

Comparison of Standard and Newly Registered Peanut Fungicides against *Athelia rolfsii* Through a Laboratory Bioassay using Detached Plant Tissues

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Stem rot of peanut, caused by *Athelia rolfsii*, is one of the most important fungal diseases impacting peanut production worldwide. Foliar applied fungicides can be used to manage the disease, and several new fungicide products have been labeled for stem rot control in peanuts over the past several years. The objective of this study was to compare the fungicidal, residual, and potential systemic activity of standard and new stem rot fungicides using a laboratory bioassay of detached plant tissues inoculated with *A. rolfsii*. Peanut plants grown in the field were treated with eight different fungicides approximately 90 days after planting. Plant tissues were sampled weekly for five weeks following fungicide treatment so that the fungicidal activity of the different fungicides could be assessed at 1, 2, 3, 4, and 5 weeks after application. For the laboratory bioassay, peanut plants were separated into the second newest fully mature leaf present at the time of fungicide application, the newest fully mature leaf present at the time of sample collection, upper stem, and crown. Each tissue type was inoculated with *A. rolfsii* and then incubated at 30°C. Lesion length was measured two days after inoculation, and percent inhibition of fungal growth by each fungicide relative to the control was calculated. Differences in fungal inhibition were compared among fungicides, plant tissues, and over time. All fungicides provided the greatest inhibition of *A. rolfsii* on the leaf tissues that were present at the time of fungicide application, followed by the newly grown leaf and upper stem. Little inhibition of fungal growth occurred on the crown. Inhibition of *A. rolfsii* decreased at a similar rate over time across all fungicides tested. Among the fungicides evaluated, succinate dehydrogenase inhibitors provided less basipetal protection of the upper stems than quinone outside inhibitor or demethylation inhibitor fungicides. The properties of different fungicides characterized in this study, which included several newly registered products, are useful in developing fungicide application recommendations that maximize fungicide efficacy for control of both foliar and soilborne peanut diseases.