

GRAIN SORGHUM RESPONSE TO POSTEMERGENCE MESOTRIONE APPLIED AT DIFFERENT GROWTH STAGES. Mary Joy M. Abit, Kassim Al-Khatib, David L. Regehr, Mark M. Claassen, Phillip W. Stahlman, Barney W. Gordon, Randall S. Currie, and Patrick W. Geier, Graduate Research Assistant, Professor, Professor, Professor, Professor, Professor, and Assistant Scientist, respectively, Kansas State University, Manhattan, KS 66506.

Field experiments were conducted at Belleville, Hays, Hesston, Garden City, and Manhattan, KS to determine sorghum response to postemergence application of mesotrione at three growth stages. Mesotrione was applied at 52, 105, 157 and 210 g/ha in combination with 280 g/ha atrazine when sorghum was at 5 to 8, 15 to 20 and 30 cm tall. All rates of mesotrione caused visual injury at all growth stages. Sorghum was more injured when mesotrione was applied at 5 to 8 cm than 15 to 20 and 30 cm growth stages. Sorghum at Belleville, Garden City (irrigated) and Manhattan sites showed least injury at 15 to 20 cm while at Hays, Hesston and Garden City (dryland) sites the least injury was at 30 cm growth stage. Overall sorghum injury from mesotrione was greatest at 1 week after treatment with 25 to 64% injury. However, sorghum yield was reduced by only 13 and 14% at 30 and 5 to 8 cm growth stages, respectively. No yield reduction was observed when sorghum was treated with mesotrione at 15 to 20 cm growth stage. This study showed that postemergence applications of mesotrione can injure grain sorghum and reduce yields. The degree of injury can be lessened when mesotrione was applied at later stages. In addition, this study suggests that sorghum plant can sustain some level of plant injury without large reductions in yield.