

EFFECTS OF HERBICIDE AND SIMULATED TILLAGE ON WHEAT CURL MITE SURVIVAL AND WHEAT STREAK MOSAIC. Wenbo Jiang, Karen Garrett, Dallas Peterson, Thomas Harvey, and Robert Bowden, Graduate Research Assistant, Assistant Professor, Professor, Professor, and Adjunct Associate Professor, Kansas State University, Manhattan, KS 66506.

Wheat curl mite, the vector of wheat streak mosaic virus, often survives the summer on volunteer wheat plants. Mites that survive until fall may disperse to newly-planted winter wheat. To control the wheat curl mite, growers often apply post-harvest tillage or herbicide to kill volunteer wheat. The timing of this management is critical since killing volunteer wheat too late in the season may promote movement of mites to newly-planted wheat. The objectives of this research were to determine the effects of glyphosate, paraquat, and simulated tillage on wheat curl mite survival on wheat plants over time. In a series of greenhouse experiments, wheat plants grown in pots were infested with viruliferous mites. Three to four weeks after mite populations were introduced, plants were treated with glyphosate, paraquat, undercutting, or no treatment. Mite populations on each plant were counted over the next one to two weeks. Population size was compared to the control at each sampling date. Mite populations on plants treated with paraquat decreased from the beginning of the sampling period. The effect of undercutting (simulated tillage) on the mite population was similar to the effect of paraquat. Mite populations on plants treated with glyphosate increased up to three days after application and then decreased to approximately the same level as the paraquat populations by ten days after application. Control mite populations increased until day ten of the study and then decreased, probably because of plant damage caused by wheat streak mosaic virus. If glyphosate is used to manage wheat volunteers infested with wheat curl mite, it should be applied well before wheat is planted in fall.