

## **Photosynthetic Efficiency and Yield of Peanut Plants Treated with Dodine**

**C. ROSSI\***, C. PILON, A.K. CULBREATH, T. BRENNEMAN.

University of Georgia, Tifton Campus - Tifton, Georgia- USA

Peanut plants are generally susceptible to leaf spot, which can reduce considerably the final yield. The most widely used fungicide in the control of this disease is chlorothalonil. However, Europe is anticipating a ban of this chemistry due to its high risk to amphibians and fish. Dodine is an alternative fungicide with a similar range of activity. But this chemistry was reported to suppress photosynthesis in pecan. Therefore, studies on photosynthetic activity in peanut plants treated with dodine are needed before recommending its application. The objectives of this research were to evaluate the effects of dodine on leaf photosynthesis of peanuts and validate the potential of dodine as a replacement of chlorothalonil. The experiment was conducted at the University of Georgia Lang Farm in Tifton using the cultivar Georgia-06G. The experimental design was a randomized complete block. Treatments consisted of four fungicides, 1) chlorothalonil (Bravo 720 g/L) at 1.2 L/ha (full rate), 2) chlorothalonil at 0.6 L/ha (half rate), 3) dodine (Elast 400 g/L) at 1.7 L/ha ml (full rate), and 4) dodine at 0.8 L/ha (half rate). Total chlorophyll and total carotenoid were collected from 37 days after planting (DAP) until 135 DAP. A LI-6800 portable photosynthesis system with a fluorometer chamber was used to obtain weekly net photosynthesis rate. Final yield was collected at harvest. Pod maturity profile was also assessed at harvest by using the Peanut Profile Board. Significant differences were not observed in net photosynthesis among the four treatments over the season. Total chlorophyll and total carotenoids as well as maturity profile and yield were not significantly different between the treatments, indicating that these parameters were not affected by the fungicides and rates. In summary, results demonstrated that the use of full and half rate of chlorothalonil or dodine did not impact the photosynthetic activity of peanut plants, pod maturity profile, and final yield. Hence, dodine could be considered as a potential replacement of chlorothalonil in the control of leaf spot in peanut. This study will be replicated in 2021 season to validate the results obtained in 2020.