Comparison of Postemergence Group 15 Injury on LLGT27 and RR2Xtend Soybeans

Principal Investigators

Kayla Shelton, University of Kentucky Research and Education Center, kayla.shelton@uky.edu

Travis Legleiter, University of Kentucky Research and Education Center, travis.legleiter@uky.edu

Summary

Initial studies showed that there could be more injury from the Group 15 applications with Liberty on Liberty Link soybean than with tank mixes of dicamba on RR2Xtend Soybean. Although, in this study, there were no significant differences in crop injury between the tank mixes when evaluated at 7 and 21 days after application. There is a possibility for more injury and difference to occur when evaluated at 28 days. We will continue to evaluate crop injury, as more research needs to be done, to determine if these differences can occur.

Rationale

Over the past two years dicamba injury has been one of largest problems that has faced soybean farmers with dicamba available to them, with approximately 35,000 to 45,000 acres of soybean damaged due to dicamba exposure in Kentucky in 2017 . Dicamba injury causes soybean leaf cupping, distortion and stem epinasty. Along with the potential for yield loss if dicamba exposure is during the reproduction stage. With this project we had one goal and that was; does spraying group 15 herbicides with a tank mix of glufosinate cause more damage/injury than that of a tank mix of a group 15 herbicide and dicamba and or glyphosate? And will we be able to tell the differences in these injuries?

Methodology

The comparison of group 15 postemergence injury on LLGT27 (AG42X6) and RR2Xtend (Becks 4268FP) soybean trial was based at the University of Kentucky Research and Education Center in Princeton, KY. Within the trial, we had 15 treatments applied on June 21st, with 1-6 being RR2Xtend Soybean, and treatments 7-15 being LLGT27, each treatment was replicated 4 times at random. The 15 treatments are:

1. Xtendimax 22fl oz/a + Roundup Powermax 32fl oz/a
2. Zidua 3.25fl oz/a
3. Warrant 1.5qt/a
4. Xtendimax 22fl oz/a + Roundup Powermax 32fl oz/a + Zidua 3.25fl oz/a

5. Xtendimax 22fl oz/a + Roundup Powermax 32fl oz/a + Warrant 1.5qt/a
6. Check: No chemical application
7. Liberty 29fl oz/a
8. Zidua 3.25fl oz/a
9. Warrant 1.5qt/a
10. Liberty 29fl oz/a + Zidua 3.25fl oz/a
11. Liberty 29fl oz/a + Warrant 1.5 qt/a
12. Roundup Powermax 32fl oz/a
13. Roundup Powermax 32fl oz/a + Zidua 3.25fl oz/a
14. Roundup Powermax 32fl oz/a + Warrant 1.5qt/a
15. Xtendimax .022fl oz/a (low rate to replicate drift)

Results

On June 28th, seven days post application, visual ratings were done to evaluate the injury visible in each of the treatments, at this seven-day evaluation there was no statistically significant damage visible when rated. On July 12th, twenty-one days visual ratings were completed again and, on this rating, injury was visible but there was no statistically significant difference between each treatment.

Treatment	% Crop Injury Rating 7 Days	% Crop Injury Rating 21 Days
1	0.3 b	1.1 c
2	0.3 b	1.5 bc
3	0.5 b	3.0 bc
4	0.5 b	1.5 bc
5	0.5 b	2.5 bc
7	2.2 b	3.0 bc
8	2.0 b	3.5 bc
9	2.0 b	3.5 bc
10	1.8 b	3.8 bc
11	2.8 b	4.0 bc
12	2.5 b	3.5 bc
13	2.5 b	2.8 bc
14	2.8 b	4.5 b
15	6.3 a	8.3 a

Significant Findings

In this research we were not able to identify any statistically significant data resulting in a significant difference between dicamba injury and group 15 post-emergence herbicide injury in this trial.

Implications for future work

More research is needed in the future to determine if these differences can occur.

Acknowledgements

Funding provided by USDA-NIFA ELI-REEU 2017-06637, Jesse Gray, and Shawn Wood