

10/8/2007 University of Missouri Extension Agronomy Update  
**Wheat Yield Response to Fall and Spring Insecticide Applications**  
Julie Abendroth, MU Regional Extension Agronomist: 816/776-6961

---

Numerous producers are seeking to manage their 2008 winter wheat crop more intensively than in previous years and as such, have questioned the yield response to fall and/or spring insecticide applications in Missouri.

Greenbugs and bird cherry-oat aphid are the predominant aphid species in wheat and traditionally, insecticide applications have not been agronomically recommended until 25+ greenbug aphids are present per foot of row or for bird cherry oat aphid, if 25+ are present per tiller. However, these aphid species can transmit the viral disease, barley yellow dwarf virus. Many wheat producers have noted the occurrence of this disease in recent years, as plants have appeared stunted and yellowed, with extreme infections showing a purpled flag leaf. Insecticide applications targeting aphid control would potentially reduce the amount of plants infected by the disease and as a result, increase yield.

The University of Missouri has conducted several years of research (in Columbia and off-site at three producer fields), investigating the yield response of both seed treatment and foliar insecticide applications to winter wheat. Aphids were first present in the plots in early November, but with only 1 aphid per plant throughout the winter months. Aphid numbers peaked in late April with 16 per stem and then decreased back to less than 1 per plant in mid-May. Although aphid pressure was low to moderate, 75% of the plants not treated with an insecticide were infected with the viral disease. Averaged across all varieties, the MU researchers noted an 18% yield reduction in the untreated plots. The greatest yield response was shown with a fall and spring application of Warrior insecticide; Gaucho treated seed was also shown effective, especially when paired with applications of Warrior.

Based upon this data, wheat producers are strongly encouraged to monitor their wheat fields this fall for aphid infestations and if present, to apply an insecticide application at the appropriate timing to reduce the potential for infection of barley yellow dwarf virus. The MU data also revealed the impact variety selection has on yield potential, with a 13 bu/ac yield difference solely due to variety selection. The results of the Winter Wheat Crop Performance variety tests are available at all MU Extension Centers.