

Management of Waterhemp in Xtend (Dicamba-Resistant) Soybeans

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Objective

To determine the effect of residual herbicides, XtendiMax, Flexstar and glyphosate, and timing of XtendiMax, Flexstar and glyphosate on the control of glyphosate-resistant waterhemp in Xtend soybeans.

Background

Crop Year: 2018

Tillage: None

Location: North of St. Marys, OH

Planting Date: May 11, 2018

County/Town: Auglaize

Nitrogen: None

Soil Type: Blount Silt Loam

Seeding Rate: 180,000

Drainage: Systematic

Harvest Date: Not harvested

Previous Crop: Soybean

Methods

A weed control trial was established in Xtend soybeans. The design was a 3 factor factorial randomized as a complete block design having 4 replications. The plot size was 9 feet wide by 35 feet in length. The factors in the trial included residual herbicides, addition of Flexstar or XtendiMax with Roundup WeatherMAX, and Roundup WeatherMAX and timing of the postemergence application. The five residual herbicides were no residual, Valor XLT (4 oz/A), Valor XLT (4 oz/A) plus metribuzin 75 DF (8 oz/A), Fierce XLT (4.5 oz/A), and Valor XLT (4 oz/A) followed by Zidua (2 oz/A) applied postemergence. Flexstar (1.3 pt/A) plus N-Pak AMS (2.5%v/v) plus Destiny HC (0.5 %v/v) or XtendiMax (22 fluid oz/A) plus Class Act Ridion (1%v/v) was mixed with Roundup WeatherMAX at 32 fluid oz/A and Roundup WeatherMAX plus N-Pak AMS. The postemergence treatments were applied to 3 to 4 inch waterhemp and 6 to 8 inch waterhemp.

Liberty was applied at 34 fluid ounces/A in the burndown on May 8, 2018. The residual herbicides were applied on May 8, 2018, except for the Zidua applied postemergence. The postemergence treatments were applied as follows: June 8, 2018 to 3 to 4 inch waterhemp with no residual herbicide applied; June 16, 2018 to 6 to 8 inch waterhemp with no residual herbicide applied; June 25, 2018 to 3 to 4 inch waterhemp following residual herbicides; and June 30, 2018 to 6 to 8 inch waterhemp following residual herbicides.

All treatments were applied with a carbon dioxide propelled 4 nozzle handheld research plot sprayer having a spray width of 6.67 feet. Turbo Teejet 11002 nozzles were used. Spray pressure was 38 pounds per square inch. The spray volume applied was 17 gallons per acre. Travel speed was 3 miles per hour.

Xtend soybean variety ProHarvest was planted on May 11, 2018 in 15-inch rows.



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Results

Table 1. Percent Control of Waterhemp on June 18, 2018 (Before the Postemergence Application) and August 2, 2018 (33 Days After the Last Postemergence Application)

	June 18 %	August 2 %
<i>Factor 1 - Residual Herbicides</i>		
No residual herbicide	0 D	76 C
Valor XLT (4 oz/A)	72 C	91 B
Valor XLT (4 oz/A) + metribuzin 75 DF (8 oz/A)	80 B	94 B
Fierce XLT (4.5 oz/A)	93 A	98 A
Valor XLT (4 oz/A) followed by Zidua (2 oz/A)	73 C	94 AB
<i>Factor 2 – Postemergence Herbicide</i>		
Roundup WeatherMAX (32 fl oz/A)	N/A	82 c
Flexstar (1.3 pt/A) + Roundup WeatherMAX (32 fl oz/A)	N/A	91 b
XtendiMax (22 fl oz/A) + R. WeatherMAX (32 fl oz/A)	N/A	98 a
<i>Factor 3 - Timing</i>		
3 to 4 inches	N/A	89 A
6 to 8 inches	N/A	91 A

Summary

Glyphosate-resistant waterhemp is increasing in frequency in Auglaize County, Ohio. In this trial 20 to 30% of the waterhemp were resistant to glyphosate based upon the glyphosate only treatment. A new tool is now available for weed control for soybean growers called Xtend (dicamba-resistant) soybean. This trial looked at the efficacy of XtendiMax and Flexstar for control of glyphosate-resistant waterhemp.

On May 8, 2017 waterhemp was just emerging. The waterhemp continued to emerge until early August.

Compared to 2017 there was a difference between the soil-applied residual herbicides just prior to the postemergence application of XtendiMax, Flexstar, and glyphosate. The Fierce XLT provided the greatest waterhemp control at 93% with Valor XLT plus metribuzin providing the next most effective control.

XtendiMax, Flexstar, and glyphosate applied postemergence following a soil-applied herbicide improved waterhemp control compared to these herbicides applied without a soil-applied herbicide. The three postemergence herbicides following Fierce XLT provided the greatest waterhemp control with the Zidua treatment providing similar control.



XtendiMAX provided the greatest waterhemp control with Flexstar providing the next most effective control and glyphosate the least control. The poorer control with glyphosate is due to the presence of glyphosate-resistant waterhemp and no residual control with glyphosate. The Flexstar was less effective in 2018 compared to 2017 because of the presence of a Flexstar-resistant biotype.

There was no difference whether the postemergence herbicides were applied at 3 to 4 inches or 6 to 8 inches.

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