Peanut Disease Control Field Trials
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ALABAMA AGRICULTURAL EXPERIMENT STATION

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PEANUT DISEASE CONTROL FIELD TRIALS, 2015

A.K. Hagan, K.L. Bowen, and H.L. Campbell

INTRODUCTION

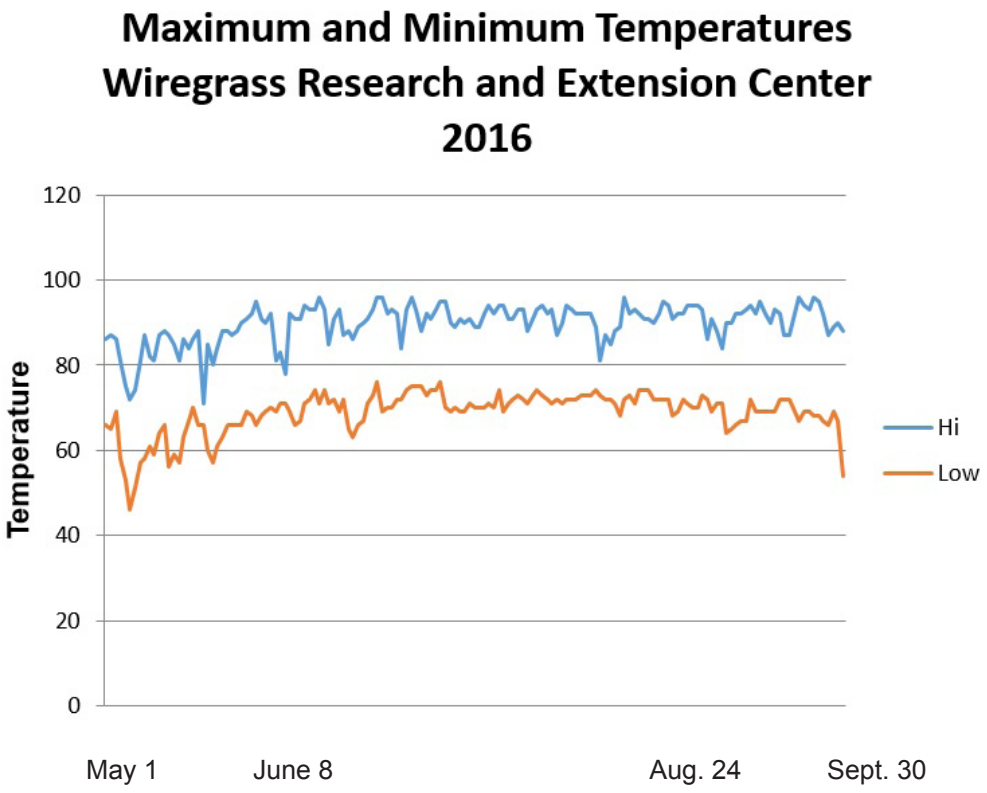
Fungicides, cultural practices, and resistant cultivars are available for the control of damaging diseases and nematode pests that can limit peanut yield. A management program that incorporates these practices can enhance the control of diseases and nematode pests and can increase crop yield and profit potential.

In order to provide timely information concerning disease management practices, Alabama Agricultural Experiment Station personnel conducted foliar and soil-borne disease, as well as nematode control trials at the Wiregrass Research and Extension Center (WREC) in Headland, Ala., at the Gulf Coast Research and Extension Center (GCREC) in Fairhope, Ala., at the Brewton Agricultural Research Unit in Brewton (BARU), Ala., at the E.V. Smith Research Center and the Plant Breeding Unit (PBU) in Tallassee, Ala. This report summarizes the results of those trials.

During the 2016 production season, at the WREC, temperatures were near normal historical averages (Fig. 1) and monthly rainfall totals were at or above normal historical averages throughout the entire growing season (Fig. 2). As a result of the higher than normal rainfall in September, leaf spot severity increased exponentially in all trials and soil-borne disease incidence was higher to that observed in previous years due to higher soil temperatures and rainfall and this adversely affected yield.

At the GCREC, temperatures were near historical averages throughout the entire growing season (Fig. 1) and rainfall totals were at or above normal throughout the entire growing season (Fig. 2). Less than normal rainfall throughout during the growing season in August and September decreased leaf spot severity throughout the season. Despite rainfall, rust never developed in the plots. Despite the high temperatures and rainfall, stem rot incidence was similar to that which had been previously observed and yield was not negatively impacted in most plots.

Fig. 1. Daily maximum and minimum temperatures from May 1 – Sept. 30



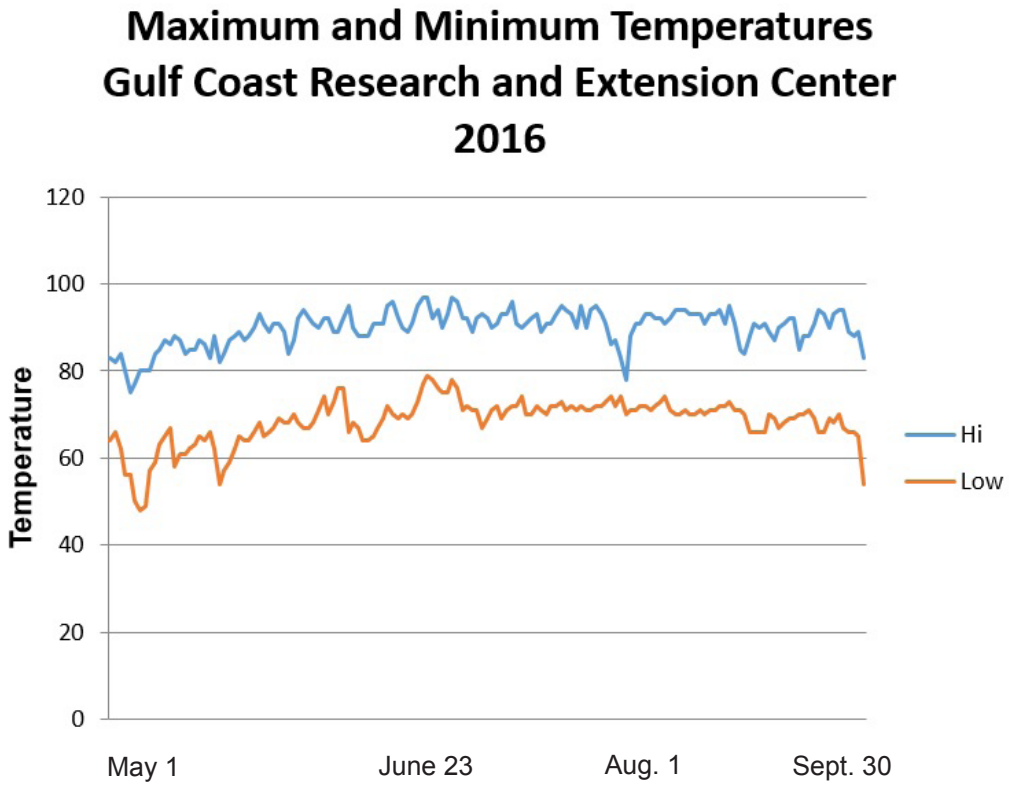
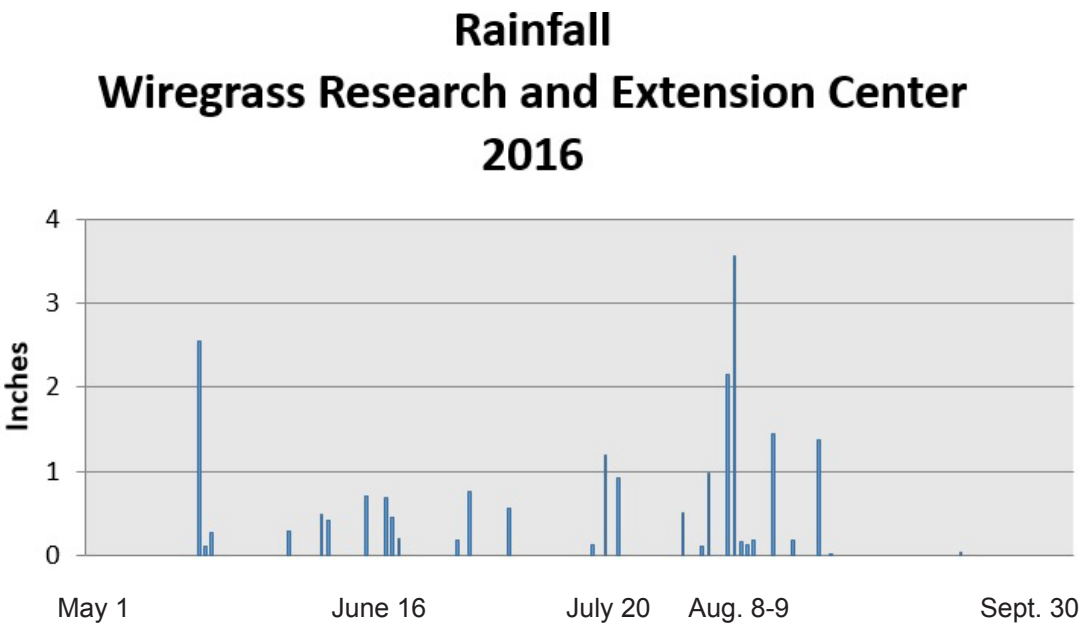
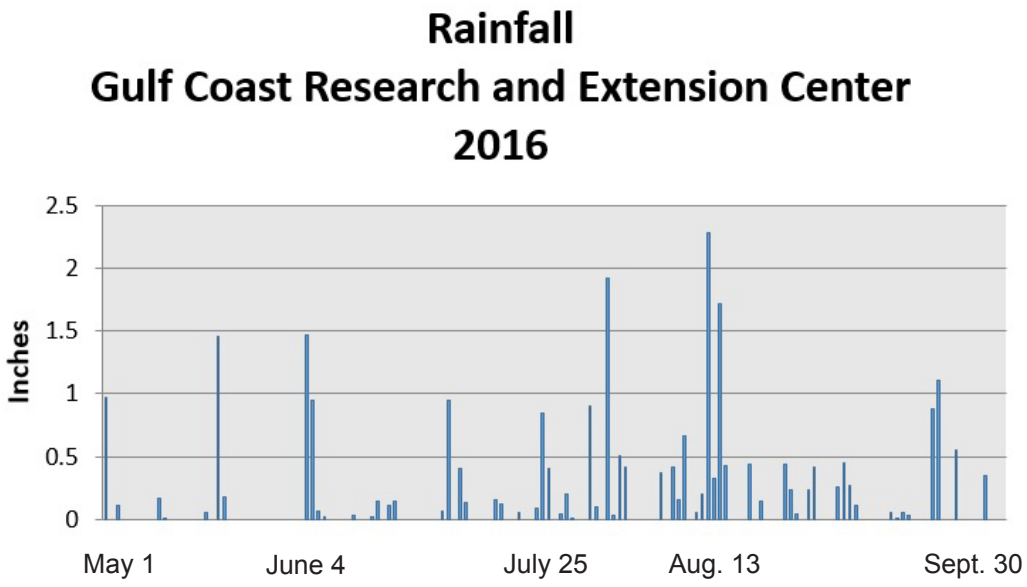


Fig. 2. Daily precipitation (inches) from May 1 – Sept. 30.





EVALUATION OF MAZINGA AND EXPERIMENTAL FUNGICIDES FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate experimental fungicides SA-0450108, SA-0040309, and SA-0450109 and compare them against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 26 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3-feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule on 1) June 27, 2) July 15, 3) July 25, 4) Aug. 16 5) Aug. 25 6) Sept. 6, and 7) Sept. 19 using a four row tractor-mounted boom sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 30 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept. 30.

Stem rot incidence was assessed on Oct. 10 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 14, and yields were reported at 5.79% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P < 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August, and September. Monthly rainfall totals were near normal during June, July and August but below normal in September. Early leaf spot appeared early and rapidly progressed until September when late leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. Of the fungicide programs tested, all gave similar leaf spot control when compared with the season-long Echo 720 program. The treatments that included either Mazinga or the other experimental fungicides gave similar levels of leaf spot control. Lower incidence of stem rot was observed with all treatment programs compared with the untreated control. Stem rot incidence was similar for all fungicide treatments to that reported for the season-long Echo only standard. Rust was severe in the unsprayed plots. However, all fungicide programs reduced rust intensity. Yield for all treated plots was higher than that obtained for the unsprayed control. Highest yield was obtained with the Echo 720/Provost and SA-0040309/Muscle ADV/ Echo 720 programs. When compared to the season-long Echo 720 standard, yields for all other fungicide programs were similar.

EVALUATION OF MAZINGA AND EXPERIMENTAL FUNGICIDES FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control		6.8 a[4]	6.8 a	4.6 a	3654 e
Mazinga 32.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.8 bcd	0.8 b	1.0 b	5582 abc
Mazinga 32.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.8 bcd	1.3 b	1.0 b	5647 abc
SA-0450108 30.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	3.0 bc	0.5 b	1.0 b	5768 ab
SA-0450108 25.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	3.0 bc	0.5 b	1.0 b	5768 ab
SA-0450108 20.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.5 d	1.1 b	1.0 b	5477 a-d
SA-0040309 16.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.9 bcd	0.8 b	1.0 b	5784 a
SA-0040309 21.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.9 bcd	1.8 b	1.0 b	5042 d
SA-0450109 10.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.8 bcd	2.0 b	1.0 b	5509 a-d
Headline 2.09SC 6.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	2.8 bcd	2.1 b	1.0 b	5130 cd
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.6 cd	1.0 b	1.0 b	5873 a
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	2.8 cd	0.7 b	1.0 b	5582 abc
Echo 720 24.0 fl oz Abound 2.08SC 18.2 fl oz + Alto 0.83SL 5.5 fl oz	1,2,4,6,7 3,5	3.0 bc	2.0 b	1.0 b	5405 a-d
Echo 720 24.0 fl oz Echo 720 24.0 fl oz + Conovy 26.0 fl oz	1,2,4,6,7 3,5	3.1 b	1.3 b	1.0 b	5227 cd
Echo 720 24.0 fl oz	1-7	2.9 bcd	1.8 b	1.1 b	5259 bcd
LSD (P ≤ 0.05)		*0.4*	*1.8*	*0.7*	*524*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF APROACH AND PRIAXOR FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate Aproach and Priaxor and compare them against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 26 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule on 1) June 28, 1.5) July 6, 2) July 14, 3) July 26, 4) Aug. 12, 5) Aug. 25, 6) Sept. 6, and 7) Sept. 19 using a four row tractor-mounted boom sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Oct. 3 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Oct. 3.

Stem rot incidence was assessed on Oct. 11 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 14 and yields were reported at 8.56% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August and September. Monthly rainfall totals were near normal during June, July, and August but below normal in September. Early leaf spot appeared the first week of August in the non-treated controls and rapidly progressed until the first week of September when late leaf spot

appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. Priaxor/ Elatus/Echo+Alto/Echo, Echo/Priaxor, Priaxor/Echo/Priaxor, Priaxor/Muscle/Priaxor/ Echo, and Echo/Provost had lower leaf spot severity than did the season-long Echo 720 standard. All others gave similar leaf spot control as that observed with the season-long Echo 720 program. With the exception of Echo/Echo 720+Convoy and Echo 720 standard, stem rot incidence was lower for all other treatment programs compared with the untreated control. Stem rot incidence with Echo/Headline, Echo/Priaxor, Echo/ Muscle ADV, and Echo/Provost was similar to that observed with the season-long Echo only standard. All fungicide programs reduced rust intensity compared with the untreated controls. The season-long Echo standard gave poorer rust control than all remaining fungicide programs. With the exception of Echo 720/Echo 720 + Convoy and Echo 720 standard, yield for all treated plots was higher compared with the non-treated control. Highest yield was obtained with the Echo 720/Fontelis and Priaxor/Muscle3.6F/Priaxor/ Echo 720 programs. Among the remaining treatment programs yield was similar.

EVALUATION OF APROACH AND PRIAXOR FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control		6.3 a[4]	4.7 a	5.0 a	4807 e
Aproach 5.5 fl oz + Alto 0.83SL 5.5 fl oz Fontelis 16.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5 6,7	2.9 bcd	0.5 ef	1.0 c	5986 ab
Aproach Prima 6.8 fl oz Fontelis 16.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5 6,7	2.9 bcd	0.3 ef	1.0 c	5743 abc
Priaxor 4.0 fl oz Fontelis 16.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5, 6,7	2.9 bcd	0.7 def	1.0 c	5937 ab
Priaxor 4.0 fl oz Elatus 45WG 9.5 oz Echo 720 16.0 fl oz + Alto 0.83SL 5.5 fl oz Echo 720 24.0 fl oz	1,2 3,5 4, 6,7	2.8 cd	1.5 c-f	1.0 c	5639 abc
Echo 720 24.0 fl oz Headline 2.09SC 9.0 fl oz	1,2,4,6,7 3,5	3.0 bc	2.0 b-e	1.0 c	5760 abc
Echo 720 24.0 fl oz Priaxor 6.0 fl oz	1,2,4,6,7 3,5	2.8 cd	2.3 bcd	1.0 c	5437 bcd
Priaxor 6.0 fl oz Echo 720 24.0 fl oz	1.5,3,5 4,6,7	2.9 bcd	0.8 c-f	1.0c	5784 abc
Priaxor 6.0 fl oz Echo 720 24.0 fl oz Priaxor 8.0 fl oz	1.5,3 2,4,6,7 5	2.7 d	1.3 c-f	1.0c	5969 ab
Echo 720 24.0 fl oz Elatus 45WG 9.5 oz	1,2,4,6,7 3,5	3.0 bc	0.2 f	1.0 c	5752 abc
Priaxor 6.0 fl oz Muscle 3.6F 7.2 fl oz Priaxor 8.0 fl oz Echo 720	1.5 3,5 4 6,7	2.8 cd	1.5 c-f	1.0 c	6115 a
Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.1 bc	2.5 bc	1.0 c	5639 abc
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.8 cd	1.8 b-f	1.0 c	5784 abc
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	2.9 bcd	0.8 c-f	1.0 c	6187 a
Echo 720 24.0 fl oz Echo 720 24.0 fl oz + Convoy 26.0 fl oz	1,2,4,6,7 3,5	3.1 bc	3.3 ab	1.0 c	5308 cde
Echo 720 24.0 fl oz	1-7	3.2 b	3.5 ab	2.0 b	4993 de
LSD (P ≤ 0.05)		*0.3*	*1.7*	*0.8*	*583*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF ELATUS 45WG AND A19649 FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate the new fungicide Elatus 45WG and the experimental fungicide A19649 and compare them against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 26 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule on EE) June 17, 1) June 28, 1.5) July 6, 2) July 14, 3) July 26, 4) Aug. 12, 4.5) Aug. 16, 5) Aug. 25, 6) Sept.6, and 7) Sept. 22 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 inches apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 26 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept. 26.

