

POTASSIUM ADDITIVE COMPATIBILITY WITH GLYPHOSATE. Kelly A. Nelson and Peter P. Motavalli, Assistant Professor, Department of Agronomy, University of Missouri, Novelty, MO 63460 and Assistant Professor, Department of Soil, Environmental, and Atmospheric Science, University of Missouri, Columbia, MO 65211.

Research was conducted in 2003 and 2004 to determine soybean yield response and salt injury from foliar-applied potassium (K) fertilizer sources; assess if K fertilizer source affects weed control when mixed with a glyphosate-based herbicide; and evaluate the cost-effectiveness of applying K fertilization with glyphosate-based herbicides for no-till, glyphosate-resistant soybean production. Commercially available dry K fertilizer sources were applied with glyphosate at the maximum rate limited by the solubility of the product. Liquid fertilizer sources were applied as the carrier with glyphosate. All treatments except potassium carbonate had less than 10% injury 7 and 14 days after treatment. Potassium chloride, nitrate, and sulfate tank mixed with glyphosate injured soybeans similar to glyphosate plus diammonium sulfate (DAS). Potassium chloride, nitrate, sulfate, or phosphate plus glyphosate controlled common lambsquarters, common ragweed, common waterhemp, and giant foxtail similar to glyphosate plus DAS. Other potassium sources antagonized weed control with glyphosate at the rates evaluated in this research. In a weed-free environment, soybean yield was similar among K fertilizer source treatments. Soybean treated with potassium phosphate, chloride, sulfate, or nitrate tank mixed with glyphosate had grain yields similar to glyphosate plus DAS. Potassium chloride, sulfate, and nitrate applied alone or tank mixed with glyphosate had gross margins similar to glyphosate plus DAS at the rates evaluated in this research.