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Fungicide selection and timing to manage southern rust of corn
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Foliar corn diseases are among the most important yield-limiting factors that affect commercial corn production in the Mid-South. Southern rust is caused by the fungus *Puccinia polysora*, which only infects corn and is reintroduced each year from the tropic regions of Central America and the Caribbean. Symptoms consist of small orange pustules that are often first detected on leaves located in the mid- to upper-canopy. As conditions favor disease development initial infections produce spores that are spread to nearby plants and nearby fields resulting in secondary infections and the spread of southern rust. Generally southern rust begins in the south and moves progressively northward during the growing season. Southern rust can often be found on corn husks and the stalk later in the season as conditions favor disease development. Environmental conditions that favor rust development consist of warm temperatures (80° to 90°F), high relative humidity/frequent moisture provided by heavy dew or light rain. Most corn hybrids are susceptible to southern rust, but planting on time or as per extension recommendations not only allows for maximum yield, but may also avoid late summer rust epidemics. Alternately, a well-timed fungicide can be useful to slow rust development and protect hybrid yield potential. However, there is no economic threshold for a fungicide application because fungicide action thresholds are complicated by the differences in susceptibility among hybrids, the time required for infected corn to reach maturity, and unpredictability in forecasting the weather. As with most rust diseases an early warning system can be helpful to determine when rust is a threat and when to apply fungicides to protect the crop. Currently, a monitoring system has been established by extension plant pathologist to report where southern rust has been detected in a given year on the IPM-PIPE website and various university extension blog websites. Therefore, fungicides can be applied when rust is a threat, rather than at a stage of growth, which maximizes the benefit of a fungicide to protect corn yield potential. Fungicides are being marketed for applications at early stages of vegetative growth; however, these applications do not provide season-long protection for late season diseases like southern rust. This presentation will cover field identification of southern rust and efficacy of commercially available fungicides to manage southern rust. Further, the effects of fungicides applied at low, moderate, and high levels of rust severity at different stages of corn maturity will be discussed. Given that corn future prices will likely be similar to last year; variable input cost like fungicides will need to be used judiciously to keep production costs as low as possibly for maximum profit. Southern rust can be a devastating disease, but with a good understanding of disease development and implementing sound control options at the right time southern rust can be successfully managed to protect corn yield potential.