



Texas Agricultural Extension Service

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The Effect of Chloride Fertilizer and Foliar Fungicides on Leaf Rust and Yield in Winter Wheat

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Wheat (*Triticum aestivum* L.) production over much of the eastern half of the state of Texas is limited by damage from leaf rust (*Puccinia recondita* f. sp. *tritici*), which has a wide array of races which circumvent the genes for resistance inserted by wheat breeders in a remarkably short period of time due to a climate and management practices which are highly favorable for the proliferation of the disease. Early planting, high humidity and warm fall weather all contribute to conditions which favor multiple fall generations and an enormous load of spores to cause major disease losses in the spring.

Research has shown that the incidence and rate of development of leaf rust and other foliar fungal diseases in wheat may be reduced by the adequate and balanced mineral nutrition in wheat and other crops. In particular, chloride (Cl⁻) fertility has been effective in reducing crop injury from leaf

rust in the Texas blacklands. Chloride is a nutrient which has significantly increased wheat yields in deficient soils in the absence of damaging plant disease, but the ability of wheat in good nutrient status with respect to Cl⁻ seems to particularly fit the wheat management system for the Blackland Prairie of Texas.

The 1996-97 wheat crop in central and north Texas was severely affected by an epidemic of leaf rust. At three sites (McGregor, Waxahachie and Hillsboro), wheat topdressed with Cl⁻ had significantly less leaf rust at bloom and yielded significantly more than untreated wheat. Chloride is not a substitute for foliar fungicides. This paper will present data demonstrating a significant and positive interaction of Cl⁻ fertility and foliar fungicides in wheat which is severely infested with leaf rust, both with respect to leaf rust ratings at bloom and also grain yield.

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