

CROP TOLERANCE OF TOPRAMEZONE RESIDUE AS AFFECTED BY SOIL PH. Rich Zollinger and Jerry Ries, Professor and Research Associate, Department of Plant Sciences, North Dakota State University, Fargo, ND 58108.

Replicated field research was conducted in 2007 and 2008 to evaluate crop tolerance of soybean, pinto and navy dry bean, sugarbeet, canola, and flax planted into topramezone residue applied to a soil of pH 5.9 and to a soil of pH 7.9 a year prior to planting crops. At both locations applications were made not to bare soil but at sites with normal crop foliage that would be present in May or early June. Light tillage was used to prepare the seedbed prior to seeding. At the research site of soil pH 5.9 volunteer sunflower emerged which gave another crop to evaluate for crop tolerance. Topramezone was applied at 0.175 oz ai/A (X rate for northern climates), 0.26 oz ai/A (X rate for mid-west), 0.35 oz ai/A (2X for northern climate), and 0.525 oz ai/A (2X for mid-west). At study site with soil pH 5.9 there was no soybean, pinto dry bean, navy dry bean, or flax injury at any topramezone rate. Topramezone residue at 0.35 and 0.525 oz/A caused 5 and 7% sugarbeet, 13 and 20% canola, and 53 and 70% sunflower injury at 12 months after application (MAA) but by 13 MAA sugarbeet injury was 5%, canola injury was 7% and sunflower injury was 47% at the highest rate. At study site with soil pH 7.9 there was no crop injury at any topramezone rate at 12 MAA. At 12.5 MAA 7% sugarbeet injury at the highest topramezone rate of 0.525 oz/A was the only injury observed. At 13 MAA there was no crop injury from topramezone residue at 0.175, 0.26, and 0.35 oz/A and canola and flax was unaffected at all rates. However, injury to soybean, pinto dry bean, navy dry bean, and sugarbeet from the highest topramezone rate of 0.525 oz/A was 15%, 23%, 7%, and 13%, respectively. Since the solubility of topramezone increases as pH increases it was thought that soil pH may affect rate of breakdown. The current crop rotation for soybean, dry bean, canola, sugarbeet in parts of the northern great plains including North Dakota is 18 months after topramezone application. This data may help support a reduced crop rotation of 9 months when topramezone is used at 0.175 oz/A.