

SENSITIVITY OF SEVERAL VEGETABLE CROPS TO MESOTRIONE SOIL RESIDUES. Douglas Doohan¹, Joel Felix² and Dain Bruns³, Associate Professor¹, Research Associate², Department of Horticulture and Crop Science, The Ohio State University, Wooster, 44691 and Syngenta Crop Protection, Hillard, OH.

Tolerance of red clover, snap bean, cucumber, bell pepper, tomato and cabbage to residues of mesotrione applied to corn the previous year was evaluated at OARDC Wooster and OARDC Vegetable Crops Branch in Fremont. The soil at Wooster was a Wooster Silt Loam with 3% OM and pH of 6 and at Fremont a Colwood Fine Sandy Laom with 3% OM and pH of 5.8. Glyphosate tolerant corn 'Pioneer 599 RR' was seeded following seed-bed preparation on May 10 at Wooster and on May 30 at Fremont. Mesotrione formulated as Callisto was applied PRE at 6, 12 and 24 oz product/A 12 days after seeding at Wooster and on the day of seeding at Fremont. POST applications at 3, 6 and 12 oz product/A were applied 30 and 17 days after seeding, respectively, at Fremont (6 inch corn) and Wooster (4 inch corn). Treatments also include an untreated control and prosulfuron (Peak 0.5 oz product/A POST). A randomized complete block design with 4 replications was used. Plots were 50 X 10 feet. Glyphosate (Roundup UltraMax 1 qt/A) was applied to all plots approximately 1 month after seeding to control weeds not eliminated by treatment herbicides. Grain corn yield was not affected by treatment at either site. Peppers, tomatoes and cabbage were transplanted in late June, to coincide with emergence of clover, beans and cucumbers, seeded approximately 10 days prior. Vegetable crops were drilled in double rows oriented perpendicular to the direction of mesotrione application the previous year. Clover was broadcast seeded in a 4 foot wide bed. Response of clover and vegetable crops was rated visually on the 0-100 scale at 7, 14, 21 and 42 days after emergence/ transplanting. Injury was much more severe at Fremont than at Wooster. At Fremont chlorosis and stunting of clover were apparent within 7 days of emergence and increased with rate. By 28 DAE clover injury in plots treated the previous year with Callisto at 6, 12 and 24 oz/A PRE was 63, 93 and 97%, respectively. Damage to clover at this date in plots treated POST with 3 oz/A of product was similar to injury at 6 oz/A PRE. Snap bean and cucumbers were severely injured by all rates of mesotrione though symptoms took longer to develop than clover. Cabbage, tomato and pepper were more tolerant of mesotrione residues with injury ranging from 5 to 20% 28 DAT. At Wooster clover was only slightly injured by mesotrione applied the previous year and by summer-end was largely indistinguishable from clover in control plots. Cucumbers were only significantly injured when mesotrione had been applied POST at 6 and 12 oz of product/A. Less than 20% injury was noted in snap beans in plots treated the previous year with mesotrione at 6 and 12 oz/A PRE and at 3 and 6 oz/A POST. Cabbage, tomato and pepper at Wooster were nearly free of visual injury symptoms across rates and application timings of the herbicide.