Stem rot incidence was assessed on Oct. 11 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 14 and yields were reported at 7.36% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August and September. Monthly rainfall totals were near normal during June, July, and August, but below normal in September. Early leaf spot appeared the first week

of August and rapidly progressed until the first week of September when late leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. Of the fungicide programs tested, only Alto+Bravo(1,7)/Elatus+A19649(3,5) and Alto+Bravo(1.5)/Elatus+A19649(3,4.5)/Bravo(6,7) had lower leaf spot severity ratings than did the season-long Echo 720 standard. All other fungicide programs gave similar leaf spot control as was observed with the season-long Echo 720 standard. Stem rot incidence was lower with all fungicide programs compared with the untreated control. Disease incidence among the fungicide programs was similar to that observed for the season-long Echo only standard. All fungicide programs reduced rust intensity compared with the untreated control. Among the fungicide programs, rust control was similar. With the exception of Echo 720/Echo 720 + Convoy treatment, yield for all fungicide treated plots was higher than that obtained from the untreated control. Highest yield was obtained with the Alto+BravoWS(1,2,7)/Elatus+A19649(3,5) program. Among the remaining fungicide programs yields were similar to the Bravo WS only standard.

EVALUATION OF ELATUS 45WG AND A19649 FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control		5.7 a[4]	3.8 a	5.5 a	4921 d
Bravo WS 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	2.8 bc	0.7 bc	1.0 b	5566 bc
Bravo WS 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.7 bcd	1.3 b	1.0 b	5840 ab
Priaxor 6.0 fl oz Bravo WS 24.0 fl oz Priaxor 8.0 fl oz Bravo WS 24.0 fl oz + Muscle 3.6F 7.2 fl oz	1.5 3,7 4 5,6	2.7 bcd	1.1 bc	1.0 b	5509 bc
Elatus 45WG 7.3 oz Bravo WS 24.0 fl oz	1,3,5 2,4,6,7	2.8 bc	0.3 bc	1.0 b	5614 bc
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz	1,6 2,4,7 3,5	2.7 bcd	0.0 c	1.0 b	5614 bc
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz	1,6 2,7 3,4.5	2.7 bcd	0.5 c	1.0 b	5780 bc
Elatus 45WG 9.5 oz Alto 0.83SL 5.5 floz + Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz Bravo WS 24.0 fl oz	EE 1.5 3 4,5,6,7	2.7 bcd	0.5 bc	1.0 b	5780 ab
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz + A19649 3.42 fl oz	1,7 3,5	2.8 bc	0.3 bc	1.0 b	5961 ab
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz + A19649 3.42 fl oz Bravo WS 24.0 fl oz	1.5 3,4.5 6,7	2.5 d	0.5 bc	1.0 b	5824 ab
Elatus 45WG 7.3 oz + A19649 3.42 fl oz Bravo WS 24.0 fl oz Elatus 45WG 7.3 oz	1.5 2,4,6,7 3	2.5 d	0.7 bc	1.0 b	5969 ab
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz Elatus 45WG + A19649 3.42 fl oz	1 2,7 3,5	2.7 bcd	0.1 bc	1.0 b	5780 ab
Bravo WS 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	2.8 bc	1.0 bc	1.0 b	5550 bc
Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz + Convoy 26.0 fl oz	1,2,4,6,7 3,5	2.9 b	1.1 bc	1.1 b	5243 cd
Bravo WS 24.0 fl oz	1-7	2.8 bc	1.1 bc	1.0 b	5574 bc
LSD (P ≤ 0.05)		*0.3*	*1.1*	*0.4*	*497*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF CHLOROTHALONIL ALTERNATIVES FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L.Wells

Objective: To evaluate Elast, Mancozeb, and CuproFix Ultra as alternatives to chlorothalonil and compare them against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 26 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule on 1) June 28, 2) July 15, 3) July 25, 4) Aug. 16, 5) Aug. 29, 6) Sept. 7 and 7) Sept. 20 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 in apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 26 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept. 26.
Stem rot incidence was assessed on Oct. 11 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 14 and yields were reported at 7.36% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August and September. Monthly rainfall totals were near normal during June, July, and August but below normal in September. Early leaf spot appeared the first week of August

and rapidly progressed in the untreated control until the first week of September when late leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. Of the fungicide programs tested, the programs that included either Elast, Mancozeb, or CuproFix Ultra gave similar leaf spot control as that observed with the season-long Echo 720 program. With the exception of the Absolute/Muscle ADV/Echo program, stem rot incidence was lower for all fungicide programs than the untreated control. Incidence among the remaining fungicide programs was similar to that observed with the season-long Echo standard. All treatment programs controlled rust intensity compared with the untreated control. Among the fungicide programs, rust severity was higher with the CuproFix Ultra + Topsin 4.5F program when compared to the season-long Echo only standard. The level of rust control provided by the remaining programs was similar. The highest yields obtained with Elast/ Elast + Custodia were matched by all fungicide programs except for the season-long Elast program as well as Mancozeb + Topsin, CuproFix Ultra + Topsin, CuproFix Ultra + Topsin/ Mancozeb + Muscle,and Echo/Fontelis. Yields recorded for Elast season-long along with Mancozeb + Topsin, CuproFix Ultra + Topsin, and CuproFix Ultra + Topsin/Mancozeb + Topsin did not differ from the untreated control.

EVALUATION OF CHLOROTHALONIL ALTERNATIVES FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control		6.3 a[4]	2.0 ab	5.1 a	5435 d
Elast 15.0 fl oz	1-7	3.3 bc	0.8 bcd	1.0 c	5692 cd
Elast 15.0 fl oz Elast 15.0 fl oz + Custodia 15.5 fl oz	1,2,4,6,7 3,5	3.0 bc	0.5 cd	1.0 c	6388 a
Elast 15.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.5 b	1.3 a-d	1.0 c	6050 abc
Maancozeb 2.0 lb	1-7	3.5 b	0.7 cd	1.2 c	5961 abc
Macozeb 2.0 lb + Topsin 4.5F 10.0 fl oz	1-7	2.8 c	1.5 abc	1.3 c	5719 cd
Mancozeb 2.0 lb + Topsin 4.5F 10.0 fl oz Mancozeb 2.0 lb + Muscle 3.6F 7.2 fl oz	1,2,7 3,4,5,6	3.1 bc	1.0 a-d	1.0 c	5977 abc
CuproFix Ultra 2.0 lb + Topsin 4.5F 10.0 fl oz	1-7	3.5 b	1.5 abc	3.3 b	5679 cd
CuproFix Ultra 2.0 lb + Topsin 4.5F 10.0 fl oz Mancozeb 2.0 lb + Muscle 3.6F 7.2 fl oz	1,2,7 3,4,5,6	3.2 bc	0.5 cd	1.3 c	5897 bcd
Absolute 500F 3.5 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	3.3 bc	2.2 a	1.0 c	5969 abc
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	3.0 bc	0.2 d	1.0 c	5856 bcd
Echo 720 24.0 fl oz	1-7	3.3 bc	0.8 bcd	1.0 c	6244 ab
LSD (P ≤ 0.05)		*0.6*	*1.3*	*1.1*	*486*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

COMPARISON OF FUNGICIDE R_x PROGRAMS FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate and compare four different fungicide R_x programs for control of early and late leaf spot, rust, stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 16 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule on 1) June 21, 2) July 6, 3) July 18, 4) Aug. 2 , 5) Aug. 17, 6) Aug. 29, and 7) Sept. 12 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 inches apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 21 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept. 19.

Stem rot incidence was assessed on Oct. 3 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 7 and yields were reported at 5.85% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August, and September. Monthly rainfall totals were near normal during June,

July, and August but below normal in September. Early leaf spot appeared in the non-treated control in the first week of August and rapidly progressed until the first week of September when late leaf spot appeared but slowed due to late season drought. Of the disease index programs tested, all gave better leaf spot control than was observed in the non-treated control plots. Rust appeared in the non-treated control plots but was not observed in any of the treated plots. Among the low risk index programs, only the four-application treatment of Priaxor/Priaxor+Bravo/Bravo did not control better than did the 4 application treatment of Bravo WS. All other low risk treatment programs controlled leaf significantly better than the Bravo only treatment. Among the medium risk programs, with the exception of the Priaxor/Muscle ADV/Priaxor/Bravo medium risk program, all others controlled leaf spot better than the Bravo only treatment. Among the high risk programs, all gave comparable leaf spot control as did the season long Bravo only treatment. Stem rot incidence was lower than in previous years. However, the Bravo only treatments all had higher incidence of stem rot than did any of the other treatments including the non-treated control. Among the remaining treatment programs, the Bravo+Alto/Elatus/Bravo (high), MuscleADV/Fontelis/BravoWS (medium), and MuscleADV/Fontelis/BravoWS (high) programs had lower incidence of stem rot than any of the other treatment programs. With the exception of the low and medium risk Bravo only treatments, all treatment programs yielded higher than did the untreated control plots. Among all treatments, the high risk Bravo+Alto/Elatus/BravoWS program yielded highest. Among the low and medium risk programs, all yielded higher than did the low and medium risk Bravo only treatments. When the high risk programs were compared, the highest yield was with the Bravo+Alto/Elatus/BravoWS program had the highest yields followed by the MsucleADV/Fontelis/Bravo program.

Summary: Generally in a year when the disease pressure is high and conditions are conducive to leaf spot, the more fungicide applications will result in better disease control and higher yields. Among the R_x programs tested, those that included Elatus in either the low, medium, or high risk programs outperformed the other R_x programs both in disease control and also had higher yields.

COMPARISON OF FUNGICIDE Rx PROGRAMS FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Spray Index	Disease ratings		
			Leaf Spot[1]	Stem Rot[2]	Pod Yield lb/a
Untreated Control			6.8 a[3]	3.5 c-f	3597 h
Bravo WS 24.0 fl oz Provost 433SC 10.7 fl oz	1,7 3,5	Low 4 appl	3.6 cde	3.3 c-f	4824 de
Proline 480SC 5.7 fl oz Provost 433 SC 10.7 fl oz Bravo WS 24.0 fl oz	1 2.5,4,5.5 7	Med 5 appl	3.1 e-i	2.5 def	4848 cde
Proline 480SC 5.7 fl oz Provost 433 SC 10.7 fl oz Bravo WS 24.0 fl oz	1.5 3,4,5,6 7	High 6 appl	2.7 hi	2.7 c-f	5042 bcd
Headline 2.09SC 9.0 fl oz Convoy 21 fl oz + Bravo WS 24 fl oz + Topsin 5 fl oz Convoy 21 fl oz + Headline 9 fl oz Topsin + Bravo WS 5 fl oz + 16 fl oz	1 3 5 7	Low 4 appl	3.5 def	4.3 bcd	4638 def
Headline 2.09SC 9.0 fl oz Convoy + Bravo + Topsin 21 + 16 + 5 fl oz Convoy + Headline 21 + 9.0 fl oz Convoy 16 fl oz + Bravo WS 24 fl oz Topsin 5 fl oz + Bravo WS 16 fl oz	1.5 2.5 4 5.5 7	Med 5 appl	2.8 ghi	3.8 cde	4904 cde
Headline 2.09SC 9.0 fl oz Convoy 13 fl oz + Bravo 16 fl oz + Topsin 5 fl oz Convoy 13 fl oz + Bravo 24 fl oz Convoy 16 fl oz + Headline 9 fl oz Bravo WS 24 fl oz	1.5 3,6 4 5 7	High 6 appl	3.1 e-i	2.8 c-f	4864 c-e
Bravo 16 fl oz + Alto 5.5 fl oz Elatus 45WG 9.5 oz	1,7 3.5	Low 4 appl	3.3 efg	3.0 c-f	5526 ab
Bravo 16 fl oz + Alto 5.5 fl oz Elatus 45WG 9.5 oz Bravo WS 24.0 fl oz	1,7 2.5, 5.5 4	Med 5 appl	3.2 e-h	2.7 c-f	5518 ab
Bravo 16 fl oz Alto 5.5 fl oz Elatus 9.5 oz Bravo WS 24.0 fl oz	1,6 3,5 2,4,7	High 7 appl	2.5 i	1.1 f	5905 a
Muscle ADV 32.0 fl oz Fontelis 12.0 fl oz Bravo 24.0 fl oz	1 3,5 7	Low 4 appl	3.2 e-h	3.0 c-f	4872 cde
Muscle ADV 32.0 fl oz Fontelis 16.0 fl oz Bravo 24.0 fl oz	1, 4 2.5,5.5 7	Med 5 appl	3.5 def	3.3 c-f	4695 def
Muscle ADV 32.0 fl oz Fontelis 16.0 fl oz Bravo 24.0 fl oz	1,2 3,4,5 6,7	High 7 appl	2.7 hi	1.5 ef	5388 abc
Priaxor 6 fl oz Priaxor 6 floz + Bravo 24 fl oz Muscle ADV 32 fl oz	1 3 5,7	Low 4 appl	4.1 bc	3.7 c-f	4429 ef
Priaxor 6 fl oz Muscle ADV 32 fl oz Priaxor 8 fl oz Bravo 24 fl oz	1 2.5, 5.5 4 7	Med 5 appl	3.5 def	3.3 c-f	4816 de
Priaxor 6 fl oz Muscle ADV 32 fl oz Priaxor 8 fl oz Bravo 24 fl oz	1.5 3,5,6 4 7	High 6 appl	3.1 e-h	3.5 c-f	4759 def
Bravo WS 24.0 fl oz	1,3,5,7	Low (4)	4.5 b	6.8 ab	3751 gh
Bravo WS 24.0 fl oz	1,2.5,4,5.5,7	Med (5)	3.9 cd	7.1 a	3864 gh
Bravo WS 24.0 fl oz	1-7	High (7)	3.0 f-i	5.1 abc	4251 fg
LSD (P ≤ 0.05)			*0.5*	*2.5*	*547*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF PROVOST OPTIMA, PROLINE 480SC, AND VELUM TOTAL FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate Provost Optima, Proline 489SC, and Velum Total and compare them against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 5 at the Wiregrass Research and Extension Center in Headland, Ala,, in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule on 1) June 21, 2) July 6, 3) July 18, 4) Aug. 2 , 5) Aug. 17, 6) Aug. 29, and 7) Sept. 12 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 in apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept.19 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept. 19.

Stem rot incidence was assessed on Oct. 22 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Sept. 26 and yields were reported at 10.4% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during Jun, Jul, August and September. Monthly rainfall totals were near normal during June, July and August, but below normal in September. Early leaf spot appeared in the non-treated control in the first week of August and rapidly progressed until the first week of September when late leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. Of the fungicide programs tested, the Absolute/Provost Optima/Abound/Echo program gave the best leaf spot control. With the exception of the Echo 720/Muscle ADV and Echo 720/Echo 720 + Convoy programs, all of the remaining fungicide programs gave similar leaf spot control compared with the season-long Echo 720 standard. With the exception of the Echo 720/Muscle ADV, Echo 720/Echo 720/Echo 720 + Convoy, and Echo 720 programs, stem rot incidence was lower for all treatment programs compared with the untreated control. Disease incidence among the remaining fungicide programs was below that observed for the season-long Echo 720 standard. All fungicide programs reduce rust intensity compared with the untreated control. Highest yield was observed with the Velum Total + Proline/Echo 720/Provost Optima/Abound program. With the exception of Echo 720/Provost Optima,, Echo 720/Muscle ADV, Echo 720/Echo 720 + Convoy, and season-long Echo 720 programs, yield for all remaining programs was higher than the untreated control.

EVALUATION OF PROVOST OPTIMA, PROLINE 480SC, AND VELUM TOTAL FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control		6.5 a[4]	5.0 a	4.7 a	4638 e
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.9 de	1.3 cd	1.0 b	4880 de
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz	1,2,7 3,5 4,6	2.9 de	1.0 d	1.0 b	5824 abc
Velum Total 18.0 fl oz Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz	IF 1,2,7 3,5 4,6	3.0 cde	1.3 cd	1.0 b	5606 bc
Proline 480SC 5.7 fl oz Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz	IF 1,2,7 3,5 4,6	2.9 de	1.5 cd	1.0 b	5348 cd
Velum Total 18.0 fl oz + Proline 480SC 5.7 fl oz Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz	IF 1,2,7 3,5 4,6	3.0 cde	0.8 d	1.0 b	6244 a
Velum total 18.0 fl oz Echo 720 24.0 fl oz Propulse 10.0 fl oz Abound 18.2 fl oz Provost Optima 10.7 floz	IF 1,2,7 3 4 5,6	3.2 cd	2.3 bcd	1.0 b	5848 abc
Absolute 500F 3.5 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz Echo 720 24.0 fl oz	1,2 3,5 4,6 7	2.7 e	1.7 cd	1.0 b	5469 bcd
Velum Total 18.0 fl oz Absolute 500F 3.5 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz Echo 720 24.0 fl oz	IF 1,2 3,5 4,6 7	3.0 cde	2.1 bcd	1.0 b	5639 abc
Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.9 b	3.5 abc	1.0 b	4606 e
Echo 720 24.0 fl oz Abound 2.08sC 18.2 fl oz + Alto 0.83SL 5.5 fl oz	1,2,4,6,7 3,5	3.1 cde	1.8 cd	1.0 b	6066 ab
Echo 720 24.0 fl oz Echo 720 24.0 fl oz + Convoy 32.0 fl oz	1,2,4,6,7 3,5	3.1 cde	5.0 a	1.0 b	4936 de
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	3.8 b	1.0 d	1.0 b	5921 abc
Echo 720 24.0 fl oz	1-7	3.8 b	4.3 ab	1.0 b	4921 de
LSD (P ≤ 0.05)		*0.3*	*2.4*	*0.3*	*625*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF EXPERIMENTAL PEANUT VARIETIES USING DIFFERENT FUNGICIDE INPUTS FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate two experimental peanut cultivars MRS 37 and MRS 38 and compare them against peanut cultivar 'Georgia 06G' at varying fungicide inputs for control of early and late leaf spot, rust, and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 06G', 'MRS 37', and 'MRS 38' were planted on May 13 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14 day schedule on 1) June 21, 2) July 6, 3) July 18, 4) Aug. 2 , 5) Aug. 17, 6) Aug. 29, 7) Sept. 12, and 8) Sept. 27 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 in apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Oct. 11 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Oct. 11.

Stem rot incidence was assessed on Oct. 12 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Sept. 26 and yields were reported at 6.06% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June,

July, August and September. Monthly rainfall totals were near normal during June, July, and August but below normal in September. Early leaf spot appeared in the non-treated control in the first week of August and rapidly progressed until the first week of September when late leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Among the three cultivars tested the highest leaf spot severity was observed with 'Georgia 06G'. Leaf spot intensity observed in 'MRS 38' was less than that observed with either 'Georgia 06G' or 'MRS 37'. Leaf spot control with the treatment programs was similar among all cultivars. Rust severely impacted all the untreated plots across all cultivars. However, when fungicide applications were applied to the cultivars, rust was kept under control. Highest stem rot incidence was observed in the non-treated 'Georgia 06G' plots and was higher than all other plots except the 'Georgia 06G' full-season Echo 720 only plots. Stem rot severity among all other treatment programs and cultivars had lower incidence of stem rot than 'Georgia 06G'. Leaf spot intensity impacted yield in all three cultivars and yield in the non-treated control plots among all cultivars was similar. When fungicides were applied to all cultivars, yield was increased and the highest yield occurred in the 'Georgia 06G' plots treated with Absolute/Provost Optima/Abound/Echo which was significantly higher than that observed in 'MRS 37' and 'MRS 38'.

