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NPB Grant Final Report
APPA-RIA03PA-Pnut DS
Auburn University
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Grant Title: Modification of AU-Pnut Disease Advisory and Assessment of Fungicide Inputs on the Control of Foliar and Soilborne Diseases, as well as on the Yield of Selected Disease Resistant Peanut Genotypes.

Key Cooperators:
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Objectives:

1. Evaluate new and registered fungicides for the control of leaf spot diseases, peanut rust, southern stem rot, Rhizoctonia limb rot, and Cylindrocladium root rot on commercial lines and experimental genotypes in an irrigated and dryland production system.
2. Compare the efficacy of fungicides applied according to the original and modified AU-Pnut Disease Advisory on commercial lines and peanut genotypes with partial resistance to leaf spot and southern stem rot at locations in Alabama and Georgia.
3. Determine the economic return from the used of the original and modified AU-Pnut disease advisory.

1. In a cotton – peanut rotation system where significant leaf spot and southern stem rot pressure was expected, the commercial peanut cultivars with the best disease resistance package were AP-3, GA01R, GA02C, GA03L and Tifrunner. Under heavy TSWV pressure, all had superior yields compared with the current industry standard Georgia Green. At sites where TSWV was absent, yield of Georgia Green and the above peanuts was similar. Yield gains with a Bravo/Abound/Moncut program compared with Bravo alone on the above peanut lines was minimal. Overall, the risk of a sizable yield loss from increasing application intervals for a Bravo Ultrex, Folicur 3.6F, or Abound 2SC treatment program from 2- to 4-weeks occurred on the disease resistant Florida C-99R peanut once in every three years. Performance of the AU-Pnut advisory against leaf spot and white mold with Bravo, Folicur, Headline and Abound programs was comparable to the level of disease control obtained with a 2-week calendar program employing these same fungicides. When applied at 2- and 3-week intervals, the efficacy of Headline 2.09E for the control of leaf spot diseases is similar but a big decline in the level of control was seen when this fungicide was applied as part of a monthly fungicide program. On Florida C-99R, no advantage is disease control or yield response was seen when the application rate for Headline was increased from 9 to 15 fluid ounces per acre.

2. Reports for most 2005 cultivar and fungicide experimental studies were published in the electronic APS publications Biological and Cultural Tests for the Control of Plant Diseases, as well as Fungicide and Nematicide Tests, respectively, as well as in two volumes of the 2005 Peanut Disease Control Field Trial Results (http://www.ag.auburn.edu/aaes/communications/entplp/entplp9a.pdf). An on-line

Alabama Experiment Station Bulletin summarizing the results of a project supported by NPB funds titled 'Comparison of Abound 2SC calendar and AU-Pnuts advisory programs for the control of early leaf spot and white mold' (http://www.ag.auburn.edu/aaes/communications/bulletins/bull660.pdf) and 'Comparison of calendar and AU-Pnuts advisory schedules for Bravo Ultrex, Folicur 3.6F, and on disease control and yield of Florida C-99R peanut' (http://www.ag.auburn.edu/aaes/communications/bulletins/bull661.pdf) were published. Results from other research supported by this NPB grant were incorporated by R. C. Kemerait, T. B. Brenneman, and A. K. Culbreath in the 2006 Peanut Update Georgia Coop. Ext. Sys. and revision of the Peanut Disease Risk Index (http://www.ugapeanuts.com).

This report was prepared by Austin Hagan

**Report to the**
**Southeastern Peanut Research Initiative**
**Final Report for period ending June 30, 2006**
(Following Grant Extension)
**On Progress on Research Supported by the Grant**

# "Modification of AU-Pnut Disease Advisory and Assessment of Fungicide Inputs on the Control of Foliar and Soilborne Diseases, as well as on the Yield of Selected Disease Resistant Peanut Genotypes"


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Update:

A. Field experiments were conducted in Tifton and Plains, GA in 2005 to evaluate a range of rates of tebuconazole (Folicur) on leaf spot diseases. In Tifton, 14.4 fl oz (2X rate) of Folicur was less effective for leaf spot control than 1.5 pt of the Bravo standard. In Plains, 14.4 oz of Folicur was similar to the Bravo standard for leaf spot control. Indications from field studies indicate substantial shifts in the sensitivity of early and late leaf spot pathogens to tebuconazole. This corroborates in vitro results on sensitivity to tebuconazole in another study headed by Dr. Katherine Stevenson.

B. Addition of adjuvants to tebuconazole (Folicur) had little effect on leaf spot control in tests where tebuconazole was not highly effective alone. Addition of low rates of Bravo, or Topsin fungicides to the standard 7.2 fl oz of Folicur, however, improved leaf spot control compared to the Folicur alone, and the combinations provided levels of control that would be considered acceptable.

C. Several new cultivars (Georgia-01R, Georgia-03L, Georgia-05E, Attaboy, Tifrunner, Georganic) and advanced breeding lines from multiple breeding programs show promise for production with delayed fungicide spray initiation and/or extended spray intervals.

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