

MESOTRIONE USE IN OAT. Kirk A. Howatt and Eric E. Dvorak, Assistant Professor and Graduate Research Assistant, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105.

Field experiments were conducted in 2002 at two locations to determine the response of oat to mesotrione. In preliminary greenhouse studies, 105 g/ha mesotrione with 1% v/v petroleum oil and 2.5% v/v urea ammonium nitrate adjuvants provided 85 to 90% yellow foxtail control while oat response was slight and temporary. Oat 'Jerry' was used in all field experiments. Mesotrione at 105 g/ha with adjuvants was applied to oat in seven growth stages from pre-emergence to 5-leaf stage. Injury, 4%, was most persistent when mesotrione was applied to 2- to 4-leaf oat. Mesotrione at 26, 52, 105, 210, and 420 g/ha with adjuvants was applied to oat. Initial injury 7 DAT with 26 to 210 g/ha mesotrione was 3 to 7%, while 420 g/ha mesotrione elicited 12% injury. Injury from all rates examined diminished to 1% or less 14 DAT. The addition of another broadleaf herbicide generally increased injury compared to 105 g/ha mesotrione with adjuvants or the other herbicide alone. Bromoxynil or bromoxynil and MCPA caused the greatest injury increase but did not reduce oat growth or yield. Mesotrione application timing or rate did not reduce oat reproductive tiller number, biomass accumulation, or grain production compared to untreated oat.