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PROJECT 2 ABSTRACT

(1 Page Limit)

Ground spray application technology research has been ongoing for several years. Researchers recently identified specific spray volumes, drop sizes, and nozzle orientations that were more or less effective than other technology techniques for improving fungicide efficacy for control of Fusarium head blight (FHB). Some of this research has been conducted on crops that differ substantially in architecture to other small grains. Research has shown that the awns of barley have efficiently collected much of the fungicide applied for FHB control. The value of the deposition on the awns compared to the lemma and palea has been questioned by several of the experts. The fungicide normally applied for FHB control move systemically upward and outward from the plant. Research in the greenhouse has shown that some adjuvants can improve the amount of deposition on the lemma and palea of the grain spike. Efficacy data has not been shown in these studies although many experts would welcome increased deposition in these areas. Many producers have purchase sprayers that use an air stream to deliver the spray solution to the target. Research has been conducted that shows that some air stream velocities and drop sizes do not maximize deposition on the small grain head. This research project will 1) repeat a spray volume study on hard red spring wheat (HRSW), 2) repeat a drop size study on HRSW with hydraulic type nozzles at differing spray volumes, 3) repeat a drop size study on barley with different nozzle types, 4) conduct a study on barley to examine the effects of nozzle orientation relative to the grain head, 5) conduct a study to change the area of fungicide deposition on the grain spike through the addition of adjuvants with different adhesive characteristics, and 6) evaluate the effect air stream speed has on spray drop deposition on HRSW. Yield, test weight, plump on barley, DON, and some deposition methods to characterize the spray coverage and drop size will be used to compare treatments. Differences between treatments will be determined by analysis of variance and mean separation with Fisher's LSD.