EVALUATION OF EXPERIMENTAL PEANUT VARIETIES USING DIFFERENT FUNGICIDE INPUTS FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Cultivar	Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
			Leaf Spot[1]	Rust[2]	Stem Rot[3]	
MRS 37	Untreated Control	---	6.9 ab[4]	5.7 a	1.5 cd	3525 fg
	Echo 720 24.0 fl oz	1-7	3.4 cd	1.3 c	1.2 cd	4154 cde
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.4 cd	1.0 c	0.8 d	4509 bcd
	Absolute 500F 3.5 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz Echo 720 24.0 fl oz	1,2 3,5 4,6 7	3.2 cd	1.0 c	0.8 d	4655 bc
MRS 38	Untreated Control	---	6.3 b	4.7 b	1.5 cd	3404 g
	Echo 720 24.0 fl oz	1-7	3.5 cd	1.2 c	1.5 cd	3988 def
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.8 c	1.0 c	0.8 d	4317 cd
	Absolute 500F 3.5 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz Echo 720 24.0 fl oz	1,2 3,5 4,6 7	3.2 cd	1.0 c	0.8 d	4453 cd
GA 06G	Untreated Control	---	7.1 a	6.6 a	6.4 a	3785 efg
	Echo 720 24.0 fl oz	1-7	3.4 cd	1.4 c	4.8 ab	5024 b
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.4 cd	1.0 c	3.8 bc	5024 b
	Absolute 500F 3.5 fl oz Provost Optima 10.7 fl oz Abound 18.2 fl oz Echo 720 24.0 fl oz	1,2 3,5 4,6 7	3.0 d	1.2 c	2.8 bcd	6311 a
LSD (P ≤ 0.05)			*0.6*	*0.9*	*2.4*	*522*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Rust rated using the ICRISAT 1-9 rust rating scale.
[3]Stem rot incidence is expressed as the number of disease loci per 60 foot of row.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF HELMSTAR PLUS AND CUSTODIA FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate Helmstar Plus and Custodia and compare them against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: PPeanut cultivar 'Georgia 09B' was planted on May 26 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03 Foliar fungicides were applied on a 14-21 day schedule 1) June 27 2) July 15 3) July 25 4) Aug. 16 5) Aug. 25 6) Sept. 6 and 7) Sept. 19 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 inches apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 30 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept.30.

Stem rot incidence was assessed on Oct. 11 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 11 and yields were reported at 6.36% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August and September. Monthly rainfall totals were near normal during June, July, and Augut but below normal in September. Early leaf spot appeared the first week of August and rapidly progressed in the untreated control until the first week of September when late

leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. The fungicide programs which included Helmstar Plus or Custodia gave leaf spot control that was similar to that observed with the season-long Echo 720 program. The best leaf spot control was with the Priazxor/Muscle ADV/Priaxor/Echo 720 program. With the exception of the Echo 720/Muscle ADV and Echo 720/Echo 720 + Convoy, all of the remaining programs gave the same level of leaf spot control as the season-long Echo 720 program. Stem rot incidence was lower with all fungicide programs compared with the untreated control. Among the treatment programs, except for the Echo 720/Helmstar Plus, Echo 720/Provost, and Echo 720/Muscle ADV programs, incidence among the remaining treatment programs was lower than that observed with the season-long Echo 720 standard. All treatment programs controlled rust intensity compared with the untreated control. With the exception of the Echo 720/Muscle ADV and Echo 720 only program, yield for all remaining programs was higher than that obtained with untreated control. Similar yields were obtained for the season-long Echo 720 standard and all other fungicide programs.

EVALUATION OF HELMSTAR PLUS AND CUSTODIA FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control	---	5.8 a[4]	2.8 a	5.7 a	4663 b
Echo 720 24.0 fl oz Helmstar Plus 13.0 fl oz	1,2,7 3,4,5,6	3.1 cde	1.0 bcd	1.0 b	5542 a
Echo 720 24.0 fl oz Custodia 15.5 fl oz	1,2,7 3,4,5,6	3.4 bc	0.2 d	1.2 b	5743 a
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.9 def	1.5 b	1.3 b	6026 a
Echo 720 24.0 fl oz Artisan 3.6E 26.0 fl oz	1,2,7 3,4,5,6	3.5 b	0.5 cd	1.3 b	5639 a
Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.3 bcd	1.2 bc	1.0 b	5437 ab
Echo 720 24.0 fl oz Abound 18.2 fl oz + Alto 0.83SL 5.5 fl oz	1,2,4,6,7 3,5	2.8 ef	0.5 cd	1.0 b	5780 a
Echo 720 24.0 fl oz Echo 720 24.0 fl oz + Convoy 32.0 fl oz	1,2,4,6,7 3,5	2.9 def	0.2 d	1.0 b	5639 a
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	2.9 def	0.3 cd	1.0 b	6034 a
Priaxor 6.0 fl oz Muscle ADV 32.0 fl oz Priaxor 8.0 fl oz Echo 720 24.0 fl oz	1,2 3,5 4 6,7	2.6 f	0.5 cd	1.0 b	5780 a
Echo 720 24.0 fl oz	1-7	3.2 bcd	1.8 b	1.5 b	5299 ab
LSD (P ≤ 0.05)		*0.4*	*0.9*	*0.8*	*775*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF THE EXPERIMENTAL FUNGICIDE NNF-1681SC FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L.Wells

Objective: To evaluate the experimental fungicide NNF-1681SC and compare it against currently registered fungicides for control of foliar diseases and stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Georgia 09B' was planted on May 16 at the Wiregrass Research and Extension Center in Headland, Ala., in a field cropped to peanut every other year. Seed were sown at a rate of approximately five seed per foot of row in a Dothan sandy loam (OM<1%) and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. On May 10, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual were applied and incorporated to the test area for pre-emergent weed control. On May 13, 3 oz/A of Valor were applied to test area after planting for weed control. On June 15, 1.5 pt/A of 2,4 DB was applied for weed control. Thrips were controlled with an in-furrow application of 5.0 lb/A of Thimet 20G at planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and irrigated 1 inch on July 29 and Aug. 31. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-21 day schedule 1) June 22, 1.5) June 27, 2) July 6, 3)July 18, 4) Aug. 2, 5) Aug. 17, 6) Aug. 30, and 7) Sept. 12 using a four row tractor-mounted boom sprayer with three TX8 nozzles spaced 12 inches apart per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 20 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants). Rust was rated using the ICRISAT 1-9 rating scale on Sept. 20.

Stem rot incidence was assessed on Sept. 30 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Oct. 11 and yields were reported at 6.36% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August and September. Monthly rainfall totals were near normal during June, July, and August but below normal in September. Early leaf spot appeared early and rapidly progressed until September when late leaf spot appeared but slowed due to late season drought. Stem rot incidence was lower than in previous years. Leaf spot intensity and rust severity was lower for all fungicide programs than the untreated control, which suffered considerable premature defoliation. Among the fungicide programs which included NNF-1681SC, the one which included three applications of Bravo WS gave leaf spot control that was similar to that observed with the season-long Bravo WS program. All of the remaining programs gave similar leaf spot control to that observed with the season-long Bravo WS program. Stem rot incidence was lower with all treatment programs compared with the untreated control. Among the treatment programs, Priaxor/NNF-1681SC/Bravo WS (6 applications), Priaxor/Alto+Bravo+Convoy/Bravo+Convoy/Bravo, Priaxor/Elatus/Bravo,and Bravo/Fontelis had lower incidence of stem rot than that observed with the season-long Bravo WS standard. All treatment programs controlled rust intensity compared with the untreated control. Only the treatment program which included 2 applications of NNF-1681SC and one application of Bravo WS had higher rust severity than that observed with the other treatment programs. All treatment programs yielded higher than the untreated control. Among the treatment programs Priaxor/Alto+Bravo+Convoy/Bravo+Convoy/Bravo, Priaxor/Elatus/Bravo,and Bravo/Fontelis yielded higher than that obtained with the season-long Bravo WS only program.

EVALUATION OF THE EXPERIMENTAL FUNGICIDE NNF-1681SC FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WRECC

Treatment and Rate/A	Application Timing	Disease ratings			Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	Rust[3]	
Untreated Control	---	6.1 a[4]	8.1 a	4.1 a	3735 d
Priaxor 8.0 fl oz Alto 0.83SL 5.5 fl oz + Bravo WS 16.0 fl oz BravoWS 24.0 fl oz	1.5 3,5 4,6,7	3.2 c	4.7 bc	1.0 c	4687 c
Priaxor 8.0 fl oz Alto 0.83SL 5.5 fl oz + Bravo WS 16.0 fl oz + Convoy 32.0 fl oz BravoWS 24.0 fl oz	1.5 3,5 4,6,7	3.0 c	5.2 b	1.0 c	4776 c
Priaxor 8.0 fl oz NNF-1681SC 40.5 fl oz Bravo WS 24.0 fl oz	1.5 3,5 7	4.0 b	3.3 bcd	1.7 b	4437 c
Priaxor 8.0 fl oz NNF-1681SC 40.5 fl oz Bravo WS 24.0 fl oz	1.5 3,5 4,6,7	3.2 c	2.1 cd	1.0 c	4784 c
Priaxor 8.0 fl oz Alto 0.83SL 5.5 fl oz + Bravo WS 16.0 fl oz + Convoy 32.0 fl oz Bravo WS 24.0 fl oz + Convoy 16.0 fl oz Bravo WS 24.0 fl oz	1.5 3,5 4,6 7	2.9 c	1.3 d	1.0 c	5372 b
Priaxor 8.0 fl oz Bravo WS 14.0 fl oz+ Convoy 32.0 fl oz Bravo WS 24.0 fl oz	1.5 3,5 4,6,7	2.9 c	4.3 bcd	1.0 c	4767 c
Priaxor 8.0 fl oz Elatus 45WG 9.5 oz Bravo WS 24.0 fl oz	1.5 3,5 4,6,7	2.9 c	2.1 cd	1.0 c	5921 a
Bravo WS 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	2.9 c	0.8 d	1.0 c	5856 ab
Bravo WS 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.9 c	2.7 bcd	1.0 c	4735 c
Bravo WS 24.0 fl oz	1-7	3.0 c	4.8 b	1.0 c	4799 c
LSD (P ≤ 0.05)		*0.6*	*2.6*	*0.6*	*526*

[1]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[2]Stem rot incidence is expressed as the number of disease loci per 60 foot of row.
[3]Rust rated using the ICRISAT 1-9 rust rating scale.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

YIELD AND DISEASE RESPONSE OF RUNNER PEANUT VARIETIES TO A STANDARD AND INTENSIVE FUNGICIDE PROGRAM IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen and L. Wells

Objective: Compare the yields and level of leaf spot and white mold control obtained with a standard and an intensive fungicide program on selected commercial peanut varieties at the Wiregrass Research and Extension Center in southeast Alabama.

Production Methods: The study area at the Wiregrass Research and Extension Center, which is maintained in a one-year out peanut-cotton rotation, was turned with a moldboard plow and worked to seed bed condition with a disk harrow. Rows were laid off with a KMC strip till rig with rolling baskets. Runner peanut varieties were planted on May 16 at 6 seed per foot of row in a Dothan sandy loam (OM<1%) at the Wiregrass Research and Extension Center in Headland, Ala. Thimet 20G at 5 pounds per acre was applied in-furrow for thrips control. A pre-plant incorporated application of 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual Magnum III on May 10 was made for weed control. Escape weeds were plowed with flat sweeps or pulled by hand. The study site received the following rain amounts (in inches): Aug. 24 - 0.5, Sept. 2 - 1.0, Sept. 9 - 1.0, Sept. 16 - 0.5, Sept. 22 - 0.5, and Oct. 4 - 0.5. A factorial design arranged as a split-plot was used with peanut variety as whole plots and fungicide program as sub-plots.

Whole plots were randomized in four complete blocks. Sub-plots consisted of four 30-ft rows spaced 3 feet apart that were randomized within each whole plot. While the standard fungicide program consisted of seven applications of 1.5 pt/A Bravo Weather Stik 6F, the intensive fungicide program included two initial applications of 1.5 pt/A Bravo Weather Stik 6F followed by 1.1 pt/A of Abound 2SC, 1.5 pt/A of Bravo Weather Stik 6F + 21 oz/A of Convoy, 1.1 pt/A of Abound 2SC, 1.5 pt/A of Bravo Weather Stik 6F + 21 oz/A of Convoy, and two final applications of 1.5 pt/A of Bravo Weather Stik 6F. Fungicides were applied on 1) June 23, 2) July 7, 3) July 19, 4) Aug. 3, 5) Aug. 17, 6) Aug. 31, and 7) Sept. 15 with a tractor mounted boom sprayer with three TX-8 nozzles per row calibrated to deliver 15 gallons of spray volume per acre at 45 psi.

Disease Assessment: Tomato spotted wilt (TSW) hit counts (1 hit was defined as < 1 feet of consecutive severely TSW-damaged plants per row) were made on Sept. 6. Early and late leaf spot diseases were rated together using the 1-10 Florida peanut leaf spot scoring system on Sept. 6 and Sept. 23, with late leaf spot being the primary disease observed at the final rating date. The scoring system is as follows: 1 = no disease, 2 = very few leaf spots, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting and < 10% defoliation, 5 = leaf spots noticeable and < 25% defoliation, 6 = leaf spots numerous and < 50% defoliation, 7 = leaf spots very numerous and < 75% defoliation, 8 = numerous leaf spots on few remaining leaves and <90% defoliation, 9 = very few remaining leaves covered with leaf spots and < 95% defoliation,

and 10 = plants defoliated or dead. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)].

White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion on Sept. 26 for all varieties except for Georgia-12Y, which was inverted on Oct. 6. Plots were mechanically combined several days after inversion. Yields were reported at 8.6% moisture. Significance of factor effects and interactions was evaluated using PROC GLIMMIX in SAS. Statistical analyses were calculated on rank transformations for non-normal data for leaf spot defoliation and white mold incidence, but back transformed data are presented. Means were separated using Fisher's least significant difference (LSD) test ($P \leq 0.05$) unless otherwise indicated.

Weather: Rainfall totals during the study period were below to well below the historical average for May, June, September, and October but were near average for July and August. Temperatures were at or above the season average throughout the production season.

Results: While TSW pressure was low, significant differences in the incidence of this disease among peanut varieties were noted. 'FloRun 157' had a higher incidence of TSW than all varieties except for 'TUFRunner 727'. 'Georgia-12Y' and 'AU NPL 17' were free of TSW symptoms. An additional five varieties has TSW ratings that did not significantly differ from 'Georgia-12Y' and 'AU NPL 17'. Leaf spot defoliation differed significantly by peanut variety and fungicide program. For 'Georgia-09B' and 'Georgia-13M,' the level of premature defoliation attributed to primarily late leaf spot was greater for the standard than intensive fungicide program. In contrast, similarly high % defoliation values were obtained for both the standard and intensive fungicide programs on 'TUFRunner 511'. No differences in leaf spot-incited defoliation were noted between fungicide programs on 'FloRun 107', 'FloRun 157', 'Georgia-06G', 'Georgia-12Y', and 'Georgia-14N', 'TUFRunner 297', 'TUFRunner 727', '14AU/NPL 10', and 'AU NPL 17'. Overall, 'TUFRunner 511' was the most leaf spot susceptible of the varieties screened followed by 'Georgia-13M'. White mold incidence on '14AU/NPRL 10' was matched by all varieties except for 'TUFRunner 727', 'Georgia-12Y', and 'Georgia-14N'. Significant differences in yield were observed between peanut varieties with 'AU NPL 17', 'Georgia-06G', 'TUFRunner 297', and 'TUFRunner 511' having similarly high yields. The low yield reported for '14AU/NPRL 10' was matched by 'Georgia-12Y' and 'Georgia-13M'.

No differences in TSW or white mold incidence were observed. Yields were greater for the intensive than standard fungicide program.

Summary: With the exception of leaf spot control on several varieties, the level of disease control provided by the standard and intensive fungicide programs did not greatly differ but higher yields were obtained for the latter than former program. The newly released 'AU NPL 17' matched and often exceeded the yield response of peanut varieties released by University of Georgia and University of Florida. Other high yielding varieties included 'Georgia-06G', 'TUFRunner 297' and 'TUFRunner 511'.

YIELD AND DISEASE RESPONSE OF RUNNER PEANUT VARIETIES TO A STANDARD AND INTENSIVE FUNGICIDE PROGRAM IN SOUTHEAST ALABAMA, WREC

Source of Variation	Maturity group	TSW # hits[1]	Leaf spot %defoliation[2]		White mold # hits/60 ft[3]	Yield lb/A
Variety	---	4.82***[4]	1.41		2.42*	6.58***
Fungicide	---	2.19	0.21		2.88^	9.43***
Variety x Fungicide	---	2.31	1.77^		1.64	0.61
Peanut Variety[5]			***Standard***	***Intensive***		
14AU/NPRL 10	Mid	0.4 cde[6]	3.4 b-g	4.6 b-f	4.5 a	4834 e
AU NPL 17	Mid	0.0 e	4.6 a-f	4.7 c-h	2.3 ab	6274 a
FloRun 107	Mid	1.0 bcd	3.4 b-g	3.8 b-g	1.6 ab	5651 bc
FloRun 157	Mid	2.0 a	5.0 a-f	3.5 d-h	2.1 ab	5518 cd
Georgia-06G	Mid	0.5 cde	4.3 b-f	1.9 gh	2.3 ab	6056 ab
Georgia-09B	Mid	1.0 bcd	7.5 ab	1.6 h	1.4 abc	5584 bc
Georgia-12Y	Late	0.0 e	2.5 fgh	3.5 d-h	0.3 cd	5306 cde
Georgia-13M	Mid	0.1 e	23.7 a	3.1 fgh	1.8 abc	5045 de
Georgia-14N	Mid	0.6 cde	2.5 fgh	3.3 e-h	0.0 d	5421 cd
TUFRunner 297	Mid	0.3 de	5.4 a-e	3.8 b-g	0.8 a-d	6243 a
TUFRunner 511	Mid	1.1 bc	8.9 a-d	28.3 abc	1.6 ab	6050 ab
TUFRunner 727	Mid	1.6 ab	3.0 e-h	1.6 h	0.5 bcd	5725 bc
Fungicide Program						
Standard	--	0.8 a	--		1.9 a	5483 b
Intensive	--	0.6 a	--		1.3 a	5797 a

[1] Incidence of TSW was recorded on Sept. 6.
[2] Leaf spot disease intensity was rated using the Florida 1 to 10 scale on Sept. 23 and converted to % defoliation values.
[3] White mold incidence, which is expressed as the number of hits per 60 ft of row, was recorded for all varieties except for Georgia-12Y on Sept. 26 and for the latter variety on Oct. 6.
[4] Significance of F values at the 0.10, 0.05, 0.01, and 0.001 levels is indicated by ^, *, **, or ***, respectively.
[5] All cultivars are runner market types.
[6] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

IMPACT OF PLANTING DATE, VARIETY, AND SEEDING RATE ON DISEASES AND YIELD OF THREE PEANUT VARIETIES IN A DRYLAND PRODUCTION SYSTEM, WREC

A.K. Hagan, H.L. Campbell and L. Wells

Objective: Determine the impact of seeding rate on plant populations, thrips feeding damage, occurrence of tomato spotted wilt (TSW), leaf spot, white mold, as well as the yield of selected commercial peanut cultivars in a dryland production system at the Wiregrass Research and Extension Center in Headland, Ala..

