

# EVALUATION OF DAY VERSUS NIGHT SPRAYS FOR OPTIMIZING PERFORMANCE AND ECONOMIC RETURNS FROM FUNGICIDES ON PEANUT

Tim Brenneman, UGA Tifton

Peanut plants develop a very thick canopy that can be difficult to penetrate with foliar sprays. Reaching the lower plant parts is important for controlling soilborne pathogens because that is where they infect. One concept for overcoming this limitation is to apply sprays at night when the peanut leaves are folded, producing a much sparser canopy. This allows more of the sprayed fungicide to penetrate the canopy and reach the lower portions of the plant where white mold and limb rot occur. We have shown that there is also less evaporation of spray, as well as less photolysis, i.e. the breakdown of fungicide due to exposure to UV light. Research to date has shown that the combination of these effects can often result in improved control of stem rot and higher yields from the same fungicide applied at night versus during the day.

On farm trials again showed that response to night sprays is dependent upon the disease pressure in a given field. In large plots sprayed by commercial equipment, one well-rotated field had low disease pressure in all treatments and the night sprayed plots were similar to the day-sprayed. In another field in the same county with severe white mold pressure, night sprays of tebuconazole + chlorothalonil had less disease and higher yields than the same product applied in the day. The mean increased pod yield of night sprays over day sprays at this farm over 2 years of testing was 800 lb/A.

In small plots with severe white mold pressure night spraying with Provost, Artisan and Headline gave an average improvement in white mold control of 44%, 48%, and 35%, respectively, versus the same sprays applied during the day, and also improved pod yield. These treatments were applied in a split plot of irrigated and nonirrigated plots. Surprisingly, similar differences were found between night and day sprays in both the irrigated and nonirrigated peanuts, although due to the wet year there was not much difference in total water applied to the field. Systemic fungicides gave similar leaf spot control with day and night sprays, but contact fungicides such as chlorothalonil or Elast gave less control of leaf spot when applied at night,

Headline was shown to consistently perform better on white mold with night sprays in two other trials. In one test the current formulation gave 69% better white mold control at night and improved yield by more than 1000 lb/A. An experimental Headline formulation which apparently has less retention on the plant gave a 28% improvement and a 442 lb/A higher yield. Both formulations gave excellent leaf spot control applied either time.

A final test comparing different spray tips, pressures and volumes showed a similar level of soilborne disease control with Headline regardless of the spray volume ranging from 20-38 GPA, pressure ranging from 30-50 psi, or spray tips including a flat fan, hollow cone, or air induction flat fan. Across all spray methods the average white mold incidence was reduced by 12% and yields increased by 491 lb/A with the night versus day sprays.