

KIXOR Weed Control Programs in Corn (S0922)

A field study was initiated near Clay Center, Nebraska to compare weed control efficacy and crop tolerance of various herbicide products including products 'Powered by Kixor Herbicide' in one and two pass weed control programs in corn. The experimental design was a randomized complete block with 4 replications. Plots were 10 feet wide and 30 feet long and were located on a silt loam soil with an organic matter content of 2.5% and ph of 6.5. Corn, 'DKC61-69' RR2 was planted at 29,600 seeds per acre on May 6 and emerged on May 18. Herbicides were applied PRE on May 12 and MPOST on June 9. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 15 gallons of water per acre at 30 PSI. Turbo Teejet 110015 flat spray nozzles were used to apply the PRE treatments and AIXR 110015 flat spray nozzles were used to apply the MPOST treatments. Rainfall in the amount of 0.62 inch was received twenty days after PRE application. Environmental conditions at time of herbicide application are listed in Table 1. Rainfall received 10 days before and 10 days after herbicide applications is listed in Table 2. Plots received 13.97 inches of rain and 8.25 inches of irrigation water applied by lateral-move overhead sprinklers during growing season.

There was no crop injury from the PRE treatments (data not shown).

Major weeds consisted of giant foxtail (SETFA), velvetleaf (ABUTH), common waterhemp (AMATA), and common lambsquarters (CHEAL), average densities of 4, 1, 17, and 11 plants per square foot.

Weed control (Sept 2) in the 2 pass programs was superior to weed control in the PRE only programs from a farmer perspective (data not shown). There was no statistical difference between the treatments in most cases. Each PRE only herbicide had a different weed come through. Harness Xtra had reduced control of velvetleaf. Integrity had reduced control of common lambsquarters. Lumax had reduced control of giant foxtail. Corvus had reduced control of common waterhemp. Table 3 contains weed control for 28 days after PRE application and 15 days after MPOST application.

Overall average corn yield across treatments was 254.5 bu/A. Corn yield across PRE treatments averaged 242.5 bu/A. Corn yield on PRE fb POST treatments averaged 260.5 bu/A. Corn yield in the untreated plots averaged 145.9 bu/A.

Table 1. Environmental conditions at the Time of Herbicide Application.

| Appl. Date | Air Temperature (F) | Humidity (%) | Wind Speed & direction (mph) | Time of day | Application Timing | Weed and Corn heights (inches) | | | | |
|------------|---------------------|--------------|------------------------------|-------------|--------------------|--------------------------------|-------|-------|-------|------|
| | | | | | | SETFA | ABUTH | AMATA | CHEAL | CORN |
| May 12 | 58 | 67 | 10 S | 7:43 am | PRE | NA | NA | NA | NA | NA |
| June 9 | 69 | 59 | 5 ESE | 4:26 pm | MPOST | 6.0 | 7.0 | 11.0 | 11.0 | 10.0 |

Table 2. Rainfall received 10 days before and after herbicide application.

| Appl. Date (May 12) | Amount (in) | | Appl. Date (June 9) | Amount (in) |
|---------------------|-------------|--|---------------------|-------------|
| May 3 | 0.26 | | June 1 | 0.62 |
| May 8 | 0.25 | | June 2 | 0.22 |
| May 10 | 0.11 | | June 5 | 0.16 |
| May 13 | 0.03 | | June 6 | 0.52 |
| May 15 | 0.03 | | June 9 | 0.16 |
| | | | June 10 | 0.06 |
| | | | June 12 | 0.30 |
| | | | June 14 | 0.11 |
| | | | June 15 | 2.41 |
| | | | June 19 | 0.14 |

Table 3. Weed Control and Crop Yield (S0922) (cont.)

| Trt No. | Treatment Name | Rate | Rate Unit | Appl. Timing | SETFA | ABUTH | AMATA | CHEAL | SETFA | ABUTH | AMATA | CHEAL | CORN |
|-------------|------------------|-------|---------------|--------------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| | | | | | 6/9/2009 | 6/9/2009 | 6/9/2009 | 6/9/2009 | 6/24/2009 | 6/24/2009 | 6/24/2009 | 6/24/2009 | 11/7/2009 |
| | | | | | CONTRO | CONTRO | CONTRO | CONTRO | CONTRO | CONTRO | CONTRO | CONTRO | YIELD |
| | | | | | % | % | % | % | % | % | % | % | bu/A |
| 9 | SURESTART | 1.75 | PT/A | PREPRE | 70 | 86 | 80 | 68 | 99 | 99 | 98 | 100 | 267.9 |
| 9 | ROUNDUP POWERMAX | 22 | FL OZ/A | MPOST | | | | | | | | | |
| 9 | NIS | 0.25 | % V/V | MPOST | | | | | | | | | |
| 9 | AMS | 17 | LB AI/100 GAL | MPOST | | | | | | | | | |
| 10 | INTEGRITY | 13 | FL OZ/A | PREPRE | 93 | 94 | 96 | 83 | 100 | 100 | 100 | 100 | 251.7 |
| 10 | ROUNDUP POWERMAX | 22 | FL OZ/A | MPOST | | | | | | | | | |
| 10 | STATUS | 2.5 | OZ/A | MPOST | | | | | | | | | |
| 10 | NIS | 0.25 | % V/V | MPOST | | | | | | | | | |
| 10 | AMS | 17 | LB AI/100 GAL | MPOST | | | | | | | | | |
| 11 | SHARPEN | 4 | FL OZ/A | PREPRE | 89 | 90 | 99 | 99 | 100 | 100 | 100 | 100 | 250.0 |
| 11 | BAS 654 | 3 | PT/A | PREPRE | | | | | | | | | |
| 11 | ROUNDUP POWERMAX | 22 | FL OZ/A | MPOST | | | | | | | | | |
| 11 | NIS | 0.25 | % V/V | MPOST | | | | | | | | | |
| 11 | AMS | 17 | LB AI/100 GAL | MPOST | | | | | | | | | |
| 12 | LUMAX | 1.69 | QT/A | PREPRE | 92 | 99 | 89 | 84 | 100 | 100 | 100 | 100 | 262.0 |
| 12 | ROUNDUP POWERMAX | 22 | FL OZ/A | MPOST | | | | | | | | | |
| 12 | NIS | 0.25 | % V/V | MPOST | | | | | | | | | |
| 12 | AMS | 17 | LB AI/100 GAL | MPOST | | | | | | | | | |
| 13 | CORVUS | 3.3 | FL OZ/A | PREPRE | 85 | 97 | 90 | 81 | 100 | 100 | 99 | 100 | 261.9 |
| 13 | ATRAZINE | 0.555 | LB/A | PREPRE | | | | | | | | | |
| 13 | ROUNDUP POWERMAX | 22 | FL OZ/A | MPOST | | | | | | | | | |
| 13 | NIS | 0.25 | % V/V | MPOST | | | | | | | | | |
| 13 | AMS | 17 | LB AI/100 GAL | MPOST | | | | | | | | | |
| LSD (P=.05) | | | | | 9.3 | 8.6 | 8.5 | 9.3 | 10.5 | 19.5 | 2.9 | 7.1 | 13.3 |