Production Methods: The study area at the Wiregrass Research and Extension Center, which is maintained in a peanut-cotton rotation, was turned with a moldboard plow and worked to seed bed condition with a disk harrow. Rows were laid off on April 20 with a KMC strip till rig with rolling baskets. On April 21 and May 23, the peanut varieties 'Georgia-06G', 'Georgia-09B', and 'Georgia-12Y' were planted at rates of 3, 4, 6, and 8 seed per foot of row on single rows using conventional tillage practices in a Dothan fine sandy loam (OM<1%) soil at the Wiregrass Research and Extension Center. Thimet 20G at 5 pounds per acre was applied in-furrow for thrips control. Weed control was obtained with a pre-plant, incorporated application of 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual Magnum III. Soil fertility recommendations of the Alabama Cooperative Extension System were followed. The study area was not irrigated. A factorial design arranged in a split-split plot had planting date as whole plots, peanut cultivar as the split plot, and seeding rates as the split-split plot treatment. Whole plots were randomized in four complete blocks. Individual split-split plots, which consisted of four 30-foot rows spaced 3 feet apart, were randomized within each whole plot. Chlorothalonil at 1.5 pt/A was applied for leaf spot control on June 22, July 6, July 19, Aug. 3, Aug. 19, Aug. 30, and Sept. 12 with a tractor mounted boom sprayer with 3 TX-8 nozzles per row at 15 gallons of spray volume per acre at 45 psi. Stand counts were recorded on May 6 for the first date of planting (DOP) and June 7 for the second DOP. 'Georgia-06G' and 'Georgia-09B' were inverted at the first DOP on Sept. 6 with 'Georgia-12Y' being inverted on Sept. 20. For the second DOP, all varieties were dug on Oct. 6.

Disease Assessment: Tomato spotted wilt (TSW) hit counts (1 hit was defined as < 1 feet of consecutive severely TSW-damaged plants per row) were made on Sept. 1 and Oct. 6 for the first and second DOP. Early and late leaf spot diseases were rated together on Sept. 1 and Oct. 6 using the 1-10 Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting and < 10% defoliation, 5 = leaf spots noticeable and < 25% defoliation, 6 = leaf spots numerous and < 50% defoliation, 7 = leaf spots very numerous and < 75% defoliation, 8 = numerous leaf spots on few remaining leaves and <90% defoliation, 9 = very few remaining leaves covered with leaf spots and < 95% defoliation, and 10 = plants defoliated or dead. Late leaf spot was

the primary disease observed at the final rating date. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)]. White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion at the first DOP on Sept. 6 for all varieties except for 'Georgia-12Y', which was inverted on Sept. 16 along with the second DOP on Oct. 6. Plots were mechanically combined several days after inversion. Yields were reported at 7 % moisture. Significance of factor effects and interactions was evaluated using PROC GLIMMIX in SAS. Statistical analyses were calculated on rank transformations for non-normal data for leaf spot defoliation and white mold incidence, but back transformed data are presented. Means were separated using Fisher's least significant difference (LSD) test ($P \leq 0.05$) unless otherwise indicated.

Weather: Rainfall totals during the study period were below to well below the historical average for May, June, September, and October but were near average for July and August. Temperatures were at or above the season average throughout the production season.

Results: Seedling populations differed by planting date, variety, seeding rate (Table 1). Due to an interaction between variety and seeding rate, data for these two variables are separated. Significantly greater seedling populations of 3.2 seedlings per foot were noted at the May as compared with a seedling population of 3.09 seedlings per foot at the April planting date. Lower seedling populations were recorded for Georgia-06G than Georgia-09B or 'Georgia-12Y' at the 3, 4, and 6 seed per foot, which the latter two often having similarly greater seedling populations (Table 2). At 8 seed per foot, greater seedling populations were noted for 'Georgia-09B' compared with 'Georgia-06G' and 'Georgia-12Y' with both of the latter varieties having similar plant populations at the highest seeding rate.

TABLE 1. F-VALUES FROM GENERALIZED LINEAR MIXED MODEL ANALYSIS FOR EFFECTS OF PLANTING DATE, PEANUT CULTIVAR, AND SEEDING RATE ON STAND DENSITY, TSW INCIDENCE, LEAF SPOT INTENSITY, WHITE MOLD INCIDENCE AND YIELD AT THE WREC IN 2016

Source of Variance	Seedling Population	TSW[1]	Leaf spot % defoliation	White Mold	Yield
Planting Date	9.32** [2]	6.94*	64.46***	4.71^	8.84**
Variety	46.87***	18.06***	48.52***	12.73***	1.04
Planting Date × Variety	0.11	4.60*	17.37***	4.92**	19.49***
Seeding Rate	503.73***	2.63^	0.11	0.23	1.70
Planting Date × Seeding Rate	0.62	0.59	0.43	0.01	0.86
Variety x Seeding Rate	3.30**	0.98	0.34	0.74	1.00
Planting Date × Variety × Seeding Rate	0.72	2.60*	0.83	0.35	0.49

[1] TSW = tomato spotted wilt.
[2] Significance at the 0.10, 0.05, 0.01, and 0.001 levels is indicated by ^, *, **, or ***, respectively.

TABLE 2. PLANT POPULATIONS DIFFER BY SEEDING RATE AND PEANUT VARIETY

Seeding Rate #/ft	Seedling Population (# seedlings per row foot)[1]		
	Georgia-09B	Georgia-09B	Georgia-09B
3	2.11 h [2]	2.39 g	2.38 g
4	2.64 f	2.98 d	2.81 e
6	3.14 d	3.53 c	3.52 c
8	3.85 b	4.43 a	4.01 b

[1] Stand counts were recorded on May 6 for the first DOP (April 21) and June 7 for the second DOP (May, 23) planting dates.
[2] Means followed by the same letter are not significantly different according to Fisher's LSD ($P \leq 0.05$).

Overall, TSW pressure was low across all varieties at both planting dates regardless of the seeding rate. Incidence of TSW differed by planting date, variety and seeding rate (Table 1). Incremental increases in seedling populations were noted with rising seeding rates on all varieties. For 'Georgia-12Y', similarly low TSW indices were recorded at both planting dates across all seeding rates (Table 3). With the exception of the 4 and 8 seed/ft seeding rates, TSW incidence was higher in Georgia-09B than the latter variety. 'Georgia-06G' had greater TSW indices than Georgia-12Y at the first DOP at the 4 and 6 seed per ft and at the second DOP at the 6 seed per ft seeding rates. Intensification of TSW with declining seeding rates on 'Georgia-09B' at the first DOP and 'Georgia-06G' at the second DOP. Seeding rate did not impact TSW incidence in 'Georgia-12Y.'

TABLE 3. INTERACTION OF PLANTING DATE, SEEDING RATE, AND VARIETY ON TOMATO SPOTTED WILT (TSW) INCIDENCE

Seeding rate # seed / ft	*TSW Incidence (# hits per 100 foot row*					
	April 21			May 23		
	Georgia-06G	Georgia-09B	Georgia-12Y	Georgia-06G	Georgia-09B	Georgia-12Y
3	1.2 e-h[1]	3.8 a	0.3 gh	2.8 abc	1.3 b-f	0.5 fgh
4	1.6 b-f	2.2 a-d	0 h	1.3 b-g	0.5 fgh	0.3 gh
6	3.0 ab	2.5 a-e	0 h	0.5 fgh	1.6 b-f	0.3 gh
8	1.2 c-h	2.0 b-f	0.5 fgh	0.3 gh	0.8 d-h	0.3 gh

[2] Means followed by the same letter are not significantly different according to Fisher's LSD ($P \leq 0.05$).

Leaf spot-incited defoliation was not impacted by seeding rate but did differ by planting date and variety (Table 1). As was the case for TSW, overall defoliation attributed to leaf spot diseases was below the threshold to impact yield. For all varieties, defoliation levels were greater at the second than first planting date (Fig. 1A) with 'Georgia-06G' and 'Georgia-12Y' suffering less defoliation than the former variety. While the latter two varieties had similarly lower defoliation levels at the first DOP, 'Georgia-06G' had lower defoliation indices than 'Georgia-12Y' at the second DOP. Leaf spot defoliation levels (approximately 2.4%) were similarly low across all seeding rate (data not shown).

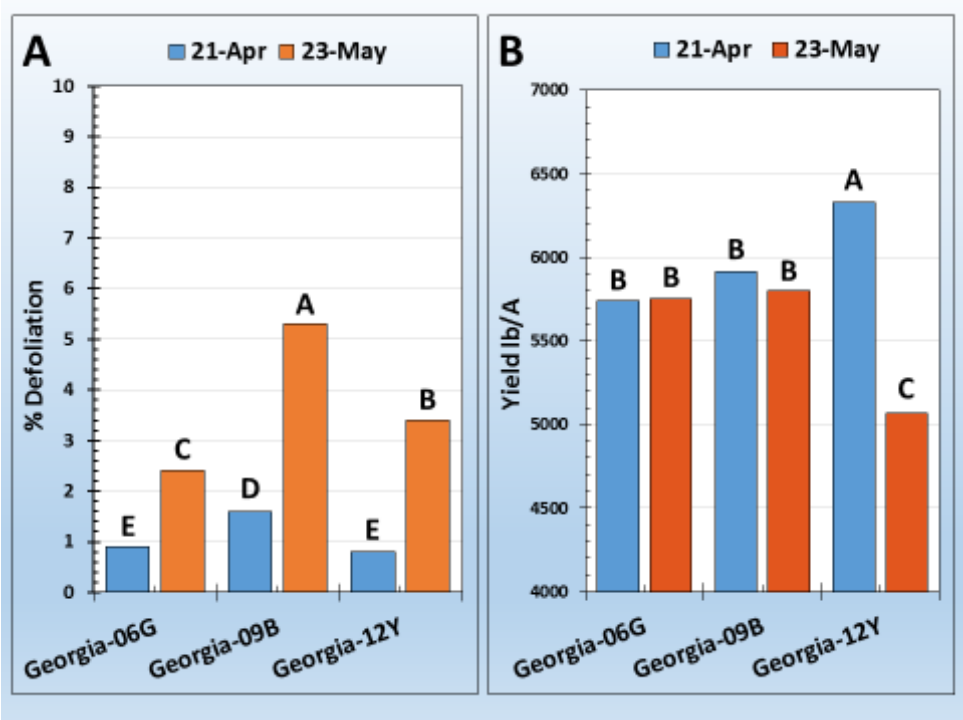


Fig. 1. A) Leaf spot defoliation and B) yield as influenced by planting date and peanut variety. Means followed by the same letter in each figure are not significantly different according to Fisher's LSD ($P \leq 0.05$).

White mold incidence differed by an interaction between planting date and variety but not by seeding rate (Table 1). Again, white mold incidence was very low (data not shown). While white mold incidence was higher at the second than first DOP for 'Georgia-09B', planting date did not impact disease incidence on 'Georgia-06G' or 'Georgia-12Y'. At the second DOP, 'Georgia-09B' had greater white mold indices than either of the other two varieties, which had similarly low white mold damage ratings.

While yield was not impacted by seeding rate, a significant interaction between planting date and variety was recorded (Table 1). While similar yields were obtained for 'Georgia-06G' and 'Georgia-09B' at both planting dates, greater yields were noted for 'Georgia-12Y' at the first than second planting date (Fig. 1B).

Summary: Planting date and variety selection but not seeding rate significant impacted leaf spot-incited defoliation, white mold incidence, and pod yield, while TSW incidence was influenced by planting date, variety, and seeding rate. As noted in the results, TSW, leaf spot, and white mold activity was low and none of these disease had a significant impact on yield. 'Georgia-12Y' proved again to have superior TSW and white mold resistance, while 'Georgia-09B' had greater ratings for all three diseases.

The absence of a yield response to declining seeding rates illustrates that peanut can compensate for reduce seedling plant populations even in a rainfed production system to produce maximum yields. Cutting seed rates to 3 seed per foot, particularly for April-planted peanuts, increases the risk of yield losses with cooler and wetter weather patterns favor stand losses due to seed rot and seedling disease. However, results suggest that seeding rates may be reduced below the recommended 6 seed per foot without sacrificing yield.

YIELD AND DISEASE CONTROL WITH RECOMMENDED FUNGICIDE PROGRAMS COMPARED ON TWO RUNNER PEANUT VARIETIES IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: Compare the yields and level of leaf spot and white mold control obtained with recommended fungicide programs on two commercial peanut varieties at the Wiregrass Research and Extension Center in southeast Alabama.

Production Methods: The study area at the Wiregrass Research and Extension Center, which is maintained in a one-year out peanut-cotton rotation, was turned with a moldboard plow and worked to seed bed condition with a disk harrow. Rows were laid off with a KMC strip till rig with rolling baskets. Runner peanut varieties 'Georgia-06G' and 'Georgia-09B' were planted on May 13 at 6 seed per foot of row in a Dothan sandy loam (OM<1%) on at the Wiregrass Research and Extension Center in Headland, Ala. Thimet 20G at 5 pounds per acre was applied in-furrow for thrips control. A pre-plant incorporated application of 1 qt/A of Sonalan + 0.45 oz/A of Strongarm + 1 pt/A of Dual Magnum III on May 10 was made for weed control. Escape weeds were plowed with flat sweeps or pulled by hand. The study site received the following rain amounts (in inches): Aug. 24 - 0.5, Sept. 2 - 1.0, Sept. 9 - 1.0, Sept. 16 - 0.5, Sept. 22 - 0.5, and Oct. 4 - 0.5. A factorial design arranged as a split-plot was used with peanut variety as whole plots and fungicide programs as sub-plots. Whole plots were randomized in four complete blocks. Sub-plots consisted of four 30-ft rows spaced 3 feet apart that were randomized within each whole plot. Fungicides were applied on 1= June 22, 1.5 = June 27, 2 = July 6, 3 = July 19, 4 = Aug. 3, 5 = Aug. 17, 6 = Aug. 31, and 7 = Sept. 12 with a tractor mounted boom sprayer with three TX-8 nozzles per row calibrated to deliver 15 gallons of spray volume per acre at 45 psi.

Disease Assessment: Early and late leaf spot diseases were rated together using the 1-10 Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting and < 10% defoliation, 5 = leaf spots noticeable and < 25% defoliation, 6 = leaf spots numerous and < 50% defoliation, 7 = leaf spots very numerous and < 75% defoliation, 8 = numerous leaf spots on few remaining leaves and <90% defoliation, 9 = very few remaining leaves covered with leaf spots and < 95% defoliation, and 10 = plants defoliated or dead on Sept. 29 with late leaf spot being the primary disease observed at the final rating date. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)].

White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion on Sept. 30. Plots were mechanically combined Oct. 3. Yields were reported at 8.2% moisture. Significance of factor effects and interactions was evaluated using PROC GLIMMIX in SAS. Statistical

analyses were calculated on rank transformations for non-normal data for leaf spot defoliation and white mold incidence, but back transformed data are presented. Means were separated using Fisher's least significant difference (LSD) test ($P \leq 0.05$) unless otherwise indicated.

Weather: Rainfall totals during the study period were below to well below the historical average for May, June, September, and October but were near average for July and August. Temperatures were at or above the season average throughout the production season.

Results: While significant differences were observed among varieties and fungicide programs, overall leaf spot pressure was low. 'Georgia-06G' suffered less premature leaf spot defoliation ($P \leq 0.10$) but had similar white mold indices compared with 'Georgia-09B'. Greater yields were recorded for 'Georgia-06G' than 'Georgia-09B'. Leaf spot defoliation levels were greater ($P \leq 0.10$) for the Echo/Muscle ADV than all programs except for Echo/Convoy + Echo. Echo/Artisan + Echo, and Alto + Echo/Echo/Elatus. Similar lower white mold indices were recorded for the Alto + Echo/Echo/Elatus, Echo/Provost Opti, Echo/Fontelis, and Priaxor/Muscle ADV/Priaxor/Echo programs. The Alto + Echo/Echo/Elatus program produced the highest yields. While lower than the latter program, equally high yields were reported for the Echo/Provost Opti, Priaxor/Muscle ADV/Priaxor/Echo, Echo/Fontelis, and Echo/Abound + Echo programs. Equally lower yields were obtained with the season-long Echo 720 standard, Echo/Convoy + Echo and Echo/Artisan + Echo programs.

Summary: With the exception of Echo/Abound + Echo, significant reductions in white mold incidence obtained with Echo/Provost Opti, Priaxor/Muscle ADV/Priaxor/Echo, Echo/Fontelis, and Alto + Echo/Echo/Elatus programs were linked with higher yields with the latter program producing the highest yields.

YIELD AND DISEASE CONTROL WITH RECOMMENDED FUNGICIDE PROGRAMS COMPARED ON TWO RUNNER PEANUT VARIETIES IN SOUTHEAST ALABAMA, WREC

Source of Variation	Application schedule	Leaf spot %defoliation[1]	White mold # hits/60 ft[2]	Yield lb/A
Variety	---	4.48^	0.27	14.15***[3]
Fungicide Program	---	2.03^	5.51*	9.63***
Variety x Fungicide	---	1.13	0.49	0.87
Variety				
14AU/NPRL 10	---	1.7 a[4]	4.2 a	5126 b
AU NPL 17	---	1.4 b	3.8 a	5522 a
Fungicide Program and Rate per acre				
Echo 720 1.5 pt	1-7	1.3 d	6.3 a	4751 d
Priaxor 6 fl oz Muscle ADV 1 qt Priaxor 6 fl oz Echo 720 1.5 pt	1.5 3,5 4,6 7	1.5 cd	2.4 b	5368 bc
Echo 720 1.5 pt Provost Opti 10.7 fl oz	1,2,7 3-6	1.3 d	2.6 b	5655 b
Echo 720 1.5 pt Convoy 26 fl oz + Echo 720 1.5 pt	1,2,4,6,7 3,5	1.9 ab	5.0 a	4802 d
Echo 720 1.5 pt Artisan 26 fl oz + Echo 720 1.5 pt	1,2,4,6,7 3,5	1.9 ab	4.3 a	5138 cd
Echo 720 1.5 pt Muscle ADV 1 qt	1,2,7 3-6	2.0 a	5.2 a	4909 d
Echo 720 1.5 pt Fontelis 1 pt	1,2,6,7 3,4,5	1.3 d	2.8 b	5477 bc
Echo 720 1.5 pt Abound 18.2 fl oz + Alto 5.5 fl oz	1,2,4,6,7 3,5	1.5 cd	5.3 a	5522 bc
Alto 5.5 fl oz + Echo 720 1 pt Echo 720 1.5 pt Elatus 9.5 oz	1,6 2,4,7 3,5	1.7 abc	2.1 b	6296 a

[1] Leaf spot disease intensity was rated using the Florida 1 to 10 scale on Sept. 28 and converted to % defoliation values.
[2] White mold incidence, which is expressed as the number of hits per 60 ft of row, was recorded on 29 September.
[3] Significance of F values at the 0.10, 0.05, 0.01, and 0.001 levels is indicated by ^, *, **, or ***, respectively.
[4] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

IMPACT OF PLANTING DATE, VARIETY, AND INSECTICIDE TREATMENT ON THRIPS FEEDING INJURY, DISEASES, AND YIELD IN IRRIGATED PEANUTS IN SOUTHEAST ALABAMA, WREC

A. K. Hagan, H. L. Campbell, K. K. Burch and L. Wells

Objective: Compare the efficacy of seed and in-furrow treatments, and early post insecticide treatments as influenced by planting date for the control of thrips feeding injury as well as on the incidence of tomato spotted wilt (TSW) and white mold, leaf spot defoliation, seedling populations, and yield response of a TSW susceptible and resistant peanut variety in an irrigated production system.

