

Management of Waterhemp in LibertyLink Soybeans

Jeff Stachler, Ohio State University Extension Educator, Auglaize County

Objective

To determine the effect of residual herbicides and timing of Liberty on the control of waterhemp in LibertyLink soybeans.

Background

Crop Year: 2018	Tillage: None
Location: North of St. Marys, OH	
County/Town: Auglaize	Planting Date: May 11, 2018
Soil Type: Blount Silt Loam	Nitrogen: None
Drainage: Systematic	Seeding Rate: 180,000
Previous Crop: Soybean	Harvest Date: Not harvested

Methods

A weed control trial was established in LibertyLink soybeans. The design was a 2 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 and timing of the Liberty 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. The Liberty was applied to 3 to 4 inch waterhemp and 6 to 8 inch waterhemp.

Glyphosate was applied to the trial area in early April to control annual bluegrass and other winter annual weeds. Interline was applied at 34 fluid ounces/A in the burndown on May 8, 2018. Ammonium sulfate was added to all postemergence treatments at 3 pounds/A. The residual or preemergence herbicides were applied on May 8, 2018. The postemergence treatments were applied as follows: June 13, 2018 to 3 to 4 inch waterhemp with no residual herbicide applied; June 18, 2018 to 6 to 8 inch waterhemp with no residual herbicide applied; June 21, 2018 to 3 to 4 inch waterhemp following residual herbicides; and June 26, 2018 to 6 to 8 inch waterhemp following residual herbicides. Interline was applied at 29 fluid ounces per acre in all of the postemergence treatments.

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.

LibertyLink ProHarvest soybeans were planted on May 11, 2018 in 15-inch rows.

Results



Table 1. Percent Control of Waterhemp on June 19, 2018 (Before the Postemergence Application) and August 2, 2018 (37 Days After the Last Postemergence application).

	June 19 %	August 2 %
<i>Factor 1 - Residual Herbicides</i>		
No residual herbicide	0 D	82 D
Valor XLT (4 oz/A)	75 C	88 C
Valor XLT (4 oz/A) + metribuzin 75 DF (8 oz/A)	83 B	97 AB
Fierce XLT (4.5 oz/A)	94 A	99 A
Valor XLT (4 oz/A) followed by Zidua (2 oz/A)	73 C	94 B
<i>Factor 2 - Timing</i>		
3 to 4 inches	N/A	95 a
6 to 8 inches	N/A	89 b
Means Separated by LSD at 0.05		

Summary

Glyphosate-resistant waterhemp is increasing in frequency in Auglaize County, Ohio. LibertyLink soybeans with an application of Liberty are an excellent alternative tool to controlling glyphosate-resistant waterhemp. On May 8, 2018 waterhemp was just emerging. The waterhemp continued to emerge until early August. This study demonstrates the difficulty in controlling waterhemp late into the season.

In 2018 there was a difference in the control of waterhemp with residual or preemergence herbicides. Fierce XLT provided the greatest control followed by Valor XLT plus metribuzin followed by Valor XLT. In 2017, the addition of metribuzin did not improve waterhemp control but did in 2018. Waterhemp control was much better with Fierce XLT in 2018 compared to 2017.

A single postemergence Interline application without residual herbicide did not effectively control waterhemp for the season regardless of time of application. The application of Interline following Fierce XLT provided the greatest waterhemp control which was nearly complete control. The application of Interline following Valor XLT plus metribuzin provided similar control. The addition of Zidua with Interline improved control over Valor XLT, but was not as good as the Fierce XLT and provided less waterhemp control compared to 2017.

In 2018 compared to 2017, applying Liberty to 3 to 4 inch waterhemp provided better waterhemp control than applied at 6 to 8 inch waterhemp because more plants were emerged at the time of application due to the later timing.

Interline can effectively control waterhemp when used in conjunction with a preemergence herbicide combination containing three sites of action.



Acknowledgement

The author expresses appreciation to John Ankerman for the use of his land and for planting the soybeans. The author also thanks Bambauer Fertilizer and Seeds, Inc. for donating the soybean seed.



THE OHIO STATE UNIVERSITY

For more information, contact:

Jeff Stachler

OSU Extension –Auglaize County

208 S. Blackhoof St.

Wapakoneta, Ohio 45895

stachler.1@osu.edu



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

agcrops.osu.edu

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information: go.osu.edu/cfaesdiversity.