

Preemergence Weed Control Programs in Corn with Integrity and Sharpen.

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A field study was initiated near Scottsbluff, Nebraska to compare Integrity and Sharpen for early season weed control in corn. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 45 feet long and were located on a sandy loam soil with an organic matter content of 1.1% and a pH of 8.1. Corn 'DeKalb DKC42-91' was planted on May 19. Herbicides were applied preemergence on May 20 and postemergence on June 16. 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. The environment conditions at the time of spraying are given in Table 1.

Corn injury was evaluated on June 11, 17, and 23 (Table 2). Minor corn injury was observed in areas treated preemergence with Corvus. Corn stand was not influenced by herbicide treatments. Weed density was severe and consisted of common lambsquarters, redroot pigweed, hairy nightshade, puncturevine, common purslane, and longspine sandbur at densities of 105, 43, 13, 7, 44, and 43 plants per 137 sq ft, respectively. Integrity which is a combination of Sharpen plus Outlook provided marginal control of common lambsquarters and redroot pigweed while a combination of Sharpen plus Prowl H₂O provided good control of common lambsquarters and redroot pigweed (Table 2). This suggests on sandy loam soils Sharpen plus Prowl H₂O would be preferable to Integrity.

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

| Date | Air temperature | Humidity | Wind speed & direction | Time of day | Corn growth stage | Weed heights | | | | | |
|---------|-----------------|----------|------------------------|-------------|-------------------|----------------------|-----------------|------------------|--------------|------------------|-------------------|
| | | | | | | Common lambsquarters | Redroot pigweed | Hairy nightshade | Puncturevine | Coommon purslane | Longspine sandbur |
| | (F) | (%) | (mph) | | | ------(inches)----- | | | | | |
| May 20 | 71 | 36 | 9 W | 9:00 AM | PRE | -----No growth----- | | | | | |
| June 16 | 66 | 54 | 7 W | 9:00 AM | V4-V5 | 1 | 3 | 2 | -- | 0.75 | 2 |

Table 2. Preemergence Weed Control Programs in Corn with Integrity and Sharpen.

| Herbicide Treatment ¹ | Rate (lb/acre) | Time of application ² | Corn | | | |
|--|-------------------|-------------------------------------|----------------------------|------|------|-------------------------------|
| | | | Visual Injury ³ | | | Stand 7/2 (plants/acre) |
| | | | 6/11 | 6/17 | 6/23 | |
| Nontreated | -- | -- | 0 | 0 | 0 | 52510 |
| Lumax | 2.47 | PRE | 0 | 0 | 0 | 55000 |
| Harness Xtra | 2.8 | PRE | 0 | 0 | 0 | 51680 |
| Integrity | 0.56 | PRE | 3 | 0 | 4 | 50370 |
| Corvus | 0.07 | PRE | 13 | 9 | 8 | 51560 |
| Sharpen SC + Prowl H ₂ O | 0.045 + 0.96 | PRE | 4 | 2 | 2 | 52630 |
| Integrity | 0.435 | PRE | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 0 | 0 | 0 | 51800 |
| Sharpen SC + Prowl H ₂ O | 0.045 + 0.96 | PRE | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 4 | 2 | 2 | 51920 |
| Harness Xtra | 2.1 | PRE | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 0 | 0 | 0 | 51320 |
| Sharpen SC + Harness Xtra | 0.045 + 2.1 | PRE | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 0 | 0 | 0 | 54530 |
| Roundup Power Max + AMS + X77 | 0.75 | PRE | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 0 | 0 | 0 | 54170 |
| Integrity | 0.435 | PRE | | | | |
| Roundup Power Max + Status + AMS + X77 | 0.75 | POST | 3 | 0 | 2 | 52390 |
| LSD at 0.05% | -- | -- | 4 | 2 | 4 | NS |

¹Spray additives were added to the spray solution at the following rates: ammonium sulfate (AMS) at 17 lb/100 gal of spray solution and nonionic surfactant X77 at 0.25% v/v.

²Time of herbicide application: preemergence at planting (PRE) and postemergence (POST) when corn was in the V4 to V5 growth stage.

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

⁴Percent weed control calculated from weed counts taken in a 137 sq ft area in the center of each plot.

Table 2. Preemergence Weed Control Programs in Corn with Integrity and Sharpen – Continued.

| Herbicide Treatment ¹ | Rate (lb/acre) | Time of application ² | Percent weed control 7/2 ⁴ | | | | | | |
|--|-------------------|-------------------------------------|---------------------------------------|--------------------|---------------------|--------------|--------------------|----------------------|---------|
| | | | Common lambsquarters | Redroot pigweed | Hairy nightshade | Puncturevine | Common purslane | Longspine sandbur | Average |
| Nontreated | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lumax | 2.47 | PRE | 78 | 88 | 90 | 71 | 95 | 99 | 86 |
| Harness Xtra | 2.8 | PRE | 86 | 62 | 99 | 99 | 71 | 97 | 85 |
| Integrity | 0.56 | PRE | 52 | 67 | 99 | 99 | 71 | 98 | 81 |
| Corvus | 0.07 | PRE | 89 | 96 | 99 | 99 | 93 | 99 | 95 |
| Sharpen SC + Prowl H ₂ O | 0.045 + 0.96 | PRE | 94 | 91 | 99 | 92 | 99 | 97 | 95 |
| Integrity | 0.435 | PRE | | | | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 82 | 92 | 99 | 95 | 91 | 99 | 93 |
| Sharpen SC + Prowl H ₂ O | 0.045 + 0.96 | PRE | | | | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 98 | 92 | 99 | 99 | 97 | 99 | 97 |
| Harness Xtra | 2.1 | PRE | | | | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 92 | 89 | 99 | 92 | 99 | 99 | 95 |
| Sharpen SC + Harness Xtra | 0.045 + 2.1 | PRE | | | | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 75 | 82 | 99 | 99 | 98 | 99 | 92 |
| Roundup Power Max + AMS + X77 | 0.75 | PRE | | | | | | | |
| Roundup Power Max + AMS + X77 | 0.75 | POST | 86 | 87 | 99 | 95 | 95 | 99 | 93 |
| Integrity | 0.435 | PRE | | | | | | | |
| Roundup Power Max + Status + AMS + X77 | 0.75 | POST | 94 | 90 | 99 | 95 | 98 | 99 | 95 |
| LSD at 0.05% | -- | -- | 23 | 24 | 6 | 22 | 26 | 2 | 9 |

¹Spray additives were added to the spray solution at the following rates: ammonium sulfate (AMS) at 17 lb/100 gal of spray solution and nonionic surfactant X77 at 0.25% v/v.

²Time of herbicide application: preemergence at planting (PRE) and postemergence (POST) when corn was in the V4 to V5 growth stage.

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