Production Methods: The study area at the Wiregrass Research and Extension Center, which is maintained in a peanut-cotton rotation, was turned with a moldboard plow and worked to seed bed condition with a disk harrow. Rows were laid off with a KMC strip till rig with rolling baskets. The peanut varieties 'Georgia-06G' and 'Flavorunner 458' were planted at rates of 6 seed per foot of row using conventional tillage practices on April 19 (first date of planting [DOP]) and May 24 (second DOP) in a Dothan fine sandy loam (OM<1%) soil at the Wiregrass Research and Extension Center.

Weed control was obtained with a pre-plant, incorporated application of 1 q/A Sonalan HFP + 0.45 oz./A Strongarm + 1 p/A Dual Magnum II on April 17. Soil fertility recommendations of the Alabama Cooperative Extension System were followed. The study area received one inch of water each of the days measured: July 18, July 28, and Aug. 29. A split split-plot design with planting date as whole plots, peanut variety as the split-plot, and seed treatment or at-plant treatments as the split-split plot, and split-split plot early-post foliar-applied insecticide treatment was used. The at-plant insecticide programs included a 4 ounces per 100 cwt seed Dynasty PD negative control, 4 ounces per100 cwt seed CruiserMaxx, 5 pounds per acre Thimet 15G applied in-furrow, and 18 ounces per acre Velum Total applied in-furrow over the seed.

The early-post insecticide treatment was 6 oz./A Orthene 97S banded over the row middle in 5 gal./A of water at 30 days after planting (DOP) in association with each of the above treatments. A two application Orthene 97S program with banded applications scheduled one and three weeks after true ground cracking was included. Applications of Orthene 97S were made on May 9 (one week post ground cracking) and May 23 for the second DOP, and on June 8 (one week post ground cracking) and June 20 at the second DOP.

Individual split-split plots, which consisted of four-30 foot rows spaced 3 feet apart were randomized within each plot. A total of seven applications of chlorothalonil at 1.5 p./A were made for leaf spot control applied with a tractor mounted boom sprayer with 3 TX-8 nozzles per row at 15 gal./A at 45 psi. Stand counts were recorded on May 4 and June 10 at the first DOP and second DOP, respectively, from the second row of each plot as the actual number of plants emerged. The first and second plantings were dug on Sept. 6 and Oct. 12.

Insect and Disease Assessment: Thrips damage rating (TDR) on the leaves was assessed on a 0 to 10 scale where 0 = no visible leaf scarring, 1=10% leaf area scarred, 2=20% leaf area scarred, 3=30% leaf area scarred, 4=40% leaf area scarred, to 10=100% leaf area affected and plants near death on May 25 for the first DOP and June 10 for the second DOP. Final TSW hit counts (one hit was defined as < 1 foot of consecutive symptomatic plants per row) were made on Aug. 30 and Oct. 6 for the first and second DOP, respectively.

Early and late leaf spot were rated together on Aug. 30 and Oct. 6 for the first and second planting dates, respectively, using the 1-10 Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting and < 10% defoliation, 5 = leaf spots noticeable and < 25% defoliation, 6 = leaf spots numerous and < 50% defoliation, 7 = leaf spots very numerous and < 75% defoliation, 8 = numerous leaf spots on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with leaf spots and < 95% defoliation, and 10 = plants defoliated or dead.

White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion for the first and second DOP on Sept. 2 and Oct. 7, respectively. Yields are reported at 5.92% and 8.13% moisture for the first and second DOP, respectively. Significance of interactions was evaluated using PROC GLIMMIX procedure in SAS. Statistical analyses for thrips damage, stand density, leaf spot defoliation, along with TSW and white mold incidence were done on rank transformations for non-normal data, which were back transformed for presentation. Means were separated using Fisher's least significant difference (LSD) test ($P \leq 0.05$).

Weather: Rainfall was below average in May, June, July, and September but above average in August, while temperatures were seasonal during the study period.

Results: Plant populations differed by planting date and variety with similar plant populations being recorded for 'Georgia-06G' and 'Flavorunner 458' at the first DOP, while the latter variety had greater stand counts than the former variety at the second DOP (Table 3). In addition, greater stand counts were noted for 'Flavorunner 458' at the second than the first DOP and 'Georgia-06G' at both planting dates.

Plant populations differed significantly by insecticide program with greater stand counts recorded for the single early post Orthene 90S program compared with the Dynasty DP control, the two application Orthene 90S, Velum Total, CruiserMaxx seed treatment, and Thimet 20G programs (Fig. 1). In addition to the single Orthene 90S application program, the Thimet 20G-treated peanuts had lower plant populations than CruiserMaxx fb Orthene 90S early post, Thimet 20G fb Orthene 90 early post and Velum Total fb Orthene 90S early post programs.

TABLE 1. *F*-VALUES FROM GENERALIZED LINEAR MIXED MODEL ANALYSIS FOR EFFECTS OF PLANTING DATE, PEANUT VARIETY, AND INSECTICIDE TREATMENT RATE ON STAND DENSITY, THRIPS DAMAGE, TSW INCIDENCE, LEAF SPOT DEFOLIATION, WHITE MOLD INCIDENCE, AND YIELD AT THE WREC IN 2016

Source of Variation (F values)	Plant Population	Thrips damage rating	TSW[1]	Leaf Spot defoliation	White Mold	Yield
Planting Date	3.49[2]	106.16***	11.44**	140.40***	12.47***	0.01
Variety	94.58***	25.15***	107.58***	130.76***	7.40**	22.87***
Planting Date × Variety	75.22***	0.56	8.98**	20.58***	0.03	0.00
Treatment	3.31**	58.84***	2.18*	1.95	2.24*	0.32
Planting Date × Treatment	1.69	7.57***	1.02	2.81**	1.87	0.76
Variety x Treatment	1.23	2.69***	1.84	2.66*	0.30	0.79
Planting Date × Variety × Treatment	1.91	2.09*	0.91	2.60*	0.39	1.03

[1] TSW = tomato spotted wilt.
[2] Significance at the 0.10, 0.05, 0.01, and 0.001 levels is indicated by ^, *, **, or ***, respectively.

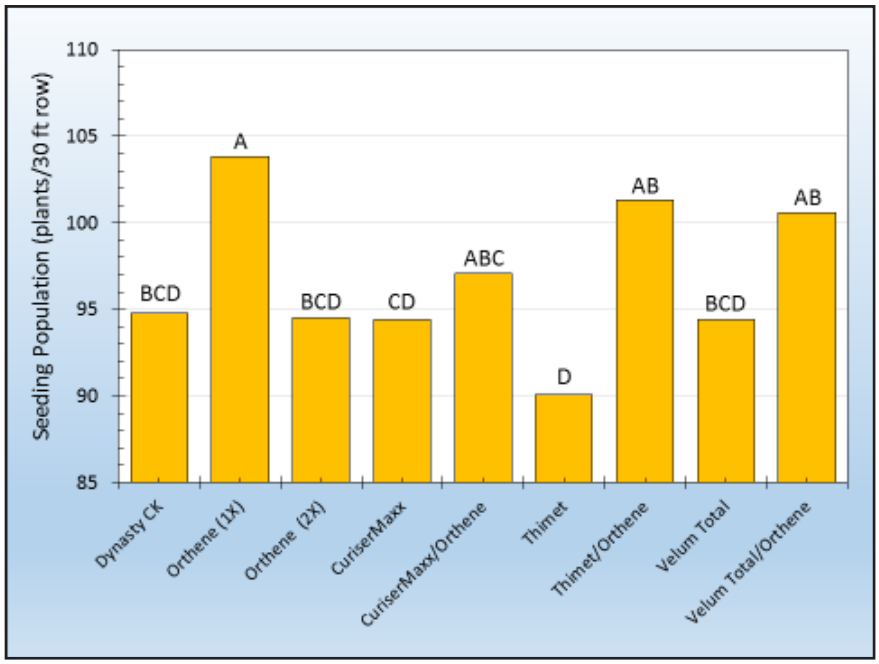


Fig. 1. Seedling populations as impacted by insecticide program. Means followed by the same letter are not significantly different according to Fisher's LSD ($P \leq 0.05$).

TABLE 2. THRIPS DAMAGE RATINGS AS INFLUENCED BY PLANTING DATE, PEANUT VARIETY, AND INSECTICIDE PROGRAM

Insecticide program and rate / A	Application TIming	Thrips damage rating [1]			
		April		May	
		Georgia - 06G	Flavorunner 458	Georgia - 06G	Flavorunner 458
Dynasty PD 3 oz/cwt	---	8.5 abc [2]	9.0 a	5.5 f-j	7.5 bcd
Orthene 90S 6 oz 3 wk EP	3 wk EP	8.3 abc	8.5 abc	4.5 i-m	6.8 def
Orthene 90S 6 oz 1 & 3 wk EP	1 & 3 wk EP	5.5 f-j	6.3 d-h	4.0 k-o	4.8 h-l
CruiserMAXX 4 oz/cwt	ST	8.8 ab	9.0 a	5.8 e-i	7.3 cde
CruiserMAXX 4 oz/cwt fb Orthene 90S 6 oz	ST fb 3 wk EP	8.5 abc	8.8 ab	5.0 g-j	6.5 def
Thimet 20G 6 lb	IF	3.0 opq	3.0 opq	3.5 m-q	3.3 pq
Thimet 20G 6 lb fb Orthene 90S 6 oz	IF fb 3 wk EP	2.5 pg	2.3 q	3.5 m-q	3.3 n-q
Velum Total 18 fl oz	IF	4.0 k-o	7.5 bcd	3.5 m-q	4.5 i-n
Velum Total 18 fl oz fb Orthene 90S 6 oz	IF fb 3 wk EP	6.3 d-g	7.3 cd	3.8 l-p	4.5 j-n

[1] Thrips damage rating (TDR) on the leaves was assessed on a 0 to 10 scale on May 25 for the first DOP and June 10 for the second DOP.

[2] Means followed by the same letter are not significantly different according to Fisher's LSD ($P \leq 0.05$).

Thrips damage ratings differed by planting date, variety, and insecticide program (Table 1). In the April planting, thrips damage ratings were equally high for the Dynasty PD negative control, single early post Orthene 90S treatment, CruiserMaxx seed treatment alone or when combined with a single early post Orthene application for both 'Georgia-06G' and 'Flavorunner 458' (Table 2). Poor thrips protection was obtained with Velum Total on 'Flavorunner 458' than 'Georgia-06G'. Significant reductions in thrips damage when compared with the Dynasty PD control were obtained with the two Orthene 90S application program, Thimet 20G alone or when followed by a single early post Orthene 90S application, and Velum Total alone or when combined with a single early post Orthene application. In the April planting, the two Thimet 20G programs gave the most effective thrips protection on both varieties, although the Velum Total gave similarly low thrips damage ratings on 'Georgia-06G' as Thimet 20G alone. No improvement in thrips protection was obtained with the addition of an early post application of Orthene 90S to CruiserMaxx, Thimet 20G, or Velum Total programs.

For the majority of insecticide programs, thrips damage ratings were lower for the May than April plantings (Table 2). When compared with the Dynasty PD control, reductions in thrips damage on both varieties were obtained with the two early post Orthene 90S application as well as both Thimet 20G and Velum Total programs but not with CruiserMaxx alone or when followed with a single early post Orthene 90S application. No differences in the level of thrips protection were noted with the Thimet 20G or Velum Total programs on 'Georgia-06G' and 'Flavorunner 458'. Once again, a single early post application of Orthene 90S failed to further reduce thrips damage when following Thimet 20G or Velum Total.

TABLE 3. IMPACT OF PLANTING DATE ON SEEDLING POPULATIONS, TSW INCIDENCE IN GEORGIA-06G AND FLAVORUNNER 458, WITH WHITE MOLD INCIDENCE AND YIELD

Planting date	Plant population # seedlings/30 ft		Disease incidence (# hits/60 ft)			Yield lb/A
			TSW		White mold	
	Georgia-06G	***Flavorunner 458***	***Georgia-06G***	***Flavorunner 458***		
April 19	97.4 b[1]	99.1 b	0.6 c	3.3 a	0.7 b	4385 a
May 24	80.8 c	109.9 a	0.5 c	2.0 b	1.6 a	4344 a

[1] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test (P≤0.05) unless otherwise indicated.

TABLE 4. INSECTICIDE PROGRAM IMPACT ON TSW INCIDENCE AND YIELD

Insecticide program and rate / A	Application TIming	Disease incidence		Yield lb/A
		TSW[1] (# hits/60 ft)	White mold (# hits/60 ft)	
Dynasty PD control	---	1.9 ab[3]	0.4 c	4320 a
Orthene 90S 6 oz 3 wk EP	3 wk EP[2]	1.6 abc	0.9 bc	4221 a
Orthene 90S 6 oz 1 & 3 wk EP	1 & 3 wk EP	1.8 ab	1.0 bc	4471 a
CruiserMAXX	ST	2.4 a	0.8 bc	4456 a
CruiserMAXX fb Orthene 90S 6 oz	ST fb 3 wk EP	1.5 bc	0.9 bc	4282 a
Thimet 20G 6 lb	IF	0.8 c	1.3 bc	4322 a
Thimet 20G 6 lb fb Orthene 90S 6 oz	IF fb 3 wk EP	1.1 bc	1.2 bc	4352 a
Velum Total 18 fl oz	IF	1.7 ab	1.4 ab	4522 a
Velum Total 18 fl oz fb Orthene 90S 6 oz	IF fb 3 wk EP	1.7 ab	2.3 a	4320 a

[1]TSW incidence was rated on Aug. 30 and Oct. 6 for the first and second DOP, respectively.
[2]Abbreviations for early post, seed treatment, and in-furrow are EP, ST, and IF, respectively.
[3]Means followed by the same letter are not significantly different according to Fisher's LSD ($P \leq 0.05$).

The incidence of TSW varied by planting date and variety as well as insecticide program (Table 1). At both planting dates, TSW incidence was similarly lower at both planting dates for Georgia-06G and Flavorunner 458 (Table 3). For the latter variety, greater TSW incidence was noted at the April than May planting date.

While overall TSW incidence was low and had no impact on yield, indices recorded for the insecticide programs significantly differed (Table 3). Similarly greater TSW indices were noted for the seed treatment CruiserMaxx along with the Dynasty PD control, the one and two Orthene 90S application programs, and both Velum Total treatments. When compared with CruiserMaxx, reductions in TSW incidence were obtained with CruiserMaxx followed by a single Orthene 90S application and Thimet 20G programs.

While no significant interactions were recorded between independent variables, white mold incidence, which like TSW was not high, differed by planting date, peanut variety, and insecticide program (Table 1). Disease incidence was greater in the second than first DOP (Table 3) and in 'Flavorunner 458' compared with 'Georgia-06G'(data not shown). The Velum Total fb Orthene 90S early post had greater white mold damage compared with all other programs except for Velum Total alone (Table 4). White mold incidence was lower in the Dynasty PD control than both of the above programs.

TABLE 5. INFLUENCE OF PLANTING DATE, VARIETY, AND INSECTICIDE PROGRAM ON THE LEAF SPOT-INCITED DEFOLIATION ON PEANUT

Insecticide program and rate / A	Application TIming	*Leaf spot defoliation*[1]			
		April 19		May 24	
		Georgia - 06G	Flavorunner 458	Georgia - 06G	Flavorunner 458
Dynasty PD 3 oz/cwt	---	1.0 gh[2]	1.6 ef	1.6 ef	4.2 ab
Orthene 90S 6 oz 3 wk EP	3 wk EP	0.9 gh	1.6 ef	2.1 cde	4.2 ab
Orthene 90S 6 oz 1 & 3 wk EP	1 & 3 wk EP	0.7 h	1.4 fg	1.9 def	3.8 ab
CruiserMAXX 4 oz/ 100 cwt	ST	0.7 h	1.9 def	2.1 cde	3.0 bc
CruiserMAXX 4 oz/ 100 cwt fb Orthene 90S 6 oz	ST fb 3 wk EP	1.0 gh	1.6 ef	1.9 cde	3.8 abc
Thimet 20G 6 lb	IF	0.6 h	1.9 def	1.4 ef	2.5 bcd
Thimet 20G 6 lb fb Orthene 90S 6 oz	IF fb 3 wk EP	0.5 h	1.6 ef	1.6 ef	7.0 a
Velum Total 18 fl oz	IF	0.6 h	1.9 def	1.9 def	3.4 abc
Velum Total 18 fl oz fb Orthene 90S 6 oz	IF fb 3 wk EP	0.8 gh	2.1 cde	1.6 ef	4.2 ab

[1] Leaf spot ratings were recorded for the April 19 (first) and May 24 (second) DOP on Aug. 30 and Oct. 6.
[2] Means followed by the same letter are not significantly different according to Fisher's LSD ($P \leq 0.05$).

Due to a significant planting date x peanut variety x insecticide program interaction, leaf spot incited defoliation differed across both planting dates on both peanut varieties by insecticide program (Table 1). On both 'Georgia-06G' and 'Flavorunner 458', defoliation levels were lower for at the April than the May planting date, with higher values noted for corresponding insecticide programs on the latter than former variety (Table 5). At the April planting date, similarly low defoliation ratings were noted across all insecticide programs on 'Georgia-06G', while the Velum Total fb Orthene 90S had higher level of premature leaf loss than the Dynasty PD control along with the one and two Orthene 90 application programs. For the May planting date, leaf spot defoliation was lower across insecticide programs on 'Georgia-06G', which were similarly low, compared with Flavorunner 458, where the Thimet 20G fb Orthene 90S had higher ratings than the CruiserMaxx seed treatment and Thimet 20G alone. All other leaf spot ratings for May planting of Flavorunner 458 were similar.

Yield significantly differed by peanut variety but not planting date and insecticide program (Table 1). Similarly high yields varieties were recorded for the first and second DOP (Table 3).

