A Re-evaluation of Fungicide Efficacy for Leaf Spot Control in North Carolina

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Disease management programs depend on the availability of fungicides that consistently provide high levels of disease control when applied according to the label. However, growers, county agents, consultants, and researchers recently have reported poor leaf spot control in some locations in NC. Loss of fungicide efficacy relative to established standards has already been documented in Georgia. However, changes in efficacy can be hard to document in typical field trials, where fungicides usually are tested as part of a complete management program that includes two or more products. Thus, typical testing methods may not detect ineffective fungicides if they mixed or alternated with more effective products within a spray program. Likewise, it can be difficult to isolate efficacy problem from environmental effects when fungicides are applied at different points in the growing season as part of a multi-product spray program. Evaluation of control problems from on-farm reports is difficult for the same reasons. These difficulties were addressed by comparing fungicides in a season-long application trial. An untreated control and nine fungicides commonly used for peanut disease control were applied three times at two-week intervals, starting on August 1, 2017 at Lewiston, NC. The experiment was conducted at the Peanut Belt Research Station in four replicate randomized complete blocks of the cultivar Bailey. Incidence of leaf spot (predominantly late leaf spot) and defoliation were evaluated on a percentage scale on September 19. Incidence of Sclerotinia blight was determined by counting infected plants just prior to digging on October 4, and stem rot incidence was counted on inverted plants immediately after digging. Plots were harvested and yield data collected. Data were subjected to analysis of variance and means compared. Late leaf spot pressure was extremely high, with an average of more than 90% defoliation observed in untreated controls. Moderate to high levels of late leaf spot also developed in fungicide-treated plots. Treatments with the group 11 fungicides Abound and Headline did not reduce leaf spot incidence compared to the untreated control. More than 20% defoliation was seen with Headline and Fontelis and more than 80% defoliation was found with Abound. Compared to more effective treatments, yield was reduced with Abound and to a lesser extent with Headline. Although Bravo provided excellent leaf spot control, yield was not correspondingly high. This probably can be attributed to the high incidence of Sclerotinia blight in this treatment. Results provide preliminary evidence for loss of efficacy of some fungicides against late leaf spot in NC, particularly those belonging to FRAC group 11.