

INFLUENCE OF HERBICIDE EFFICACY ON WEED SEED PRODUCTION. Andrew A. Schmidt\* and William G. Johnson, Graduate Research Assistant and Assistant Professor, Department of Agronomy, University of Missouri, Columbia, MO 65211.

Correct weed management decisions are imperative for growers to maximize the in-season yield potential and minimize future weed control problems. An incorrect decision may provide adequate crop yields or net returns, but may allow a few weeds to escape, produce seed and increase weed density in future years. The objective of this study was to determine if weed management decisions recommended by a weed management decision aid called WeedSOFT are related to increasing the soil's weed seed bank and to monitor the production of weed seed in two soybean row spacings. Standard conventional-till production practices were used to produce soybean in 38.1- and 76.2-cm rows. Weed management decisions were made when weeds were 5- to 10-cm tall, and soybean in the trifoliolate growth stage. Similar treatments were applied in both row spacings for each year. Treatments included a weed-free check, weedy check, the recommendation that predicted the highest maximum yield, a treatment that will result in a 10% predicted yield reduction, and a 20% predicted yield reduction treatment. Weed population and seed counts were recorded in the fall. In both years the weedy checks contained a high density of common ragweed in both row spacing rows resulting in low numbers of seed from other weeds. The treatments that predicted the lowest maximum produced more weed seed. In 2000, there was a significant treatment by row spacing interaction with common waterhemp and common cocklebur. The 76.2-cm row treatments yielded approximately 100% more common waterhemp seed for most treatments. Approximately 100% more common cocklebur seed was produced in the 76.2-cm row treatments compared to the 38.1-cm rows except for bentazon + aciflourfen which produced less seed in 76.2-cm versus 38.1-cm rows. In 2000 the 38.1-cm treatments that predicted the highest yield generally resulted in 64% less seed of giant foxtail, common ragweed, ivyleaf morningglory, and common cocklebur than the 10% yield loss treatments. In 76.2-cm rows the treatments that predicted the highest yield generally resulted in 46% less seed of giant foxtail, common ragweed, common waterhemp, and ivyleaf morningglory than the 10% yield loss treatments. In 2001 there was no significant row spacing by treatment interactions but significant treatment differences. In 2001 the treatments that predicted the highest yield generally resulted in 95% less giant ragweed seed than the 10% yield reduction treatments.