

## **Sensitivity of *Athelia rolfsii* from Commercial and Research Peanut Fields in Georgia to Mefentrifluconazole and Benzovindiflupyr**

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The control of *Athelia rolfsii* in peanut is largely dependent on fungicides. DMIs and SDHIs have been heavily used for more than 20 years on peanuts and rotational crops. This intensive exposure raises concern of fungicide resistance, including effects on newer products such as Provysol (mefentrifluconazole), a DMI, and Elatus (benzovindiflupyr + azoxystrobin), an SDHI plus a QoI. *A. rolfsii* isolates were collected from 14 fields across South Georgia where disease control was less than expected, and their sensitivities were assessed using in vitro assays. The sensitivity of 256 isolates (about 20 per location) was first assessed using one discriminatory dose of benzovindiflupyr at 0.20 ppm and mefentrifluconazole at 0.50 ppm. The range of percent inhibition for benzovindiflupyr across all locations was 44.00-62.80 (LSD=5.85), with a mean value of 50.58 ppm, whereas the range for mefentrifluconazole was 41.52-61.89 (LSD=7.26), with a mean value of 53.26 ppm. Though there were some significant differences among locations for both benzovindiflupyr and mefentrifluconazole, the differences were not to a magnitude where major differences in disease control across locations would be expected. The sensitivity of isolates from grower fields was generally similar to those from long-term research sites with peanut monoculture. There was also a weak positive correlation in the sensitivities of benzovindiflupyr and mefentrifluconazole ( $r = 0.17009$ ,  $p \leq 0.0001$ ), suggesting that there could be some low levels of cross-resistance between the DMI and SDHI fungicide classes.

EC50 values were then determined for five of the most and least sensitive isolates using concentrations of benzovindiflupyr and mefentrifluconazole that ranged from 0.01 to 10.00 ppm. The EC50 values for the mefentrifluconazole sensitive isolates ranged from 0.08 to 0.10 ppm and had an average of 0.09 ppm, whereas the less sensitive isolates had EC50 values ranging from 0.11 to 0.22 ppm and had an average of 0.14 ppm. The EC50 values for the benzovindiflupyr sensitive isolates ranged from 0.002 to 0.03 ppm and had an average of 0.02 ppm, whereas the less sensitive isolates had EC50 values ranging from 0.05 to 0.07 ppm with an average of 0.06 ppm. Studies are currently underway to determine if these differences in sensitivity have any impact on the level of disease control from applications in the field.