‘Georgia-06G’ produced higher pod yields compared with Flavorunner 458 (Fig. 2). Yields for all of the insecticide programs did not differ from the Dynasty PD control nor were any yield differences observed among the insecticide programs.

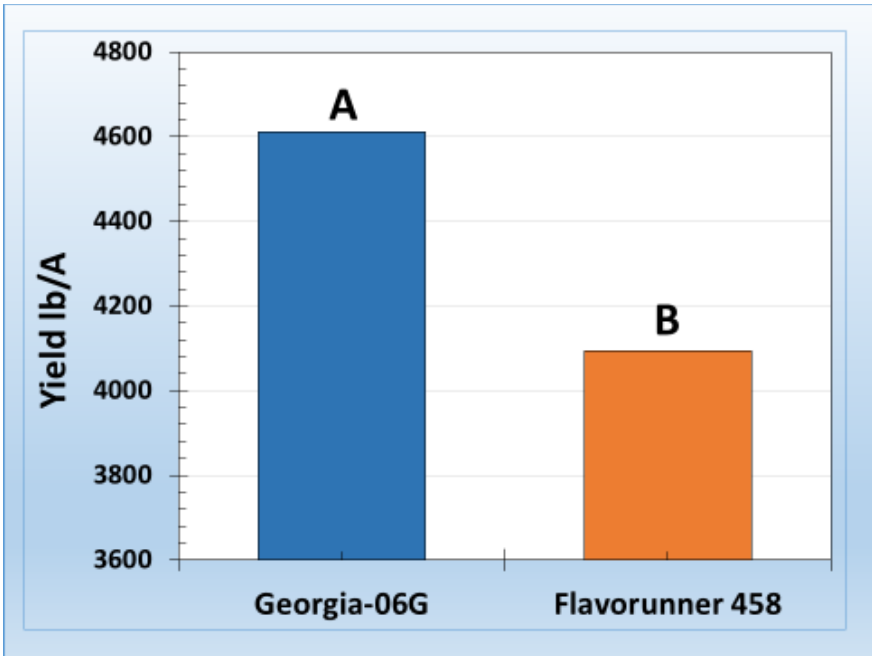


Fig. 2. Yield by peanut variety. Means followed by the same letter are not significantly different according to Fisher’s LSD ($P \leq 0.05$).

Summary: Insecticide programs greatly differed in the level of protection from thrips feeding damage on both peanut varieties with Thimet 20G along or fb Orthene 97S early post providing superior protection compared with the other programs. The high level of thrips protection was particularly evident in the first DOP on both varieties. Velum Total consistently matched the high level of thrips protection obtained with Thimet at the second but not first DOP. A reduction in thrips feeding damage was obtained with the two but not the one application Orthene 97S program and CruiserMaxx was ineffective at the first and to a lesser extent second DOP. So, Thimet 20G proved the most efficacious insecticide, particularly in the first planting for protecting peanut from thrips feed damage. Despite sizable differences in thrips damage, both varieties largely recovered within two weeks and no differences in yields were observed among insecticide programs.

While damage levels for all three diseases was low, planting date impacted TSW and white mold incidence along with leaf spot defoliation in peanut. Results confirm those of previous studies that TSW and white mold incidence is higher in early than later planted peanuts as well as the increase in defoliation in later compared with April-planted peanuts. Similar yields were also noted between the first and second DOP.

Peanut varieties differed in thrips damage levels, TSW and white mold incidence along with leaf spot defoliation and yield. 'Georgia-06G' suffered less thrips damage, TSW and white mold incidence and leaf spot defoliation than 'Flavorunner 458' but produced greater pod yield compared with the latter peanut variety.

Overall, Thimet 20G gave the best thrips protection and proved particularly effective in early-planted peanuts but did reduce seedling plant populations, which may have accounted for the absence of a significant yield gain with this insecticide.

IMPACT OF INSECTICIDE TREATMENT ON THRIPS POPULATIONS AND FEEDING INJURY, DISEASES, AND YIELD IN IRRIGATED PEANUTS IN SOUTHEAST ALABAMA, WREC

H. L. Campbell, A. K. Hagan, K. Burch, and L. Wells

Objective: Compare the efficacy of seed dressing and granular in-furrow insecticides for the control of thrips as well as incidence of tomato spotted wilt (TSW) and stem rot, leaf spot disease intensity, and yield response of a TSW susceptible and resistant peanut variety.

Production Methods: Peanut cultivar 'Georgia-09B' was planted at rates of 6 seed per foot of row using conventional tillage practices on April 27 in a Dothan fine sandy loam (OM<1%) soil at the Wiregrass Research and Extension Center. Weed control was obtained with a pre-plant, incorporated application of 1 qt/A Sonalan HFP + 1.0 pt/A Dual Magnum II + 0.45 oz Strongarm on April 17. Soil fertility recommendations of the Alabama Cooperative Extension System were followed. The fungicide seed dressing Dynasty PD at 3 ounces per100 pounds was applied to all seed. Insecticide treatments included Thimet 20G applied in-furrow at 5 lb per acre, Admire Pro applied at 10 oz/A in-furrow, Velum Total applied at 18 oz/A in-furrow, and Thimet 20G applied at 5 lb per acre followed by Vydate applied at 17 oz/A 21 days after planting.

Plots, which consisted of four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with six replicates. Plots were located under a central pivot irrigation system and was irrigated 1.0 inch on July 18, July 28 and Aug. 29. Rainfall recorded during the growing season was as follows (in inches): May – 2.74, June – 5.26, July – 3.76, August – 5.75 and September – 0.03. Foliar fungicides were applied on a 14-day schedule on 1) June 27, 2) July 15, 3) July 25, 4) Aug. 16 5) Aug. 25 6) Sept. 6 and 7) Sept. 19 using a four row tractor-mounted boom sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Early and late leaf spot were visually rated on Sept. 12 using the Florida 1-10 scale (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants).

Thrips damage rating (TDR) on the leaves was assessed on a 0 to 10 scale where 1 = no visible leaf scarring, 2=10% leaf area scarred, 3=20% leaf area scarred, 4=30% leaf area scarred, 5=40% leaf area scarred, to 10=100% leaf area affected and plants near death on June 1, June 8, and June 15. TSW hit counts were made during the season on July 19 and Aug. 8 and final TSW hit counts (one hit was defined as < 1 foot of consecutive symptomatic plants per row) were made on Sept. 12.

Stem rot incidence was assessed on Sept. 13 immediately after plot inversion by counting the number of disease loci with symptoms or signs. Plots were harvested on Sept. 17

and yields were reported at 7.31% moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Insect Assessment: Terminals from 10 shoots collected from seedlings in the two middle harvest rows in each plot on June 2, June 8, and June 13 in a small glass bottle containing 20 ml of a 70% alcohol-based kill solution. The alcohol solution was strained through filter paper and the thrips adults and juveniles were counted using a low power microscope.

Weather: Monthly rainfall totals for the production season were below normal in May but at or above normal during June, July, and August but much below the normal mean in September at the study location. Temperatures during the study period were near the 30 year historical average during the entire production season.

Results: Application of insecticide at planting had little effect on stand as numbers were similar across all insecticide treatments. Thrips flight occurred very early in the growing season and the intensity was less than what had been observed in previous years. Thrips counts from terminal shoots were much lower than had been observed in prior years and because of this TDR were initially high in the untreated plots. In the following weeks, thrips numbers decreased and the plants quickly recovered from the initial infection. Of the insecticide treatments evaluated the lowest TDR was observed in those plots that received an in-furrow application of Thimet 20G. Tomato spotted virus infection was very light this year compared with what had been observed in previous years and there was no differences in TSW among any of the treatment programs. Insecticide program had little to no effect on the leaf spot severity or white mold incidence since all plots received the same fungicide treatment program. Effects of in-furrow insecticide treatments had very little effect on yield however, the program that included Velum Total at planting did yield highest.

IMPACT OF INSECTICIDE TREATMENT ON THRIPS POPULATIONS AND FEEDING INJURY, DISEASES, AND YIELD IN IRRIGATED PEANUTS IN SOUTHEAST ALABAMA, WREC															
Treatment	Rate/A	Application Timing		Thrips Counts [2]											Pod Yield lb/A
			Stand[1]	1	2	3	TDR[3]	TDR	TDR	TSW	TSW	TSW	LS[4]	WM[5]	
Dynasty PD		Seed Treatment	128.3	4.3	2.8	2.1	8.7	6.0	3.2	0.2	0.2	0.3	3.2	0.0	5445
Dynasty PD Thimet 20G	5.0 lb	Seed treatment in-furrow at planting	126.2	4.5	5.8	3.3	2.1	2.1	2.0	0.0	0.0	0.2	3.0	0.5	6058
Dynasty PF Admire Pro	10.0 fl oz	Seed treatment in-furrow at planting	130.7	5.0	2.7	2.7	8.0	5.2	2.3	0.0	0.0	0.5	3.1	0.2	5921
Dynasty PD Velum Total	18.0 fl oz	Seed treatment in-furrow at planting	131.2	4.1	2.7	2.0	7.5	4.8	3.0	0.5	0.7	1.0	3.0	0.2	6268
Dynasty PD Thimet 20G Vydate	5.0 lb 17.0 fl oz	Seed treatment in-furrow at planting - 21 DAE	133.3	2.8	4.5	2.5	2.8	2.8	2.1	0.0	0.0	0.3	3.0	0.5	5429
LSD (P ≤ 0.05)			7.7	2.9	2.5	1.7	0.8	1.1	0.4	0.5	0.5	0.8	0.2	0.7	1092

[1]Stand taken from second row of each plot.
[2]Thrips counts made on June 1, June 8, and June 15.
[3]Thrips disease ratings made on June 2, June 9, and June 16.
[4]Leaf spot rated using the Florida 1-10 leaf spot scoring system.
[5]White mold hit counts made as the number of diseased plants per 60 ft of row.

EVALUATION OF VELUM TOTAL FOR PEANUT DISEASE AND NEMATODE CONTROL IN SOUTHEAST ALABAMA, WREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, and L. Wells

Objective: To evaluate Velum Total and compare it against other labeled products for control of nematodes and also to evaluate its effect on early and late leaf spot, stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'GA 06G' was planted in a field with a history of peanut production on May 31 at the Wiregrass Research and Extension Center in Headland, Ala. Seed were sown at a rate of approximately five seed per foot of row, and recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. The soil type was a Dothan sandy loam (OM<1%). On May 29, 1 qt/A of Sonalan + 0.45 oz/A of Strongarm were applied to the test area and incorporated for pre-emergent weed control. On June 6, 1.5 qt/A of Gramoxone + 3 oz/A of Valor were applied to test area for weed control. On June 30, 2 oz/A of Cadre + 1 pt/A of Poast + 1 qt/A of Crop Oil concentrate was applied to the test area for weed control.

Plots, which consisted of four 30-ft rows spaced 3-ft apart, were arranged in a randomized complete block with five replications. Plots were located under a lateral irrigation system and 0.5 inch of water was applied immediately after planting and one inch of water was applied during the season on Sept.22. Rainfall recorded during the growing season was as follows (in inches): June – 5.26, July – 3.76, August – 5.75 and September – 0.03. In-furrow fungicides were applied with a drop down nozzle directly over the furrow and was applied at a rate of 10 gal/A at planting. At pegging, applications were applied on Aug. 1 using a drop nozzle directly over the row calibrated to deliver 20 gal/A. A half-inch of rain fell within 2 hours of application and washed the material into the soil. Absolute 500f at 3.5 fl oz/A was applied on July 5 and July 18. Provost Optima at 10.7 fl oz/A was applied on Aug. 4 and Aug. 31. Abound 2.08SC was applied at 18.2 fl oz/A on Aug. 18 and Sept. 12. Echo 720 was applied at 24.0 fl oz/A on Sept. 22 for disease control using a four row tractor-mounted boom sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A.

Vigor was rated on July 29 and again prior to harvest on Oct. 19 where 1 = least vigorous and 5 = most vigorous. Early and late leaf spot were visually rated on Oct. 19 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants).

Counts of stem rot (SR) loci (one locus was defined as < 1 ft of consecutive symptoms and signs of the disease) were made on Oct. 21 immediately after plot inversion.

Plots were harvested on Oct. 25 and yields were reported at 9.03% moisture. Nematode disease ratings were made on Oct. 21 immediately after plot inversion (1 = no damage, 2= 1-25% of roots and/or pods damaged, 3 = 26-50% damage, 4 = 51-75% damage, and 5 = >76% damage. Nematode assays were made from random sampling of soil near the plants in the treated area. Soil samples were then taken to be assayed at the Nematode Lab in Auburn where nematode soil counts were made where numbers represent the number of root knot nematodes per 50 cc of soil.

Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near normal and monthly rainfall totals were near average during June, July, and August, but below average in September. Vigor ratings taken prior to harvest showed that the application of Velum Total at 14.0 fl oz/A and Velum Total at 14 fl oz followed by Propulse at pegging affected the vigor of the plants in the test greater than that observed in non-treated control and Thimet treated plots. Although stem rot incidence was low, stem rot incidence in the treated plots was similar except for those that received an in-furrow treatment of Thimet 20G. Among the treated plots, those which received Velum Total at planting and those that included an at pegging application of Propulse had lower nematode damaged roots than did the Thimet 20G plots. Although there were no significant differences in root knot numbers, root knot nematode assays showed that those that received Velum Total at 18 oz/A at planting had lower numbers than all other plots. Highest yields were from plots that received AgLogic at planting followed closely by those that included Velum Total at 14 fl oz/A at planting followed by Propulse but were not significantly higher than the non-treated plots. Yields from all other plots were similar.

EVALUATION OF THE EXPERIMENTAL FUNGICIDE NNF-1681SC FOR PEANUT DISEASE CONTROL IN SOUTHEAST ALABAMA, WRECC

Treatment and Rate/A	Application Timing	Vigor[1]	Vigor	Disease ratings			RK Assay[5]	Yield lb/A
				Leaf Spot[2]	Stem Rot[3]	RK[4]		
Untreated Control	---	3.8 ab[6]	3.0 b	3.0 a	4.0 a	3.4 abc	452 a	2992 a
AgLogic 15G 10.0 lb	IF at planting	3.6 ab	3.4 ab	3.2 a	1.6 c	2.6 c	397 a	3533 a
Velum Total 14.0 fl oz	IF at planting	4.6 a	4.4 a	3.2 a	1.8 bc	3.0 bc	528 a	3359 a
Velum Total 18.0 fl oz	IF at planting	3.8 ab	3.6 ab	3.2 a	1.8 bc	3.0 bc	333 a	3059 a
Velum Total 14.0 fl oz Propulse 13.7 fl oz	IF at planting Pegging	4.4 a	4.0 ab	3.3 a	1.8 bc	2.8 bc	463 a	3591 a
Velum Total 18.0 fl oz Propulse 13.7 fl oz	IF at planting Pegging	4.0 ab	3.8 ab	3.0 a	1.4 c	3.4 bc	551 a	3369 a
Thimet 20G 5.0 lb	IF at planting	3.0 b	3.0 b	3.1 a	2.8 abc	4.0 a	340 a	2894 a
LSD (P ≤ 0.05)		1.0	1.2	0.3	1.9	0.9	311	841

[1]Vigor rated as 1 = least vigorous,…5 = most vigorous
[2]Early and late leaf spot were assessed using the Florida leaf spot scoring system.
[3]Stem rot (SR) incidence is expressed as the number of disease loci per 60 ft of row.
[4]Root knot ratings were rated as 1 = no damage, 2 = 1-25% damage, 3 = 26-50% damage, 4 = 51-75% damage, 5 = >76% damage to roots and/or pods.
[5]Root knot assay numbers calculated from numbers from 50cc of soil
[6]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test (P = 0.05).

IMPACT OF VARIETY AND NEMATICIDE TREATMENT ON ROOT-KNOT NEMATODE CONTROL AND YIELD OF SUSCEPTIBLE AND RESISTANT PEANUT VARIETIES, WREC

A. K. Hagan, H. L. Campbell, K. L. Bowen, and L. Wells

Objective: Assess the impact of nematicide treatments on seedling vigor, disease activity, root knot nematode damage and reproduction, and yield of a peanut root knot susceptible and two resistant varieties in an irrigated production system in Southeast Alabama.

Production Methods: Peanut varieties 'Georgia-06G', 'Georgia-14N', and 'Tifguard' were planted on May 31 at 6 seed per foot of row in a Dothan sandy loam (OM<1%) on a site with high peanut root-knot populations that was cropped the previous year to peanut at the Wiregrass Research and Extension Center in Headland, Ala. The latter two varieties are resistant to the peanut root-knot nematode, while former variety is root-knot susceptible. A pre-plant incorporated application of 1.0 qt/A Sonalan + 0.45 oz/A Strongarm + 1 pt/A Dual Magnum III on May 29 was made for weed control. Escape weeds were plowed with flat sweeps or pulled by hand. The study site received one inch of water on May 31 and July 22. A factorial design arranged as a split-plot was used with peanut variety as whole plots and nematicide treatments as sub-plots. Whole plots were randomized in four complete blocks. Sub-plots consisted of four 30-ft rows spaced 3-ft apart that were randomized within each whole plot. Velum Total at 18 fl oz/A was applied with a single nozzle centered over the open seed furrow in 5 gal/A spray volume. AgLogic aldicarb 15G at 7 lb/A was applied in-furrow. A non-treated control was also included. Four fungicides were used: 3.5 fl oz/A Absolute, applied on July 5 and July 18; 10.7 fl oz/A Provost 433SC applied on Aug. 4 and Aug. 31; 18.2 fl oz/A Abound 2.08SC on Aug. 18 and Sept. 12; and 1.5 pt/A Echo 720 on Sept. 22. Fungicides were applied as specified above with a tractor mounted boom sprayer with three TX-8 nozzles per row calibrated to deliver 15 gal/A of spray volume at 45 psi. Seedling vigor was rated on June 29 on a 1 to 5 scale where 1 = least vigorous to 5 = most vigorous plants.

Disease and Nematode Assessment: Early and late leaf spot were rated on Oct. 19, using the Florida 1 to 10 scale where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold damaged plants per row) were made immediately after plot inversion on Oct. 21. Plots were combined on Oct. 25. Soil samples for a nematode assay taken on June 27 (Pinitial) and Oct. 19 (Pfinal) were processed using the sugar flotation method. The root-knot reproduction index was calculated by dividing Pfinal/ Pinitial. Root knot ratings of the pods and roots were made at plot inversion on Oct. 21, where 1 = no visible damage; 2 = < 25% of roots and/or pods damaged; 3 = < 50%, 4 = < 75%, 5 = 75-100% of pods and roots

galled. Yields are reported at 7% moisture. Significance of factor effects and interactions was assessed using PROC GLIMMIX in SAS. Statistical analysis on vigor, leaf spot intensity, white mold incidence, root and pod damage, and reproductive ratio was done on rank transformations of data, but back transformed data are presented. Means were separated using Fisher's protected least significant difference (LSD) test ($P \leq 0.05$) unless otherwise indicated.

