

SOYBEAN RESPONSE TO SIMULATED DIFLUFENZOPYR & DICAMBA & ISOXADIFEN-ETHYL DRIFT. Damian D. Franzenburg, Micheal D.K. Owen, James F. Lux and Dean Grossnickle, Agricultural Specialist, Professor and Agricultural Specialists, Department of Agronomy, Iowa State University, Ames, IA 50011.

Dicamba drift on soybean is easily recognized by observable symptoms. This study measured the impact of drift on soybean occurring at two different soybean stages of development. The impact of drift on soybean yield may not be easily predicted by the level of injury observed without consideration for the stage of soybean development at application. The experiment was conducted near Ames, Iowa in 2009. The experimental design was randomized complete block with six replications. Soybean was planted at 76 cm row spacing on corn ground prepared by fall chisel plowing and spring field cultivation. Plots were 3 by 7.6 m. Dicamba drift was simulated by using reduced rates of diflufenzopyr & dicamba & isoxadifen-ethyl. Treatments included postemergence application rates of 0.002, 0.0002 and 0.00002 kg ai ha<sup>-1</sup> applied to soybean at V3, and R1 stages (POST-V3, and POST-R1, respectively). All of the treatments included glyphosate applied alone (POST-V4) at 0.23 kg ae ha<sup>-1</sup> for weed control. A control was included as a treatment that contained only the POST-V4 glyphosate application. Visual crop injury was evaluated at 7, 14, 21, 28 and 56 days after application (DAA) for POST-V3 and POST-R1 timings, respectively. Soybean yield was measured and adjusted to 13% moisture content. Soybean injury at 7 DAA, respective to V3 and R1 soybean application stages, demonstrated similar trends for herbicide application rate. However, at 14 DAA, injury was higher at all herbicide rates applied to V3 compared to R1 soybean (40, 10 and 5% compared to 26, 5 and 1%, respectively). By 21 DAA, injury was 42% compared to 31% for the 0.002 kg ai ha<sup>-1</sup> rate applied to V3 and R1 soybean, respectively. The other herbicide rates did not produce differing soybean injury comparing V3 to R1 application timings when observed at 21, 28 and 56 DAA, respective to soybean stage at application. The trend for the highest herbicide application rate reversed at 28 DAA comparing 36% to 44% injury for V3 and R1 application timings, respectively. Injury was greater again for the 0.002 kg ai ha<sup>-1</sup> applied to R1 soybean 56 DAA compared to V3 soybean with 39% compared to 23%, respectively. Soybean yield from the control was significantly greater than only the highest rate of diflufenzopyr & dicamba & isoxadifen-ethyl applied to both V3 and R1 soybeans. Yield was not significantly different comparing soybean stage at application for any of the herbicide rates.