

## **Effect of Plant Microclimate Condition Changes Due to Late Leaf Spot on the Development of Southern Stem Rot in Peanut Field**

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Southern stem rot (SSR) of peanut caused by *Sclerotium rolfsii*, is commonly influenced by microclimate conditions. Meanwhile, defoliation from late leaf spot (LLS), caused by *Cercosporidium personatum*, alters canopy structure and has the potential to affect microclimates. A better understanding of the potential interaction between SSR and LLS through such mechanism as microclimate modification will contribute to improved disease management. In 2017, field experiments were conducted to investigate the effect of LLS on peanut microclimates and SSR severity. To encourage different levels of LLS defoliation, 3 management programs (3, 4 and 5 chlorothalonil applications) were applied across 4 varieties via a split-plot design in two fields. Defoliation was rated every 2 weeks from 75 days after planting (DAP) to harvest. Canopy temperatures were measured from 33 DAP until inversion when SSR severity was rated. Defoliation began to significantly vary by management program and variety starting from 103 DAP ( $P = 0.0388$ ). Management program resulted in significantly different cumulative degree days ( $DD_{15}$ ) starting from 117 DAP ( $P = 0.0470$ ). Near 135 DAP, logistic function slopes of daily canopy temperature increase were significantly different among treatments ( $P < 0.05$ ). Cumulative daily soil moisture losses within the period between two rainfalls at late season (105 – 111 DAP) were significantly different among treatments ( $P = 0.0181$ ). Although LLS was observed to be capable of significantly affecting peanut microclimates, it did not show a substantial effect on SSR development.