

Timing of weed control in soybean, Carrington, 2011. Greg Endres, Lucas Walter, Bill Hodous, and Eric Allmaras. The study was conducted to build a North Dakota database documenting response of soybean to timing of weed control. Experimental design was a randomized complete block with four replicates. The field trial was conducted at the NDSU Carrington Research Extension Center on a conventional-till, Heimdal-Emrick loam soil with 4.1% organic matter and 6.6 pH with flax as the previous crop. 'DSR0401' Roundup Ready inoculated soybean was planted May 19 in 15-inch rows. Treatments were applied with a hand-held boom sprayer delivering 10 gal/A at 35 psi through 8001 flat fan nozzles to the center 6.7 ft of 10- by 25-ft plots. Extreme at 36 fl oz/A plus Class Act NG at 16 fl oz/A was PRE applied May 19 with 71 F, 43% RH, and no wind. Rainfall totaled 0.5" during the 7 days following PRE application (NDAWN). Table 1 provides POST application details for glyphosate (Roundup PowerMax at 22 fl oz/A plus Class Act NG at 16 fl oz/A). The trial received significant hail injury on July 24 but was harvested for grain yield on October 5.

The untreated check yielded less compared to yield with herbicides (Table 2). Early weed control with the PRE herbicide and early POST application of glyphosate in treatments 2-4 provided the highest yield. Test weight, seed count, oil, and protein were similar among treatments.

Table 1. POST glyphosate application details for soybean response to timing of weed control, Carrington, 2011.

| Application date ¹ | POST treatment | Soybean stage | Weed ² stage (height) | Weed density | | Environment | | | |
|-------------------------------|----------------|---------------|----------------------------------|--------------|------------|-------------|----|------------|--------|
| | | | | Grass | Broad-leaf | Air temp. | RH | Wind speed | Clouds |
| | | | inches | square foot | | F | % | MPH | % |
| 23-Jun | A | V1-2 | 0.5 to 8 | 30 | 2 | 67 | 71 | 1 | 40 |
| 30-Jun | B | V2-3 | 0.5 to 14 | 19 | 2 | 72 | 86 | 7 | 65 |
| 7-Jul | C | V4 | 2 to 18 | 22 | 2 | 80 | 54 | 6 | 5 |
| 21-Jul | D | R1 | NA | NA | NA | 68 | 84 | 0 | 10 |

¹Soybean density on June 24 averaged 101,200 plants/A.

²Weeds include yellow and green foxtail, common lambsquarters, kochia, redroot and prostrate pigweed, common purslane, volunteer flax, wild buckwheat, and wild mustard.

Table 2. Soybean response to timing of weed control, Carrington, 2011.

| Treatment | | Seed yield | Test weight | Seeds/lb | Oil | Protein |
|------------|--------------------------|------------|-------------|----------|------|---------|
| Number | Description ¹ | bu/A | lb/bu | | % | |
| 1 | untreated | 15.5 | 56.5 | 3782 | 19.7 | 32.8 |
| 2 | PRE/POSTA/POSTD | 41.9 | 56.9 | 3799 | 20.0 | 32.5 |
| 3 | POSTA/POSTD | 38.6 | 56.7 | 3817 | 19.8 | 32.6 |
| 4 | POSTB | 38.8 | 56.7 | 3900 | 19.9 | 29.1 |
| 5 | POSTC | 29.5 | 56.7 | 3952 | 20.0 | 28.7 |
| C.V. (%) | | 20.4 | 0.3 | 3.1 | 0.4 | 0.8 |
| LSD (0.05) | | 10.3 | NS | NS | NS | NS |

¹PRE=Extreme at 36 fl oz/A;POSTA-D=Roundup PowerMax at 22 fl oz/A. All herbicide applications included Class Act NG at 16 fl oz/A.