EVALUATION OF CGA 362622 CONTRIBUTION TO TRANSGENIC COTTON WEED CONTROL PROGRAMS

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Abstract

Field studies were conducted in 2000 at the University of Arkansas Southeast Research Station located at Rohwer, Arkansas to evaluate weed control and crop injury from applications of CGA 362622 in glyphosate-tolerant and bromoxynil-resistant cotton. DP 451 B/RR and BXN 47 varieties were planted on My 17-18, 2000 in conventional 95-cm rows. The experimental design was a randomized complete block with four replications. Cotton (*Gossypium hirsutum)* was grown under normal cultural practices and sprinkle irrigated as needed. Application timings included preemergence, 2 to 4 leaf, 4 to 6 leaf, and 8 to 10 leaf cotton. Weeds evaluated included sicklepod (*Senna obtusifolia)*, hemp sesbania (*Sesabnia exaltata)*, pitted morningglory (*Ipomea lacunosa)*, prickly sida (*Sida spinosa)*, and Palmer amaranth (*Amaranthus palmeri)*. Preemergence and over-the-top applications were applied in 140 l/ha volume with a CO_2 backpack sprayer equipped with 8002 VS flat fan nozzles on 47-cm band with 94 L/ha volume.

Preemergence applications of CGA 362622, applied at rates ranging from 0.0053 kg ai/ha to 0.012 kg ai/ha, provided greater than 85% control of all species, but injury levels were greater than 25% with rates higher than 0.0053 kg ai/ha. Postemergence application of CGA 362622 applied at 2 to 4 leaf and 4 to 6 leaf provided greater than 90% control of Palmer amaranth and pitted morningglory at all rates. Sicklepod and hemp sesbania were controlled with rates above 0.0079 kg ai/ha. Postemergence applications did not provide acceptable control of prickly sida at any rate or timing.

Glyphosate at 0.85 kg ai/ha applied postemergence provided greater than 85% control of Palmer amaranth and hemp sesbania at all application timings, however sicklepod and pitted morningglory control was less than 85% at all timings. CGA 362622 applied in combination with glyphosate provided greater than 90% control of all species at 2 to 4 leaf and 4 to 6 leaf application timings. Injury was observed in over-the-top applications that combined glyphosate and CGA 362622 at 2 to 4 leaf applications; however injury dissipated quickly and was not visible at 21 DAT.

Bromoxynil at 0.56 kg ai/ha provided excellent control of pitted morningglory and hemp sesbania at all application timings, however sicklepod and Palmer amaranth control was less than 50% when bromoxynil was applied alone. When bromoxynil was combined with CGA 362622 control of sicklepod and Palmer amaranth was increased to 90% or greater at all application timings.

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