11/20/06 University of Missouri Extension Agronomy Update

Variety Crop Performance Test Results available, Bt Hybrid Product Failures in Iowa and Illinois, Corn-on-Corn Recommendations, and Soil Temperature Data for Fall N Applications

Julie Abendroth, Regional Agronomist: 816/776-6961

When seeking to optimize yield potential, hybrid and variety selection is the key component. Varieties entered into the University of Missouri Extension Crop Performance testing program show great variation in their yield potential. MG 3 soybean varieties tested at the Henrietta location in 2006 ranged from 33 to 53 bu/acre averages and varieties tested at the Columbia location demonstrated a yield range of 20 bushels per acre, ranging from 36 to 56 bu/acre averages. The large yield differences seen within each location demonstrate the importance of utilizing replicated yield data, across multiple locations, to select consistently high performing varieties. 2006 Crop Performance test results are available for soybean on the University of Missouri Extension website and corn yield results can be obtained in hard copy at your local Extension Center.

Multiple corn producers throughout west central Missouri noted poor performance of their Bt hybrids during the 2006 season. Most Bt hybrids planted throughout this region of Missouri possess the Bt gene for control of European corn borer (ECB) only; however Bt hybrids are available which provide control of both ECB and corn rootworm (RW). Interestingly, recent data and information from Illinois and Iowa show Bt RW hybrids not providing acceptable protection from corn rootworm feeding. Potential reasons for the product failures include unusually high rootworm populations, poor transfer of the Bt gene into the commercial hybrids, or low production of the Bt gene protein during the period of larval feeding. Extensive research is being conducted across the Midwestern states on the agronomics and performance of both the Bt ECB and Bt RW genes; further data and information will be provided to area producers as soon as available.

For producers considering corn on corn in 2007, MU Regional Agronomist Wayne Crook notes the importance of considering hybrid and trait selection, along with adjusting the nitrogen rate for the additional residue. Evaluate hybrid data for their performance in corn-on-corn rotations as well as under high residue systems. Corn rootworm pressure is greatest in the second and third year of continuous corn and therefore, selection of hybrids with the Bt RW trait may be advantageous for corn-on-corn in central Missouri. From a nitrogen standpoint, corn residue will tie up nitrogen to aid in its decomposition. Due to the residue, an additional 30-40 lbs N per acre is recommended for corn-on-corn. To estimate crop nutrient removal rate, 1 bushel of corn removes approximately 0.8-0.9 lb N, 0.45 lb P_2O_5, and 0.35 lb K_2O. Low soil test potassium levels have resulted in potash deficiency symptoms throughout many area fields. Whether corn-on-corn or a corn-soybean rotation, producers are encouraged to soil sample this fall for accurate fertility recommendations in 2007.

Lastly, for producers planning fall nitrogen applications of anhydrous ammonia, application should be postponed until the average daily soil temperature at six inches is below 50 degrees, with some researchers leaning towards below 40 degrees, to minimize nitrogen loss. As of November 14th, current soil temperature at 6 inches, under soybean residue, at St. Joseph was 46 degrees, at Brunswick 48 degrees, and at Corning 46 degrees.