 30-inch rows, each 30 feet long. 'Asgrow RX730YG/IMI' corn was planted May 16 at a population of 24,200 seeds/acre. Treatments were applied with a tractor-mounted sprayer traveling 2.5 mph. Application, crop, weed, and environmental data are presented below:

| Date                          | May 16   | June 7   | June 13 |
|-------------------------------|----------|----------|---------|
| Treatment                     | PRE      | EPOST    | POST    |
| Sprayer                       |          |          |         |
| gpa                           | 20       | 20       | 20      |
| psi                           | 40       | 40       | 40      |
| Temperature (°F)              |          |          |         |
| Air                           | 65       | 82       | 65      |
| Soil (4 inch)                 | 63       | 77       | 75      |
| Soil Moisture                 | Adequate | Adequate | Dry     |
| Wind (mph)                    | 9        | 15       | 6       |
| Sky (% cloudy)                | 90       | 0        | 50      |
| Relative Humidity (%)         | 75       | 46       | 63      |
| Precip. after appl.           |          |          |         |
| Week 1 (inch)                 | 0.51     | 0.08     | 0.0     |
| Week 2 (inch)                 | 2.09     | 0.00     | 0.0     |
| Corn                          |          |          |         |
| Leaf no.                      | --       | 3        | 4-5     |
| Height (inch)                 | --       | 7        | 11      |
| Common sunflower              |          |          |         |
| Leaf no.                      | --       | 3-4      | 4       |
| Height (inch)                 | --       | 1.5-3    | 3-5     |
| Infestation (m <sup>2</sup> ) | --       | 5        | 3       |
| Velvetleaf                    |          |          |         |
| Leaf no.                      | --       | 2-3      | 4-8     |
| Height (inch)                 | --       | 1-2      | 2-8     |
| Infestation (m <sup>2</sup> ) | --       | 25       | 20      |
| Annual grasses                |          |          |         |
| Leaf no.                      | --       | 2-3      | 3-4     |
| Height (inch)                 | --       | 2-3      | 2-4     |
| Infestation (m <sup>2</sup> ) | --       | 2        | 2       |
| Pigweed species               |          |          |         |
| Leaf no.                      | --       | 3-9      | many    |
| Height (inch)                 | --       | 0.5-3    | 3-8     |
| Infestation (m <sup>2</sup> ) | --       | 40       | 30      |

Summary comments: Precipitation was good until early June, then conditions were very dry. Grass species include green and giant foxtail with some fall panicum and large crabgrass. Pigweed species include mostly Palmer amaranth, with some redroot pigweed and common waterhemp. Nearly all the sequential and postemergent treatments gave adequate season-long weed control. According to some of the late-season results, some weed species were negatively affected by the dry conditions, with control values increasing late in the season. Results of the study are summarized in the following table (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln).

**Table. Weed management in imidazolinone-tolerant corn (Waltz, Martin, and Spotanski).**

| Treatment  | Application  |               | ----HELAN---- |      |     | ----ABUTH---- |      |     | ----GGGAN <sup>a</sup> ---- |      |     | ----AMASS <sup>b</sup> ---- |      |     |
|--|--|---------------|---------------|------|-----|---------------|------|-----|-----------------------------|------|-----|-----------------------------|------|-----|
|  | Rate<br>(lb/A)   | Timing        | 6/28          | 7/11 | 8/8 | 6/28          | 7/11 | 8/8 | 6/28                        | 7/11 | 8/8 | 6/28                        | 7/11 | 8/8 |
| -----% weed control-----   |  |               |               |      |     |               |      |     |                             |      |     |                             |      |     |
| Carfentrazone+<br>atrazine+<br>dicamba+<br>NIS <sup>c</sup>  | 0.008<br>0.75<br>0.125<br>0.25%                                  | EPOST         | 98            | 98   | 98  | 97            | 88   | 97  | 47                          | 47   | 50  | 95                          | 88   | 93  |
| Carfentrazone+<br>flumetsulam&<br>clopypirid+<br>NIS   | 0.008<br>0.035<br>0.113<br>0.25%                                 | EPOST         | 100           | 97   | 100 | 95            | 83   | 98  | 60                          | 60   | 43  | 75                          | 72   | 60  |
| Carfentrazone+<br>nicosulfuron&<br>rimsulfuron+<br>atrazine+<br>COC <sup>d</sup> +<br>AMS <sup>e</sup> | 0.008<br>0.023<br>0.012<br>0.5<br>1.0 qt<br>3.0                  | EPOST         | 88            | 85   | 82  | 98            | 92   | 98  | 95                          | 94   | 92  | 97                          | 93   | 95  |
| Imazethapyr&<br>imazapyr+<br>dicamba&<br>SAN 1269H+<br>NIS+<br>AMS                                     | 0.042<br>0.014<br>0.0125<br>0.05<br>0.25%<br>2.4                 | POST          | 100           | 100  | 100 | 100           | 97   | 100 | 92                          | 90   | 93  | 95                          | 87   | 88  |
| Atrazine/<br>imazethapyr&<br>imazapyr+<br>dicamba&<br>SAN 1269H+<br>NIS+<br>AMS                        | 1.0<br>0.042<br>0.014<br>0.0125<br>0.05<br>0.25%<br>2.4          | PRE/<br>EPOST | 100           | 100  | 100 | 92            | 87   | 87  | 93                          | 92   | 95  | 98                          | 98   | 100 |
| Dimethenamid-P&<br>atrazine/<br>imazethapyr&<br>imazapyr+<br>dicamba&<br>SAN 1269H+<br>NIS+<br>AMS     | 0.43<br>0.83<br>0.042<br>0.014<br>0.0125<br>0.05<br>0.25%<br>2.4 | PRE/<br>POST  | 100           | 100  | 100 | 97            | 95   | 97  | 96                          | 96   | 100 | 100                         | 98   | 98  |
| Dimethenamid-P/<br>imazethapyr&<br>imazapyr+<br>dicamba&<br>SAN 1269H+<br>NIS+<br>AMS                  | 0.56<br>0.042<br>0.014<br>0.0125<br>0.05<br>0.25%<br>2.4         | PRE/<br>EPOST | 100           | 100  | 98  | 95            | 88   | 90  | 98                          | 98   | 100 | 100                         | 100  | 100 |
| Imazethapyr&<br>imazapyr+<br>dicamba&<br>atrazine+<br>NIS+<br>AMS                                      | 0.042<br>0.014<br>0.34<br>0.66<br>0.25%<br>2.4                   | EPOST         | 100           | 100  | 100 | 97            | 92   | 97  | 92                          | 88   | 92  | 97                          | 90   | 92  |

