

# Management of Waterhemp in Xtend (Dicamba-Resistant) Soybeans

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## Objective

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

## Background

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Crop Year: 2017

Location: North of St. Marys, OH

County/Town: Auglaize

Soil Type: Blount Silt Loam

Drainage: Systematic

Previous Crop: Soybean

Tillage: None

Planting Date: June 2, 2017

Nitrogen: None

Seeding Rate: 180,000

Harvest Date: Not harvested

## 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 7.5 feet wide by 40 feet in length. The factors in the trial included residual herbicides, addition of Flexstar or XtendiMax with Roundup WeatherMAX and timing of the postemergence application. The five residual treatments 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. The postemergence treatments were applied to 3 to 4 inch waterhemp and 6 to 8 inch waterhemp. One additional treatment of Roundup WeatherMAX (32 fluid oz/A) with no residual herbicide was included to demonstrate the presence of glyphosate-resistant waterhemp, but was not included in the analysis.

Glyphosate was applied to the trial area in early April to control annual bluegrass and other winter annual weeds. Liberty was applied at 29 fluid ounces/A in the burndown on May 16, 2017. The residual herbicides, except Zidua, were applied on May 16, 2017. The postemergence treatments were applied as follows: June 16, 2017 to 3 to 4 inch waterhemp with no residual herbicide applied; June 21, 2017 to 6 to 8 inch waterhemp with no residual herbicide applied; July 2, 2017 to 3 to 4 inch waterhemp following residual herbicides; and July 9, 2017 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, Pioneer P33T19X was planted on June 2, 2017 in 15-inch rows.

## Results

Table 1. Percent Control of Waterhemp on June 26, 2017 Just Before the Postemergence Application and August 15, 2017, 37 Days After the Last Postemergence application.

	June 26 %	August 15 %
<b><i>Factor 1 - Residual Herbicides</i></b>		
No residual herbicide	0 B	70 C
Valor XLT (4 oz/A)	82 A	88 B
Valor XLT (4 oz/A) + metribuzin 75 DF (8 oz/A)	82 A	89 AB
Fierce XLT (4.5 oz/A)	84 A	92 AB
Valor XLT (4 oz/A) followed by Zidua (2 oz/A)	84 A	99 A
<b><i>Factor 2 – Postemergence Herbicide</i></b>		
Flexstar (1.3 pt/A) + Roundup WeatherMAX (32 fl oz/A)	N/A	99 a
XtendiMax (22 fl oz/A) + R. WeatherMAX (32 fl oz/A)	N/A	94 a
<b><i>Factor 3 - Timing</i></b>		
3 to 4 inches	N/A	96 A
6 to 8 inches	N/A	97 A

Means separated by LSD at 0.05

## Summary

Glyphosate-resistant waterhemp is increasing in frequency in Auglaize County, Ohio. In this trial 10 to 20% 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 16, 2017 waterhemp was just emerging to having one true leaf. The waterhemp continued to emerge until early August.

There was no difference between any of the soil-applied residual herbicides just prior to the postemergence application of XtendiMax and Flexstar. No soil-applied herbicide(s) provided effective waterhemp control for the season indicating the need for a postemergence herbicide application. Based upon this one year's trial, adding metribuzin to Valor XLT and using Fierce XLT that contains Zidua did not improve waterhemp control compared to Valor XLT alone.

XtendiMax and Flexstar applied postemergence following a soil-applied herbicide improved waterhemp control compared to these herbicides applied without a soil-applied herbicide. Adding Zidua postemergence was not necessary in this trial because of the residual activity of



Flexstar and XtendiMax. When looking at individual treatments, Flexstar provided greater waterhemp control (95%) following no soil-applied herbicide compared to XtendiMax (81%), indicating better residual control.

Because of the effectiveness of the control of existing plants at the time of the postemergence application and residual control after the application, there was no difference in the timing of the postemergence applications. Observationally there were a handful of plants surviving Flexstar and XtendiMax in the trial if they were taller than 4 inches.

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