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6050. SUGARBEET SENSITIVITY TO DICAMBA AT LOW DOSE

Dicamba-tolerant soybean were planted at increasing frequency in close proximity to sugarbeet fields in Minnesota and North Dakota. There is currently insufficient knowledge available to advise sugarbeet growers of the effects from off-target movement of dicamba. The purpose of this experiment was to evaluate sugarbeet sensitivity and to measure for accumulation of residues in leaf and root from dicamba off-target movement to a neighboring sugarbeet field, separated by 12-, 24-, 48-rows, and beyond. Experiments were conducted at two locations in 2017 and 2018 using a randomized complete block design with up to six replications at each location. Treatments were 1/10, 1/33, and 1/100 of the labeled dicamba rate for soybean application. Results indicate that conventional soybeans are more susceptible to dicamba as compared to sugarbeets. Regardless of application rate, sugarbeet leaves were prostrate to the ground a few hours after pesticide exposure and leaf petioles exhibited varying levels of epinasty. Symptomology in younger plants (4-6 leaf stage) included fused petioles and 'trumpeting'. At the highest concentration, leaves did not recover and remained prostrate to the ground for the remainder of the growing season. New leaf growth generally resumed around six to ten days after exposure, with the new leaves having crinkled leaf margins, parallel veins, or leaf strapping. Assessments of canopy density indicated a 45% and 30% reduction when subjected to the 1/10 rate, respectively. Residue analysis of sugarbeet tissue indicated the active ingredient was present in early leaf samples but was not detected at harvest.

Pesticide residues were not detected in root samples at either sampling period. Root yield, recoverable sugar content, and purity decreased as dicamba dosage increased.