

Weed Control in Corn with Corvus, Balance Flexx, and Laudis During the 2008 Growing Season.

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A field study was initiated near Scottsbluff, Nebraska to compare various herbicide treatments for selective weed control in corn. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 50 feet long and were located on a sandy loam soil with 0.7% organic matter and a pH of 7.9. Corn, 'Pioneer 38H65', was planted on May 7. Herbicides were applied preemergence on May 9, early postemergence on June 3, and postemergence on June 10 and 11. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 32-psi pressure with Spraying Systems 11002 VS nozzles. Environmental conditions at the time of spraying are given in Table 1.

Corn stand was not reduced by any of the herbicide treatments (Table 2). Early season corn injury was apparent in plots treated with Balance Pro plus Atrazine and injury increased as the Balance Pro rate increased from 0.046 to 0.062 lb/acre. Adding a safener to Balance Pro (Balance Flexx) dramatically reduced corn injury. Early season corn injury from Balance Pro plus Atrazine at 0.062 plus 0.5 lb/acre resulted in a 16% reduction in corn yield compared to Balance Flexx plus Atrazine at 0.124 plus 0.5 lb/acre. Adding a safener to Balance allowed Balance Flexx plus Atrazine to be applied to corn postemergence at the V1 growth stage. A preemergence application of Corvus plus Atrazine followed postemergence with Laudis plus Atrazine caused early season corn injury.

Weed density was moderate and consisted of common lambsquarters, redroot pigweed, and hairy nightshade at average plant densities of 39, 36, and 44 plants/137 s ft, respectively. Hairy nightshade control was reduced when Balance Pro plus Atrazine and Balance Flexx plus Atrazine were applied preemergence on May 9 and weed control was evaluated on June 24 (Table 2). This was probably due to early irrigation and rainfall moving Atrazine out of the upper part of the soil which allowed hairy nightshade to become established. The same amount of Atrazine applied with Balance Flexx early post on June 3 provided excellent hairy nightshade control. The addition of Roundup PowerMax to Capreno reduced hairy nightshade control compared to Capreno alone.

Table 1. Environmental conditions at the time of herbicide application.

| Date | Air temperature (F) | Humidity (%) | Wind speed & direction (mph) | Time of day | Corn growth stage | Weed height (inches) | | |
|---------|------------------------|-----------------|---------------------------------|-------------|-------------------|-------------------------|------|------|
| | | | | | | Colq | Rrpw | Hans |
| May 9 | 55 | 70 | 5 SE | 10:00 am | PRE | ----- no growth ----- | | |
| June 3 | 60 | 85 | 1 SE | 11:00 am | V 1 | 2.5 | 0.5 | 2 |
| June 10 | 92 | 10 | 12 S | 3:00 pm | V 4 | 5 | 4 | 4 |
| June 11 | 55 | 40 | 9 NW | 9:00 am | V 4 | 5 | 4 | 4 |

Rainfall and irrigation before and after herbicide application

| Date | Amount - (inches) - | Date | Amount - (inches) - | Date | Amount - (inches) - |
|--------|------------------------|--------|------------------------|---------|------------------------|
| May 7 | 0.33 | May 22 | 0.21 | June 1 | 0.19 |
| May 8 | 0.06 | May 23 | 0.31 | June 4 | 0.75 |
| May 10 | 0.12 | May 26 | 0.20 | June 12 | 0.60 |
| May 15 | 0.60 | | | | |

Table 2. Weed Control in Corn with Corvus, Balance Flexx, and Laudis during the 2008 Growing Season.

| Treatment ¹ | Rate (lbs/acre) | Time of application ² | Corn | | | | Stand 6/24 (plants/acre) | Yield at 15.5% moisture (bu/acre) | Percent weed control 6/24 ⁴ | | | |
|-------------------------------|--------------------|-------------------------------------|----------------------------|------|------|-----|--------------------------------|--|--|------|------|-----|
| | | | Visual Injury ³ | | | | | | Colq | Rrpw | Hans | Avg |
| | | | 6/3 | 6/11 | 6/23 | 7/8 | | | | | | |
| | | | ----- (%) ----- | | | | ----- (%) ----- | | | | | |
| Nontreated | — | — | 0 | 0 | 0 | 0 | 34452 | 155.8 | 0 | 0 | 0 | 0 |
| Corvus + Atrazine | 0.099 + 0.5 | Pre | 1 | 11 | 8 | 3 | 35046 | 197.9 | 69 | 99 | 74 | 81 |
| Balance Pro + Atrazine | 0.046 + 0.5 | Pre | 19 | 25 | 23 | 20 | 34333 | 208.1 | 98 | 99 | 45 | 81 |
| Balance Flexx + Atrazine | 0.093 + 0.5 | Pre | 5 | 11 | 8 | 4 | 33145 | 228.5 | 99 | 99 | 33 | 77 |
| Balance Pro + Atrazine | 0.062 + 0.5 | Pre | 26 | 34 | 38 | 39 | 33145 | 198.8 | 99 | 88 | 92 | 93 |
| Balance Flexx + Atrazine | 0.124 + 0.5 | Pre | 1 | 1 | 0 | 0 | 35284 | 236.1 | 74 | 98 | 56 | 76 |
| Lumax | 2.45 | Pre | 2 | 5 | 3 | 3 | 35759 | 218.6 | 99 | 99 | 82 | 93 |
| Corvus + Atrazine | 0.099 + 0.5 | Corn V 1 | 1 | 7 | 5 | 1 | 35640 | 225.3 | 99 | 99 | 99 | 99 |
| Balance Flexx + Atrazine | 0.093 + 0.5 | Corn V 1 | 0 | 1 | 1 | 1 | 35878 | 230.5 | 99 | 99 | 99 | 99 |
| Balance Flexx + Atrazine | 0.124 + 0.5 | Corn V 1 | 1 | 1 | 3 | 4 | 35046 | 222.1 | 99 | 99 | 99 | 99 |
| Lumax | 2.45 | Corn V 1 | 0 | 2 | 3 | 4 | 35640 | 236.6 | 99 | 99 | 99 | 99 |
| Corvus + Atrazine | 0.066 + 0.5 | Pre | 3 | 11 | 9 | 5 | 34214 | 231.8 | 99 | 99 | 99 | 99 |
| Laudis + Atrazine + MSO + UAN | 0.122 + 0.5 | Corn V 4 | | | | | | | | | | |
| Balance Flexx + Atrazine | 0.062 + 0.5 | Pre | 1 | 8 | 7 | 3 | 35284 | 233.5 | 99 | 99 | 99 | 99 |
| Laudis + Atrazine + MSO + UAN | 0.122 + 0.5 | Corn V 4 | | | | | | | | | | |
| Laudis + Atrazine + COC + UAN | 0.122 + 0.5 | 3-4" Weeds | 1 | 0 | 0 | 0 | 34096 | 243.9 | 99 | 99 | 99 | 99 |
| Laudis + Atrazine + MSO + UAN | 0.122 + 0.5 | 3-4" Weeds | 0 | 0 | 0 | 0 | 33620 | 238.0 | 97 | 99 | 99 | 98 |

