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Soybean diseases: Their importance and yield impact in the U.S. and the world
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The collection of estimates of soybean yield losses in the U.S. has been ongoing since the Southern Soybean Disease Workers began collecting loss estimates in 1974. In general, various methods are employed by Extension plant pathologists with soybean responsibilities to arrive at estimates of loss associated with foliar and root diseases as well as plant-parasitic nematodes. In addition to the loss estimates collected in the southern U.S., estimates of the losses associated with plant diseases and nematodes have been collected throughout the northern soybean producing region as well as some Canadian Provinces. Less frequent attempts to capture the loss estimates from other soybean producing countries have previously been conducted. The specific methods for collecting estimates differ by state, but in general rely on field-based observations from either fungicide efficacy trial plots, official variety trials, diagnostic laboratory samples, and information from other Extension-related personnel. Even though the list of diseases that have been deemed to be economically important to track has changed over time, a total of 26 diseases are now monitored annually throughout the U.S. and Canada. Most recently, the annual estimates have been combined from multiple years and published in peer-reviewed journals. Local as well as national promotion boards rely on the loss estimates to guide the need for research based on the losses associated with specific diseases. Moreover, the importance of tracking plant diseases helps provide important information to researchers and soybean breeders on the frequency and severity of economically important plant diseases. Over the most recent published time period, between 2010 and 2014, the estimated economic losses as a result of the monitored soybean diseases combined across the U.S. and Ontario was approximately \$60.66/acre.