# BENCHMARK STUDY: PERSPECTIVES ON GLYPHOSATE-RESISTANT CROPS AND THE SUSTAINABILITY OF CHEMICAL WEED MANAGEMENT

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## Abstract

A six-state field-scale project was initiated to study methods that may help glyphosate-resistant (GR) systems remain sustainable in terms of grower economics and the evolution of weed resistance. The four-year study was initiated following a farmer survey on weed management practices and their views on GR weeds and management. The findings included: 1) 30% of farmers thought GR weeds were or would become a serious problem; 2) few farmers thought tillage and/or using a non-GR crop in rotation would help prevent or manage GR weed evolution and 3) most farmers underestimated the role of herbicide selection pressure on the evolution of herbicide resistance. These results suggest major challenges facing agriculture and the weed science communities with regard to establishing sustainable systems within the GR-crop agroecosystems. Paramount is the need to develop and communicate clear science-based management recommendations that minimizes current rhetoric and convinces farmers to change long-held bias about weed control thus reducing the evolution of weed populations resistant to herbicides. Without a proactive and integrated approach to manage weeds in GR crops, the continued and wide-spread evolution of GR weeds is inevitable. This will be problematic in all crop systems and endanger the economics of GR technology which dominates current agriculture globally. Furthermore, lack of action on the part of the weed science communities increases the likelihood of regulatory intervention. Given present systems where alternatives to chemical weed control are essentially impractical, anything that compromises GR technology will significantly damage global agricultural productivity if effective solutions are not identified.