| Treatment ¹ | Rate (lbs/acre) | Time of application ² | Corn | | | | Stand 6/24 (plants/acre) | Yield at 15.5% moisture (bu/acre) | Percent weed control 6/24 ⁴ | | | |
|---|------------------------|----------------------------------|----------------------------|------|------|-----|--------------------------------|--|--|------|------|-----|
| | | | Visual Injury ³ | | | | | | Colq | Rrpw | Hans | Avg |
| | | | 6/3 | 6/11 | 6/23 | 7/8 | | | | | | |
| | | | ----- (%) ----- | | | | ----- (%) ----- | | | | | |
| Laudis + Ignite 280 + Atrazine + AMS | 0.081 + 0.416 + 0.5 | 3-4" Weeds | 2 | 0 | 1 | 0 | 35402 | 235.1 | 99 | 99 | 94 | 97 |
| Laudis + Roundup PowerMAX + Atrazine + AMS | 0.122 + 0.75 +.05 | 3-4" Weeds | 0 | 0 | 0 | 0 | 33502 | 235.9 | 99 | 99 | 99 | 99 |
| Laudis + Roundup PowerMAX + Atrazine + AMS | 0.122 + 0.38 + 1.0 | 3-4" Weeds | 1 | 0 | 1 | 0 | 35759 | 239.9 | 99 | 99 | 99 | 99 |
| Impact + Atrazine + COC + UAN | 0.016 + 0.5 | 3-4" Weeds | 0 | 0 | 1 | 3 | 34927 | 227.9 | 93 | 98 | 95 | 95 |
| Capreno + Atrazine + COC + UAN | 0.106 + 0.5 | 3-4" Weeds | 0 | 0 | 3 | 4 | 35640 | 226.0 | 99 | 99 | 99 | 99 |
| Capreno + COC + UAN | 0.106 | 3-4" Weeds | 0 | 0 | 2 | 2 | 36947 | 232.2 | 99 | 99 | 84 | 94 |
| Capreno + Roundup PowerMAX + AMS | 0.106 + 0.75 | 3-4" Weeds | 0 | 0 | 1 | 3 | 33858 | 225.6 | 95 | 99 | 51 | 82 |
| Capreno + Atrazine + Roundup PowerMAX + AMS | 0.106 + 1.0 + 0.38 | 3-4" Weeds | 0 | 0 | 1 | 0 | 35402 | 234.2 | 99 | 99 | 99 | 99 |
| Capreno + Ignite 280 + AMS | 0.106 + 0.416 | 3-4" Weeds | 1 | 0 | 1 | 0 | 33858 | 229.5 | 99 | 99 | 92 | 97 |
| Nontreated | | | 0 | 0 | 0 | 0 | 33977 | 171.0 | 0 | 0 | 0 | 0 |
| LSD at 5% | — | — | 3 | 4 | 4 | 6 | NS | 34.9 | 20 | 6 | 28 | 13 |

¹ Spray additives were combined with the spray solution at the following rate: ammonium sulfate (AMS) at 8.5lbs/100 gal, methylated seed oil (MSO) at 1%, crop oil concentrate (COC) at 1%, and liquid nitrogen 33-0-0 (UAN) at 1.5 qt/a.

² Time of application: preemergence (Pre) on May 9, corn at V1 stage on June 3, corn at V4 stage on June 10, and at 3-4" weeds on June 11.

³ Visual crop injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

⁴ Percent weed control calculated from weed counts taken on June 24. Weed abbreviations: common lambsquarters (Colq), redroot pigweed (Rrpw), and hairy nightshade (Hans).