

GRAIN SORGHUM TOLERANCE TO POSTEMERGENCE MESOTRIONE APPLICATIONS.  
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Mesotrione is a new class of chemistry with a new mode of action for post-emerge broadleaf weed control in corn. It controls tough broadleaf weeds that are resistant to triazine and ALS-inhibiting herbicides. The objectives were to determine how mesotrione tank-mix combinations and application timing affect grain sorghum, while providing adequate broadleaf weed control. The study was conducted near Manhattan, KS during the 2002 growing season. Mesotrione was tank-mixed with standard post-emerge sorghum herbicides, and applied either early or late post. All tank-mix combinations contained 105 g/ha mesotrione and 1% v/v COC and 2.5% v/v UAN. Plots were visually evaluated for sorghum injury and Palmer amaranth control. All early post treatments caused severe sorghum bleaching ranging from 40 to 65 percent 6 days after treatment (DAT). The most severe injury occurred from mesotrione tank-mixed with 280 g/ha atrazine or tank-mixed with 280 and 140 g/ha 2,4-D amine and low-vol ester. Injury had decreased significantly 27 DAT across all treatments, however mesotrione tank-mixed with the atrazine or 2,4-D was still the most severe. Mesotrione applied late post was better tolerated by the sorghum with little injury. Late post injury averaged 20 percent, with no significant differences between treatments. Palmer amaranth control in the early post treatments ranged from 70 to 90 percent with no significant differences. In the late post treatments, Palmer amaranth control ranged from 15 to 45 percent. Sorghum in the early post treatments averaged 2800 kg/ha, while the late post treatments were not harvested due to inadequate Palmer amaranth control. An adjacent experiment, under identical sorghum and weed conditions, included a treatment of 1.7 kg/ha atrazine and COC with no mesotrione, applied early post-emerge. There, Palmer amaranth control was excellent, with no herbicide stress on the crop, and sorghum yielded 5900 kg/ha. Much of this yield difference was attributed to the sorghum injury and slow recovery when treated early post-emerge with mesotrione.