Results: No significant variety × nematicide treatment interactions for any variables was recorded. Similar seedling vigor ratings were recorded for all varieties. While overall leaf spot intensity was low, both 'Georgia-06G' and 'Georgia-14N' had similarly lower ratings than Tifguard. White mold incidence was lower for 'Georgia-14N' compared with 'Tifguard' and 'Georgia-06G' with the latter variety suffering the greatest damage. 'Georgia-06G' had greater root-knot root and pod damage than 'Tifguard' and 'Georgia-14N' with the latter variety having the lowest root and pod damage rating. In contrast, 'Tifguard' and 'Georgia-14N' had similarly lower root-knot reproductive indices compared with the susceptible 'Georgia-06G'. Despite significantly lower root-knot damage ratings and reproduction index, yield for 'Tifguard', which was similar to 'Georgia-06G', was significantly below that recorded for 'Georgia-14N'.

Seedling vigor ratings were higher for Velum Total than the non-treated control, while the vigor rating for the AgLogic aldicarb-treated peanuts was intermediate. Nematicide treatments did not, however, impact leaf spot intensity, white mold incidence, the level of root and pod damage, or the root-knot reproductive index (Rf/Ri ratio). Greater yields were obtained with Velum Total than for the non-treated control, while yield response for AgLogic aldicarb was similar to both the former and latter treatments ($P \leq 0.10$).

Summary: While reductions in root knot damage to the pods and roots along with peanut root-knot reproductive index were observed with both root knot resistant varieties when compared with the root-knot susceptible 'Georgia-06G', yield for 'Georgia-14N' were considerably higher than 'Tifguard' as well as the latter susceptible cultivar. Overall, the performance of 'Georgia-14N' was far superior here to results obtained in other variety trials conducted at the Wiregrass Research and Extension Center. 'Georgia-14N' also suffered less white mold damage than either of the other two varieties screened.

Significant yield gains as well as improved seedling vigor were obtained with Velum Total but not AgLogic aldicarb when compared with the non-treated control. To be fair, the application rate for AgLogic aldicarb was well below that recommended for the control of root knot nematode in peanut, which will be used in all future nematicide trials. Absence of a significant variety x nematicide interaction suggests that yield gains were obtained across all varieties with Velum Total. Due to low leaf spot and white mold pressure, Velum Total failed to reduce the level of damage attributed to either disease nor did this nematicide or AgLogic reduce the pod and root damage or rate of peanut root-knot nematode reproduction.

IMPACT OF VARIETY AND NEMATICIDE TREATMENT ON ROOT-KNOT NEMATODE CONTROL AND YIELD OF SUSCEPTIBLE AND RESISTANT PEANUT VARIETIES, WREC

Source of Variance	Seedling Vigor [1]	Leaf Spot[2]	White Mold Incidence[3]	Root Knot nematode		Yield lb/A
				Damage[4]	Reproductive index[5]	
Variety	0.00 6	3.77*	15.12***	163.84***	6.84*	47.19***
Nematicide	7.71***	0.00	1.12	1.06	1.90	2.78^
Variety × Nematicide	1.00	0.00	1.07	2.65	0.78	0.81
Variety						
Georgia-06G	3.9 a 7	3.0 b	2.8 a	4.5 a	16.4 a	3319 b
Tifguard	3.9 a	3.1 a	1.8 b	1.6 b	4.8 b	3628 b
Georgia-14N	3.9 a	3.0 b	0.1 c	1.3 c	3.7 b	5288 a
Nematicide and rate/A						
Non-treated control	3.9 b	3.0 a	2.0 a	2.6 a	8.0 a	3889 b
Velum Total 18 fl oz	4.5 a	3.0 a	1.3 a	2.3 a	10.7 a	4262 a
AgLogic aldicarb 15G 7 lb	3.3 b	3.0 a	1.4 a	2.4 a	6.2 a	4087 ab

[1] Seedling vigor was rated on a 1 to 5 scale on June 29.
[2] Leaf spot diseases were rated using the Florida 1 to 10 scale on Oct. 19.
[3] While mold incidence is expressed as the number of disease hits (< 1 foot stem rot damage) per 60 foot of row.
[4] Ratings of root-knot damage to the pods and roots were made on Oct. 21 on a 1 to 5 scale.
[5] Root-knot reproductive index = $(P^{final})/(P^{initial})$.
[6] Significance of F values at the 0.10, 0.05, 0.01, and 0.001 levels is indicated by ^, *, **, or ***, respectively.
[7] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

YIELD RESPONSE AND DISEASE REACTION OF RUNNER MARKET TYPE PEANUTS IN A DRYLAND PRODUCTION SYSTEM IN SOUTHEAST ALABAMA, WREC

A. K. Hagan, H. L. Campbell, and B. Gamble

Objective: Yields and reaction of commercial peanut varieties and selected advanced breeding lines to TSW, leaf spot, white mold are compared in a dryland production system.

Production Methods: The study site was subsoiled on March 9, disked and turned with a moldboard plow on March 10, and rows were laid off on May 4 with a KMC strip till rig with rolling baskets. Peanut cultivars were planted on May 4 at a rate of approximately 6 seed per foot of row in a fine Dothan sandy loam (OM<1%) at the Wiregrass Research and Extension Center in Headland, Ala. Gypsum, at a rate of 600 pounds per acre, was applied on a 14-inch band over the row middle on June 13. A pre-plant, incorporated application of 1 qt/A of Sonalan + 0.45 oz/A of Strongarm on April 19 was followed by an at-plant broadcast application of 3 ounces per acre Valor on May 11 for weed control. Escape weeds were plowed with flat sweeps or pulled by hand. The two fungicides were used: 1.5 pint per acre Echo 720, applied on June 14, June 27, July 27, Aug. 22, and Sept. 7, and 18.5 fluid ounces per acre Abound 2.08SC broadcast on July 14 and Aug. 12. Fungicides were broadcast with a four-row tractor mounted sprayer with three TX8 nozzles per row calibrated to deliver 15 gallons per acre spray volume. Plots consisted of two 20–foot rows, spaced 3 feet apart, arranged in a randomized complete block, with four replications.

Disease Assessment: Tomato spotted wilt (TSW) hit counts (1 hit was defined as < 1 feet of consecutive severely TSW-damaged plants per row) were made on Sept. 13. Early and late leaf spot (LS) were rated together on Sept. 13, Sept. 19, and Sept. 27 for the mid-season, late, and very late maturing cultivars, respectively, using the Florida 1 to 10 scale where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)]. White mold hits counts (1 hit was defined as < 1 foot of consecutive stem rot damaged plants per row) were made immediately after plot inversion on Sept. 13, Sept. 19, and Sept. 27 for the mid-season, late, and very late maturing cultivars, respectively. Plots were combined on Sept. 16, Sept. 22, and Sept. 30 for the mid-season, late, and very late maturing cultivars, respectively. Yields are reported at 7% moisture. Statistical analysis on leaf spot intensity as well as TSW and white mold incidence was done on rank transformations of data, but back transformed data are presented. Means were separated using Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Weather: Rainfall totals during the study period were below to well below the historical average for May, June, September, and October but were near average for July and August. Temperatures were at or above the season average throughout the production season.

Results: While TSW incidence was high, the occurrence of leaf spot diseases and white mold was minimal. Incidence of TSW was higher in 'FloRun 157' all varieties except for 'TUFRunner 727', 'TUFRunner 511', and 'MRS 38'. The low TSW incidence observed in 'Georgia-13M' was matched by 'Georgia Greener', 'Georgia-12Y', 'TUFRunner 297', 'AU NPL 17', and now discontinued 'Georgia-07W'. Leaf spot defoliation was greater on 'Georgia-13M' compared with all varieties expect for 'TUFRunner 727'. For the remaining varieties, little if any leaf spot-related premature defoliation was noted. White mold incidence was greater for 'FloRun 157' than seven of the remaining sixteen varieties. The equally high yields recorded for 'Georgia Greener', 'AU NPL 17', 'Georgia-06G', and 'TUFRunner 297' along with 'TUFRunner 511', 'Georgia-09B', and 'Georgia-12Y'. Similarly low yields were reported for 'MRS 38', 'MRS 37', 'Georgia-14N', and 'ASUS 51'. With the notable exception of 'TUFRunner 511', varieties with higher TSW indices posted lower pod yields.

Summary: Yields of the high oleic varieties 'AU NPL 17' and 'TUFRunner 297' matched those of the current industry standard 'Georgia-06G'. All of the above varieties including 'Georgia-12Y' and 'Georgia-13M' showed good TSW resistance.

YIELD RESPONSE AND DISEASE REACTION OF RUNNER MARKET TYPE PEANUTS IN A DRYLAND PRODUCTION SYSTEM IN SOUTHEAST ALABAMA, WREC

Peanut variety and breeding line[1]	Maturity group	TSW[2] # hits/100 ft	Leaf spot % defoliation[3]	White mold[4] # hits/100 ft	Yield lb/A
AU NPL 17	Mid	2.8 hi [5]	0.2 e	0.3 ab	5989 a
Georgia-06G	Mid	4.8 fgh	0.2 e	0.8 ab	5970 a
Georgia-07W	Late	3.8 ghi	0.2 e	0.5 ab	5862 a
Georgia-09B	Mid	10.3 cde	0.2 e	0.3 ab	5680 ab
Georgia-12Y	Very late	1.5 hi	0.3 de	0.0 b	5699 ab
Georgia-13M	Late	1.0 i	3.7 a	0.0 b	5015 bc
Georgia-14N	Late	9.3 ef	0.5 abc	0.0 b	4157 de
Georgia Greener	Mid	2.3 hi	0.2 e	0.5 ab	6043 a
FloRun 107	Mid	12.0 b-e	0.2 e	0.3 ab	4609 cd
FloRun 157	Mid	22.5 a	0.2 e	2.3 a	4718 cd
TUFRunner 297	Mid	2.0 hi	0.4 cd	0.0 b	5916 a
TUFRunner 511	Mid	17.8 a-d	0.3 de	0.3 ab	5753 ab
TUFRunner 727	Late	18.7 ab	1.0 ab	0.0 b	4631 cd
MRS 37	Very late	10.0 de	0.4 bc	0.0 b	4040 de
MRS 38	Very late	18.3 abc	0.4 bcd	0.8 ab	3733 e
ASUS 50	Very late	8.7 efg	0.2 e	0.0 b	4665 cd
ASUS 51	Very late	8.5 efg	0.4 bcd	0.5 ab	4509 cde

[1] All cultivars are runner market types.
[2] TSW and white mold incidence is expressed as the number of hits per 60 ft of row.
[3] Leaf spot disease intensity was rated using the Florida 1 to 10 scale.
[4] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

YIELD RESPONSE AND DISEASE REACTION OF RUNNER MARKET TYPE PEANUTS IN AN IRRIGATED PRODUCTION SYSTEM IN SOUTHEAST ALABAMA, WREC

A. K. Hagan, H. L. Campbell, and B. Gamble

Objective: Yields and reaction of commercial peanut varieties and selected advanced breeding lines to TSW, leaf spot, white mold are compared in a dryland production system.

Production Methods: The study site was subsoiled on March 9, disked and turned with a moldboard plow on March 10, and rows were laid off on May 11 with a KMC strip till rig with rolling baskets. Peanut cultivars were planted on May 11 at a rate of approximately 6 seed per foot of row in a fine Dothan sandy loam (OM<1%) at the Wiregrass Research and Extension Center in Headland, Ala. Gypsum, at a rate of 600 pounds per acre, was applied on a 14-inch band over the row middle on June 13. A pre-plant, incorporated application of 1 qt/A of Sonalan + 0.45 oz/A of Strongarm on April 19 was followed by an at-plant broadcast application of 3 ounces per acre Valor on May 11 for weed control. Escape weeds were plowed with flat sweeps or pulled by hand. The study site received the following recorded amounts of rain (in inches): May 6 (0.5), May 16 (0.3), July 18 (0.8), July 28 (1.0), Aug. 23 (0.6), Aug. 31 (0.8), and Sept. 12 (0.3). The two fungicides were used: 1.5 pint per acre Echo 720, applied on June 14, June 27, July 27, Aug. 22, and Sept. 7, and 18.5 fluid ounces per acre Abound 2.08SC broadcast on July 14 and Aug. 12. Fungicides were broadcast with a four-row tractor mounted sprayer with three TX8 nozzles per row calibrated to deliver 15 gallons per acre spray volume. Plots consisted of two 20–foot rows, spaced 3 feet apart, arranged in a randomized complete block, with four replications.

Disease Assessment: Tomato spotted wilt (TSW) hit counts (1 hit was defined as < 1 feet of consecutive severely TSW-damaged plants per row) were made on Sept. 13. Early and late leaf spot (LS) were rated together on Sept. 19, Sept. 27 and Oct. 3 for the mid-season, late, and very late maturing cultivars, respectively, using the Florida 1 to 10 scale where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)].

White mold hits counts (1 hit was defined as < 1 foot of consecutive stem rot damaged plants per row) were made immediately after plot inversion on Sept. 19, Sept. 27 and Oct. 3 for the mid-season, late, and very late maturing cultivars, respectively. Plots were combined on Sept. 22, Sept. 30, and Oct. 6 for the mid-season, late, and very late maturing cultivars, respectively. Yields are reported at 7% moisture. Statistical analysis on leaf spot intensity as well as TSW and white mold incidence was done on rank transformations of data, but

back transformed data are presented. Means were separated using Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Weather: Rainfall totals during the study period were below to well below the historical average for May, June, September, and October but were near average for July and August. Temperatures were at or above the season average throughout the production season.

Results: Incidence of TSW was greater in 'FloRun 157' and 'TUFRunner 511' than all other varieties except for 'TUFRunner 727' and the advanced breeding lines 'MRS 37' and 'MRS 38', while eight varieties had TSW indices as low as those noted for 'AU NPL 17'. Late leaf spot was the primary leaf spot disease observed. 'Georgia-13M' suffered heavier premature defoliation than all varieties except for 'TUFRunner 511' and 'TUFRunner 727' as well as the advanced breeding lines 'MRS 37' and 'MRS 38'. The low leaf spot defoliation ratings observed for 'AU NPL 17' and 'Georgia-09B' were matched by those recorded for an additional eight varieties. White mold incidence did not significantly differ between varieties and breeding lines. Yields were greater for 'Georgia-06G' than all varieties except for 'TUFRunner 297','TUFRunner 511', 'Georgia-13M', 'Georgia Greener' and 'AU NPL 17'. Similarly low yields were recorded for the advanced breeding lines 'MRS 37', 'MRS 38', 'ASUS 50', 'ASUS 51', and 'Georgia-14N'.

Summary: High yields and relatively low TSW incidence and leaf spot defoliation makes 'Georgia-06G' a hard variety to beat in Southeast Alabama. Of the varieties with matched the yield of 'Georgia-06G', 'TUFRunner 297' displayed excellent yield potential but disease ratings for TSW were higher than anticipated. While 'Georgia-13M' and 'TUFRunner 511' both have leaf spot issues but yielded well, both of these varieties will likely be replaced by more disease resistant varieties. The newly released 'AU NPL 17' combined excellent TSW and leaf spot resistant with high yield potential.

YIELD RESPONSE AND DISEASE REACTION OF RUNNER MARKET TYPE PEANUTS IN AN IRRIGATED PRODUCTION SYSTEM IN SOUTHEAST ALABAMA, WREC

Peanut variety and breeding line[1]	Maturity group	TSW[2] # hits/100 ft	Leaf spot intensity[3]	White mold[2] # hits/100 ft	Yield lb/A
AU NPL 17	Mid	1.8 e[4]	2.5 f	0.0 a	5384 ab
Georgia-06G	Mid	5.5 b-e	3.3 ef	0.0 a	6122 a
Georgia-07W	Late	8.0 bcd	3.5 ef	0.0 a	4393 cd
Georgia-09B	Mid	7.3 b-e	2.7 f	0.3 a	5114 bc
Georgia-12Y	Very late	2.5 de	4.2 def	0.0 a	4922 bc
Georgia-13M	Late	5.8 b-e	13.7 a	0.0 a	5553 ab
Georgia-14N	Mid	2.5 cde	5.8 b-f	0.0 a	3755 de
Georgia Greener	Mid	7.5 b-e	5.0 c-f	0.3 a	5456 ab
FloRun 107	Mid	6.8 b-e	7.4 bcd	0.0 a	4717 bc
FloRun 157	Mid	20.0 a	6.2 b-f	0.3 a	4483 cd
TUFRunner 297	Mid	6.3 b-e	6.9 b-e	0.5 a	5546 ab
TUFRunner 511	Mid	16.8 a	9.0 abc	0.0 a	5420 ab
TUFRunner 727	Late	11.3 ab	8.6 abc	0.0 a	4319 cd
MRS 37	Very late	9.8 ab	8.5 abc	0.3 a	3017 e
MRS 38	Very late	12.3 ab	8.9 ab	1.5 a	3347 e
ASUS 50	Very late	8.5 bc	6.4 b-f	0.0 a	3348 e
ASUS 51	Very late	9.5 b	6.2 b-f	0.0 a	3679 de

[1] All cultivars are runner market types.

[2] TSW and white mold incidence is expressed as the number of hits per 60 ft of row.

[3] Leaf spot disease intensity was rated using the Florida 1 to 10 scale.

[4] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

PERFORMANCE OF RUNNER AND VIRGINIA MARKET-TYPE ADVANCED BREEDING LINES IN COMPARISON WITH SELECTED RUNNER AND VIRGINIA STANDARD VARIETIES IN SOUTHEAST ALABAMA, WREC

A. K. Hagan, H. L. Campbell, and B. Gamble

Objective: Yield and reaction of advanced runner and Virginia market type breeding lines to TSW, leaf spot, white mold are compared with commercial standards in an irrigated production system.

Production Methods: The study site was subsoiled on March 9, disked and turned with a moldboard plow on March 10, and rows were laid off on May 11 with a KMC strip till rig with rolling baskets. Peanut cultivars were planted on May 11 at a rate of approximately 6 seed per foot of row in a fine Dothan sandy loam (OM<1%) at the Wiregrass Research and Extension Center in Headland, Ala. Gypsum, at a rate of 600 pounds per acre, was applied on a 14-inch band over the row middle on June 13. A pre-plant, incorporated application of 1 qt/A of Sonalan + 0.45 oz/A of Strongarm on April 19 was followed by an at-plant broadcast application of 3 ounces per acre Valor on May 11 for weed control. Escape weeds were plowed with flat sweeps or pulled by hand. The study site received the following recorded amounts of rain (in inches): May 6 (0.5), May 16 (0.3), July 18 (0.8), July 28 (1.0), Aug. 23 (0.6), Aug. 31 (0.8), and Sept. 12 (0.3). The two fungicides were used: 1.5 pint per acre Echo 720, applied on June 14, June 27, July 27, Aug. 22, and Sept. 7, and 18.5 fluid ounces per acre Abound 2.08SC broadcast on July 14 and Aug. 12. Fungicides were broadcast with a four-row tractor mounted sprayer with three TX8 nozzles per row calibrated to deliver 15 gallons per acre spray volume. Plots consisted of two 20–foot rows, spaced 3 feet apart, arranged in a randomized complete block, with four replications.

