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WEED AND PLANT BUG CONTROL WITH GLYPHOSATE AND INSECTICIDE CO-APPLICATION AS AFFECTED BY NOZZLE TYPE AND SPRAY PRESSURE

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Abstract

Field studies were conducted at the Northeast Research Station in St. Joseph, La. to evaluate the performance of low drift spray nozzles on weed and plant bug control in cotton with Roundup Weathermax and Orthene co-application. Roundup Weathermax at 22 oz/A in combination with Orthene at 0.5 lb/A was applied with the following nozzles (operating pressures in parenthesis): TeeJet XR FF 11003 (40 PSI) and 11004 (20 PSI)), Turbo TeeJet 11002 (62 PSI), 11003 (33 PSI), and 11004 (22 PSI), Greenleaf Air-Mix 11002 (73 PSI), 110025 (47 PSI), and 11003 (35 PSI), TeeJet Air-Induction 11002 (72 PSI) and 110015 (80 PSI), and ConeJet Hollow Cone TX-8 (80 PSI). Applications were made to DP555BR cotton at the late bloom growth stage. Treatments were evaluated in a randomized complete block experimental design with four replications. Treatments were applied to each 6.67' by 30' plot with a tractor mounted compressed air sprayer traveling 5.3 to 7.5 mph and delivering 15 GPA. Visual weed control observations were made 10 d after treatment (DAT). Plant bug nymph counts were determined 6 DAT by shake cloth method on 12 row ft. Seedcotton yield was also determined. Data were subjected to ANOVA and means separated using LSD at the 0.05 level of significance.

At 6 DAT, Roundup Weathermax co-applied with Orthene using the ConeJet Hollow Cone TX8 tip resulted in plant bug nymph counts of 5.3 per 12 row ft, which were less than the 12.8 recorded in the nontreated control, but equal to all other spray nozzles evaluated (2.5 to 5.5). At 10 DAT, control of hemp sesbania, pitted morningglory, entireleaf morningglory, barnyardgrass, and prickly sida ranged from 84 to 95, 65 to 78, 65 to 78, 83 to 93, and 86 to 93%, respectively, with no differences noted among treatments. Seedcotton yield differences were not noted as yield ranged from 2476 to 3265 lb/A.

Low drift nozzles evaluated in this research at high spray volume and operating pressures resulted in plant bug control with the insecticide Orthene equal to that obtained with traditional nozzles used for insecticide application. In addition, spray coverage from all nozzles was adequate for equivalent control with Roundup Weathermax of weeds evaluated.