

SUBSTITUTES FOR AMMONIUM SULFATE AS AN ADJUVANT. Donald Penner and Jan Michael, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48823, and Greg Dahl and Joe Gednalske, Agriliance, LLC. Inver Grove Heights, MN 55077.

Glyphosate and glufosinate are examples of weak acid herbicides whose maximum efficacy is dependent on the inclusion of ammonium sulfate or other effective "water conditioner" adjuvants in the spray solution. The source of ammonium sulfate is often the dry diammonium sulfate. Liquid formulations of diammonium sulfate are available as many applicators prefer liquid to dry sources. The objectives of this research was to evaluate substitutes for ammonium sulfate for use with various formulations of glyphosate recognizing weed species specific responses to the need for ammonium sulfate or substitutes with glyphosate. Greenhouse studies showed a greater need for ammonium sulfate with glyphosate for velvetleaf and giant foxtail control than for common lambsquarters control. The ammonium sulfate substitute, 'Exacto 390', at 0.63 to 0.75% in the spray solution was found to be an effective substitute for ammonium sulfate with several formulations of glyphosate for weed control without injury to glyphosate-resistant corn or soybean. In field trials in 2002 the 'Exacto 390' showed efficacy similar to effective levels of the liquid ammonium sulfate containing products, 'N Pak AMS', 'Class Act Next Generation', and 'Alliance'.