Soybean weed control with Sharpen, Carrington, 2010. (Greg Endres and Rick Glatt). The trial was conducted in cooperation with BASF to evaluate weed control and soybean response with soil-applied Sharpen. Experimental design was a randomized complete block with three replicates. The field trial was established on a Heimdal-Emrick loam soil with 3.9% organic matter, 5.9 pH, 38 lb N/A, 10 ppm P, and 187 ppm K. Crop residue measured using the line-transect method was 75% on May 20. Dairyland Seed RR '0401' inoculated soybean was direct-seeded at about 200,000 seeds/A into wheat stubble in 30-inch rows on May 19. Herbicide treatments were applied with a $CO_2$-hand-boom plot sprayer delivering 10 gal/A at 35 psi through 8001 flat-fan nozzles. PRE treatments were applied on May 20 with 70 F, 42% RH, no wind, clear sky, and dry soil surface to 5-leaf (tillering) volunteer wheat, 1- to 2-inch tall fairy candelabra, 3- to 6-inch tall flixweed, 1- to 2-inch tall common lambsquarters, and 1- to 2-inch tall wild buckwheat. Average plant density ($ft^2$) in untreated plots on June 20: volunteer wheat=1, common lambsquarters=12, and wild buckwheat=3. Rainfall totaled 1.1 inches during 4 d after application of herbicides. POST glyphosate was applied on July 1 with 87 F, 55% RH, 2 mph wind, and 50% clear sky to 2- to 10-inch tall green and yellow foxtail, and 2- to 15-inch tall common lambsquarters. The trial was harvested with a plot combine on October 4.

Volunteer wheat control when visually evaluated 1 wk after application (WAA) was excellent with all herbicide treatments (Table). Broadleaf weed control, including wild buckwheat, was generally excellent (89-96%) 1 WAA with Sharpen. Foxtail control was excellent (93-96%) with Sharpen plus Extreme or pendimethalin and wild buckwheat control was good to excellent (86-94%) with Sharpen about 3 WAA. Common lambsquarters control was 85-91% with Sharpen plus Extreme or pendimethalin about 6 WAA (before POST application of glyphosate). No soybean response to herbicides was observed. Seed yield increased with herbicides compared to the untreated check and tended to be highest with Sharpen treatments.

Table.

| Herbicide | | | Weed control[1] | | | | | | | | | | | | Soybean Seed yield |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 5/27 | | | | | 6/8 | | | 7/1 | | 7/30 | | |
| Treatment[2] | Rate | Timing[3] | Vowh | Faca | Flwe | Colq | Wibw | Fota | Colq | Wibw | Fota | Colq | Fota | Colq | |
| | fl oz product/ | | % | | | | | | | | | | | | bu/A |
| Untreated check | x | x | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8.8 |
| Glyphosate | 32 | PRE | 97 | 78 | 81 | 86 | 75 | 57 | 77 | 77 | 0 | 71 | 97 | 98 | 28.7 |
| Glyt + 2,4-De | 32+16 | PRE | 96 | 90 | 89 | 93 | 80 | 55 | 90 | 62 | 0 | 74 | 97 | 97 | 23.8 |
| Sharpen + glyt | 1+32 | PRE | 98 | 93 | 96 | 90 | 89 | 72 | 87 | 86 | 0 | 75 | 96 | 98 | 30.8 |
| Sharpen + Extreme | 1+ 36 | PRE | 96 | 93 | 95 | 91 | 90 | 96 | 91 | 94 | 95 | 91 | 97 | 99 | 31.6 |
| Sharpen + pendamethalin+ glyt | 1+41.6+ 32 | PRE | 97 | 95 | 95 | 91 | 93 | 93 | 91 | 86 | 72 | 85 | 97 | 98 | 30.7 |
| C.V. (%) | | | 1 | 3 | 3 | 4 | 6 | 11 | 7 | 5 | 2 | 5 | 1 | 1 | 19.6 |
| LSD (0.05) | | | 2 | 5 | 4 | 6 | 7 | 12 | 9 | 6 | 1 | 6 | 1 | 1 | 9.3 |

[1]Vowh=volunteer wheat; Faca=fairy candelabra; Flwe=flixweed; Colq=Common lambsquarters; Wibw=wild buckwheat; Fota=green and yellow foxtail.

[2]Glyphosate=Roundup Original (Monsanto); Sharpen=saflufenacil (BASF); Extreme=glyphosate&imazethapyr (BASF); pendamethalin=ProwlH2O (BASF). Glyphosate and glyphosate + 2,4-De includes tank mixture of NIS=Preference (Winfield Solutions) at 0.25% v/v and AMS=N-Pak (Agri-Solutions) at 64 fl oz/A. All other treatments include tank mixture of MSO=Destiny (Winfield Solutions) at 1% v/v and AMS at 64 fl oz/A. Glyphosate (RU Original) at 32 fl oz/A + NIS + AMS was applied on July 1 across all plots except the untreated check.

[3]PRE=May 20.