(continued)

**Table. Weed management in imidazolinone-tolerant corn (Waltz, Martin, and Spotanski), continued.**

| Treatment  | Application                            |               | ----HELAN----            |      |     | ----ABUTH---- |      |     | ----GGGAN <sup>a</sup> ---- |      |     | ----AMASS <sup>b</sup> ---- |      |     |
|--|--|---------------|--------------------------|------|-----|---------------|------|-----|-----------------------------|------|-----|-----------------------------|------|-----|
|  | Rate                                   | Timing        | 6/28                     | 7/11 | 8/8 | 6/28          | 7/11 | 8/8 | 6/28                        | 7/11 | 8/8 | 6/28                        | 7/11 | 8/8 |
|  | (lb/A)                                 |               | -----% weed control----- |      |     |               |      |     |                             |      |     |                             |      |     |
| Acetochlor&MON 4660/<br>halosulfuron&<br>dicamba+<br>NIS+<br>AMS | 0.98<br>0.031<br>0.138<br>0.25%<br>2.4 | PRE/<br>EPOST | 100                      | 100  | 100 | 95            | 92   | 93  | 90                          | 90   | 95  | 97                          | 93   | 93  |
| Acetochlor&MON 4660/<br>halosulfuron+<br>NIS+<br>AMS             | 0.98<br>0.031<br>0.25%<br>2.4          | PRE/<br>EPOST | 100                      | 100  | 100 | 95            | 90   | 92  | 92                          | 87   | 90  | 85                          | 85   | 88  |
| Acetochlor&MON 4660/<br>halosulfuron&<br>dicamba+<br>NIS+<br>AMS | 0.98<br>0.063<br>0.275<br>0.5%<br>2.4  | PRE/<br>EPOST | 100                      | 100  | 100 | 95            | 93   | 95  | 92                          | 92   | 90  | 98                          | 95   | 97  |
| Acetochlor&MON 4660/<br>halosulfuron+<br>NIS+<br>AMS             | 0.98<br>0.031<br>0.5%<br>2.4           | PRE/<br>EPOST | 100                      | 100  | 100 | 97            | 95   | 92  | 92                          | 92   | 95  | 95                          | 92   | 93  |
| Imazethapyr&<br>imazapyr+<br>mesotrione+<br>atrazine+<br>NIS     | 0.042<br>0.014<br>0.09<br>0.5<br>0.25% | EPOST         | 97                       | 95   | 98  | 98            | 98   | 98  | 77                          | 77   | 88  | 98                          | 97   | 97  |
| Imazethapyr&<br>imazapyr+<br>mesotrione+<br>NIS                  | 0.042<br>0.014<br>0.09<br>0.25%        | EPOST         | 100                      | 97   | 98  | 98            | 92   | 93  | 87                          | 85   | 95  | 87                          | 82   | 83  |
| Check  |  |               | 0                        | 0    | 0   | 0             | 0    | 0   | 0                           | 0    | 0   | 0                           | 0    | 0   |
| LSD (P=.05)  |  |               | 8                        | 7    | 8   | 5             | 9    | 6   | 20                          | 20   | 20  | 9                           | 10   | 19  |

<sup>a</sup>GGGAN = green and giant foxtail, with some fall panicum and large crabgrass

<sup>b</sup>AMASS = mostly Palmer amaranth, with little common waterhemp and redroot pigweed

<sup>c</sup>NIS = 'Preference' by Agrilience

<sup>d</sup>COC = 'Prime Oil' by Agrilience

<sup>e</sup>AMS = 'N-Pa-K' by Agrilience