Disease Assessment: Tomato spotted wilt (TSW) hit counts (1 hit was defined as < 1 feet of consecutive severely TSW-damaged plants per row) were made on Sept. 13. Early and late leaf spot (LS) were rated together on Sept. 13, Sept. 19 and Sept. 27 for the early, mid and late maturing cultivars, respectively, using the Florida 1 to 10 scale where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)].

White mold hits counts (1 hit was defined as < 1 foot of consecutive stem rot damaged plants per row) were made immediately after plot inversion on Sept. 13, Sept. 19 and Sept. 27 for the mid-season, late, and very late maturing cultivars, respectively. Plots were

combined on Sept. 16, Sept. 22 and Sept. 30 for the early, mid and late maturing cultivars, respectively. Yields are reported at 7% moisture. Statistical analysis on leaf spot intensity as well as TSW and white mold incidence was done on rank transformations of data, but back transformed data are presented. Means were separated using Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Weather: Rainfall totals during the study period were below to well below the historical average for May, June, September, and October but were near average for July and August. Temperatures were at or above the season average throughout the production season.

Results: Incidence of TSW in 'TxL 080244-03', 'TxL 080256-02', 'UF 07025', and 'ARSOK-V31', which matched that observed in 'TxL 080243-06', was greater compared with the Virginia standard Bailey and runner standard 'Georgia-06G'. Among the remaining runner market type breeding lines, only 'UF15303' had TSW indices that were greater than 'Georgia-06G', while those recorded for the breeding lines 'GA 122706', 'GA 122707', and newly released variety 'AU NPL 17' were significantly lower. Among the Virginia breeding lines, 'N12008o1CLSmT', 'N12009o1CLT', and 'N12010o1' had TSW indices as low as the Bailey standard.

While significant differences in defoliation levels were noted between breeding lines, overall leaf spot pressure was low. Greater late leaf spot-incited premature defoliation was noted on 'ARSOK-V31' than any other runner or Virginia-market type breeding lines or commercial standards. None of the runner or Virginia breeding lines had lower % defoliation ratings than the 'Georgia-06G' or 'Bailey' commercial standards. While white mold incidence was low, differences in hit counts were noted.

White mold incidence was greater in 'ARSOK-V31' than all breeding lines except for the runner commercial standard 'Georgia-06G'. Similarly low white mold levels were observed on the remaining breeding lines and Virginia commercial standard. Among the runner-market type breeding lines, 'AU NPL 17', 'GA 122706', 'GA 122707', 'GA 122708', and 'UF 08036' yields matched those of the 'Georgia-06G' commercial standard. Low yields recorded for for 'TxL 080244-03', 'TxL 080256-02', 'TxL 080243-06' are attributed to high TSW indices. Yields for the Virginia commercial standard 'Bailey' were similar to the Virginia breeding lines 'N12008o1CLSmT', 'N12009o1CLT', 'N12010o1', and 'ARSOK-V31'.

Summary: The runner breeding lines 'AU NPL 17', 'GA 122706', 'GA 122707', 'GA 122708', and 'UF 08036' either matched or exceeded the disease package and yield response of the current runner commercial standard, 'Georgia-06G'. Currently, there is an ongoing seed increase for 'AU NPL 17' and small quantities of registered seed should be available in 2018. The runner breeding lines 'UF 07025' and 'UF 15303' have elevated TSW indices, which may limit their value where this disease is endemic in peanut and vegetable crops. Several of the Virginia breeding lines also displayed a good TSW resistance and comparable yields to the Bailey commercial standard.

PERFORMANCE OF RUNNER AND VIRGINIA MARKET-TYPE ADVANCED BREEDING LINES IN COMPARISON WITH SELECTED RUNNER AND VIRGINIA STANDARD VARIETIES IN SOUTHEAST ALABAMA, WREC

Peanut variety and breeding line	Market Type[1]	Maturity group	TSW[2] # hits/100 ft[2]	Leaf spot % defoliation[3]	White mold[2] # hits/40 ft[2]	Yield lb/A
Bailey (ck)	V	Early	3.3 efg[4]	0.6 fg	0.3 bc	4807 bc
Georgia-06G (ck)	R	Mid	6.8 cd	3.0 cde	0.8 ab	5752 a
UF 08036	R	Mid	5.3 de	1.7 c-f	0.3 bc	5734 a
UF 07025	R	Mid	12.5 ab	3.0 bcd	0.0 c	4562 bcd
UF 15303	R	Mid	11.0 bc	3.3 abc	0.5 bc	5175 abc
GA 122706	R	Late	3.3 efg	1.4 c-g	0.0 c	5838 a
GA 122707	R	Late	1.8 fg	0.8 efg	0.0 c	5802 a
GA 122708	R	Mid	4.0 def	2.3 cd	0.8 bc	5842 a
N12008o1CLSmT	V	Mid	4.8 de	1.4 d-g	0.0 c	5373 ab
N12009o1CLT	V	Early	3.0 efg	0.7 fg	0.3 bc	4461 cd
N12010o1	V	Early	3.8 def	0.5 g	0.0 c	4807 bc
TxL 080256-02	R	Early	22.0 ab	8.4 ab	0.0 c	3897 de
TxL 080243-06	R	Early	24.8 a	3.6 bcd	0.3 bc	2968 f
TxL 080244-03	R	Early	23.3 ab	4.6 bcd	0.8 bc	3587 ef
ARSOK-V31	V	Early	13.3 ab	11.4 a	2.3 a	4425 cde
AU/NPRL-14-10	R	Mid	6.5 de	1.8 c-f	0.5 bc	4869 bc
AU NPL 17	R	Mid	1.3 g	1.8 c-f	0.0 c	5950 a

1 R= runner and V = Virginia market type peanut breeding lines and varieties.

2 TSW and white mold incidence is expressed as the number of hits per 40 foot of row.

3 Leaf spot disease intensity was rated using the Florida 1 to 10 scale.

4 Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF MAZINGA AND EXPERIMENTAL FUNGICIDES FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, M. Pegues and J. Jones

Objective: To evaluate the new fungicide Mazinga and experimental fungicides SA-0450108, SA-0040309, and 0450109 and compare them against other currently registered products for control of late leaf spot, rust, and stem rot and yield response in a dry-land peanut production system in southwest Alabama.

Methods: Peanut cultivar 'Tufrunner 511' was planted on May 17 at the Gulf Coast Research and Extension Center near Fairhope, Ala., at a rate of five seed per foot of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was a Malbis fine sandy loam (Organic matter <1%). Thrips were controlled with an in-furrow application of 6-7 bl/A of Thimet 20G at planting. 5.0 lb/A of Rhizobium inoculant was also applied at planting. On May 17, after planting, 1 qt/A of Makazie + 1 qt/A of Prowl H2O + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied to the test area for weed control. On June 8, 8 oz/A of Gramoxone + 1.5 pt/A of Storm + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied for post-emergent weed control. On June 17, 1 ptA of Poast + 1 qt/A of Crop Oil were applied to test area for post-emergent weed control. On July 1, 0.45 oz/A of Strongarm + 2 oz/A of Cadre + LI700 at 1 qt/100 gal of H_20 were applied for weed control. Boron was applied to the test area on July 7 and July 19. On Aug. 25, 8 oz/A of Intrepid + 6 oz/A of Sniper were applied for insect control.

Plots, which consisted of four 30-ft rows on 38 in. centers, were arranged in a randomized complete block with six replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) June 29, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, and 7) Sept. 21 as a full canopy spray using a four-row ATV mounted CO2 sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Late leaf spot and rust were visually rated on Oct. 28 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants) and the ICRISAT rust rating scale (1 = no disease, ...9 = plants severely affected, 80-100% leaves withering).

Counts of stem rot loci (SR) were made on Oct. 29 immediately after plot inversion by determining the number of disease loci (1 ft is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 4 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near average and monthly rainfall totals were near average during May, Jun, Jul, Aug, and September. The level of leaf spot severity and defoliation was higher than had been observed in previous years. Late leaf spot appeared in the last week of August and progressed in September due to continued rainfall throughout the month. Stem rot incidence was similar to that observed in previous years. With the exception of SA-0040309/Muscle ADV/Echo 720, SA-0450109/Muscle ADV/Echo 720, and Echo 720/Abound+Alto, all fungicide programs had significantly lower leaf spot ratings than the untreated control. All remaining fungicide programs gave similar leaf spot control as the season-long Echo 720 standard. All fungicide programs had lower stem incidence than that observed with the untreated control. Among the fungicide programs, none had significantly lower stem rot indices than the season-long Echo 720 standard. Among the treatment programs that included application of Muscle ADV, only Headline/Muscle ADV/Echo 720 had significantly higher yields than the untreated control. Yield for the full-season Echo 720 standard and all other fungicide programs were similar.

EVALUATION OF MAZINGA AND EXPERIMENTAL FUNGICIDES FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

Treatment and Rate/A	Application Timing	Disease ratings		Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	
Untreated Control		7.2 a[3]	3.3 a	4680 d
Mazinga 32.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	5.9 bc	2.0 abc	4726 cd
Mazinga 32.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	5.8 bc	12. bc	4886 bcd
SA-0450108 30.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	5.8 bc	1.7 abc	4901 bcd
SA-0450108 25.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	6.0 b	1.3 bc	4909 bcd
SA-0450108 20.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	6.1 b	1.3 bc	4932 bcd
SA-0040309 16.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	6.4 ab	2.7 ab	4909 bcd
SA-0040309 21.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	6.2 b	1.8 abc	5184 a-d
SA-0450109 10.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	6.4 ab	1.7 abc	4679 d
Headline 2.09SC 6.0 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	6.1 b	1.0 bc	5345 ab
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	4.5 d	1.5 bc	5253 ab
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	4.7 d	0.8 c	5536 a
Echo 720 24.0 fl oz Abound 2.08SC 18.2 fl oz +Alto 0.83SL 5.5 fl oz	1,2,4,6,7 3,5	6.3 ab	1.3 bc	5230 abc
Echo 720 24.0 fl oz Echo 720 24.0 fl oz + Conovy 26.0 fl oz	1,2,4,6,7 3,5	5.8 bc	1.1 bc	5345 ab
Echo 720 24.0 fl oz	1-7	5.0 cd	1.8 abc	5490 a
LSD (P ≤ 0.05)	---	*0.9*	*1.8*	*513*

[1] Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).
[2] Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3] Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF ELATUS 45WG AND A19649 FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, M. Pegues and J. Jones

Objective: To evaluate the new fungicide Elatus 45WG and the experimental A19649 and compare them against other currently registered products for control of late leaf spot, rust, and stem rot and yield response in a dry-land peanut production system in southwest Alabama.

Methods: Peanut cultivar 'Tufrunner 511' was planted on May 17 at the Gulf Coast Research and Extension Center near Fairhope, Ala., at a rate of five seed per foot of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was a Malbis fine sandy loam (Organic matter <1%). Thrips were controlled with an in-furrow application of 6-7 bl/A of Thimet 20G at planting. 5.0 lb/A of Rhizobium inoculant was also applied at planting. On May 17, after planting, 1 qt/A of Makazie + 1 qt/A of Prowl H2O + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied to the test area for weed control. On June 8, 8 oz/A of Gramoxone + 1.5 pt/A of Storm + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of water were applied for post-emergent weed control. On June 17, 1 ptA of Poast + 1 qt/A of Crop Oil were applied to test area for post-emergent weed control. On July 1, 0.45 oz/A of Strongarm + 2 oz/A of Cadre + LI700 at 1 qt/100 gal of water were applied for weed control. Boron was applied to the test area on July 7 and July 19. On Aug. 25, 8 oz/A of Intrepid + 6 oz/A of Sniper were applied for insect control.

Plots, which consisted of four 30-ft rows on 38-inch centers, were arranged in a randomized complete block with six replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) June 29, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, and 7) Sept. 21 as a full canopy spray using a four-row ATV mounted CO_2 sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Late leaf spot and rust were visually rated on Oct. 28 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants) and the ICRISAT rust rating scale (1 = no disease, ...9 = plants severely affected, 80-100% leaves withering).

Counts of stem rot loci (SR) were made on Oct. 29 immediately after plot inversion by determining the number of disease loci (one foot is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 4 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near average and

monthly rainfall totals were near average during May, June, July, August, and September. The level of leaf spot severity and defoliation was higher than had been observed in previous years. Late leaf spot appeared the last week of August and progressed in September due to continued rainfall throughout the month. Stem rot incidence was similar to that observed in previous years. All fungicide programs had significantly lower leaf spot ratings than the untreated control. Among the fungicide treatment programs, Alto+Bravo WS (1,7)/ Elatus+A19649 (3,5) and Alto+Bravo WS(1.5)/Elatus+A19649(3,4.5)/Bravo WS(6,7) significantly reduced leaf spot control compared to the season-long Bravo WS standard. Control among all remaining treatment programs was similar to that observed with the Bravo WS standard.

All treatment programs had lower stem rot incidence than that observed with the untreated control. Among the treatment programs, none had significantly lower stem rot indices than the season-long Bravo WS standard. Among the treatment programs, except for Bravo WS/Muscle ADV and Bravo WS standard, all remaining programs significantly increased yield compared to the untreated control. Among the treatment programs, Bravo/ Provost Optima, Alto+Bravo WS(1,7)/Elatus+A19649(3,5), and Alto+Bravo(1)/Bravo WS(2,7)/Elatus+A19649(3,5) yielded significantly higher than the full-season Bravo WS standard. Yield for all other fungicide programs were similar.

EVALUATION OF ELATUS 45WG AND A19649 FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

Treatment and Rate/A	Application Timing	Disease ratings		Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	
Untreated Control		5.6 a[3]	2.5 a	4779 f
Bravo WS 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	3.3 b-e	0.3 bcd	5490 b-e
Bravo WS 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	2.8 cde	0.0 d	6209 a
Priaxor 6.0 fl oz Bravo WS 24.0 fl oz Priaxor 8.0 fl oz Bravo WS 24.0 fl oz + Muscle 3.6F 7.2 fl oz	1.5 3,7 4 5,6	3.0 cde	0.3 bcd	5718 a-e
Elatus 45WG 7.3 oz Bravo WS 24.0 fl oz	1,3,5 2,4,6,7	3.7 bc	0.3 bcd	5467 b-e
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz	1,6 2,4,7 3,5	3.3 b-e	0.2 cd	5467 b-e
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz	1,6 2,7 3,4.5	3.1 cde	0.3 bcd	5682 a-e
Elatus 45WG 9.5 oz Alto 0.83SL 5.5 floz + Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz Bravo WS 24.0 fl oz	EE 1.5 3 4,5,6,7	4.1 b	1.0 bc	5383 cde
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz + A19649 3.42 fl oz	1,7 3,5	2.6 e	0.3 bcd	5880 abc
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Elatus 45WG 9.5 oz + A19649 3.42 fl oz Bravo WS 24.0 fl oz	1.5 3,4.5 6,7	2.6 e	0.2 cd	5788 a-d
Elatus 45WG 7.3 oz + A19649 3.42 fl oz Bravo WS 24.0 fl oz Elatus 45WG 7.3 oz	1.5 2,4,6,7 3	2.8 cde	0.5 bcd	5460 bcde
Alto 0.83SL 5.5 fl oz + Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz Elatus 45WG + A19649 3.42 fl oz	1 2,7 3,5	2.7 de	0.2 cd	6010 ab
Bravo WS 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	2.6 bcd	1.0 bc	5146 ef
Bravo WS 24.0 fl oz Bravo WS 24.0 fl oz + Convoy 26.0 fl oz	1,2,4,6,7 3,5	3.4 b-e	1.2 b	5398 cde
Bravo WS 24.0 fl oz	1-7	3.6 bcd	0.5 bcd	5215 def
LSD (P ≤ 0.05)		*0.9*	*0.9*	*574*

[1] Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).
[2] Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3] Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF CHLOROTHALONIL ALTERNATIVES FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, M. Pegues and J. Jones

Objective: To evaluate common fungicides as an alternative to chlorothalonil and compare them against other currently registered products for control of late leaf spot, rust, and stem rot and yield response in a dry-land peanut production system in southwest Alabama.

Methods: Peanut cultivar 'Tufrunner 511' was planted on May 17 at the Gulf Coast Research and Extension Center near Fairhope, Ala., at a rate of five seed per foot of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was a Malbis fine sandy loam (Organic matter <1%). Thrips were controlled with an in-furrow application of 6-7 bl/A of Thimet 20G at planting. 5.0 lb/A of Rhizobium inoculant was also applied at planting. On May 17, after planting, 1 qt/A of Makazie + 1 qt/A of Prowl H2O + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied to the test area for weed control. On June 8, 8 oz/A of Gramoxone + 1.5 pt/A of Storm + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied for post-emergent weed control. On June 17, 1 ptA of Poast + 1 qt/A of Crop Oil were applied to test area for post-emergent weed control. On July 1, 0.45 oz/A of Strongarm + 2 oz/A of Cadre + LI700 at 1 qt/100 gal of H_20 were applied for weed control. Boron was applied to the test area on July 7 and July 19. On Aug. 25, 8 oz/A of Intrepid + 6 oz/A of Sniper were applied for insect control.

Plots, which consisted of four 30-ft rows on 38-inch centers, were arranged in a randomized complete block with six replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) June 29, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, and 7) Sept. 21 as a full canopy spray using a four-row ATV mounted CO_2 sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Late leaf spot and rust were visually rated on Oct. 28 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants) and the ICRISAT rust rating scale (1 = no disease, ...9 = plants severely affected, 80-100% leaves withering).

Counts of stem rot loci (SR) were made on Oct. 29 immediately after plot inversion by determining the number of disease loci (one foot is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 4 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near average and monthly rainfall totals were near average during May, June, July, August, and September. The level of late leaf spot severity and defoliation was higher than had been observed in previous years. Late leaf spot appeared the last week of August and progressed through September due to continued rainfall. Stem rot incidence was similar to levels observed in previous years. All fungicide programs had significantly lower leaf spot ratings than the untreated control. With the exception of the Mancozeb full season program and Domark + Echo 720, all of the remaining programs including those that included Elast, Mancozeb, CuproFix Ultra, and Domark had similar levels of leaf spot control as the season-long Echo 720 standard. All fungicide programs had lower stem incidence than the untreated control. Among all fungicide programs, none had significantly lower stem rot indices than the season-long Echo 720 standard. Among the treatment programs, Elast/Elast + Custodia, Absolute/Muscle ADV/Echo 720, and Domark(2.1 fl oz) + Echo 720 increased yield compared to the untreated control. Yield among all fungicide programs were similar to that observed with the season-long Echo 720 standard.

EVALUATION OF CHLOROTHALONIL ALTERNATIVES FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

Treatment and Rate/A	Application Timing	Disease ratings		Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	
Untreated Control	---	7.7 a[3]	5.7 a	3495 c
Elast 15.0 fl oz	1-7	5.4 b-e	3.0 b	3892 abc
Elast 15.0 fl oz Elast 15.0 fl oz + Custodia 15.5 fl oz	1,2,4,6,7 3,5	5.0 cde	2.5 b	4183 ab
Elast 15.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	5.5 bcd	1.5 b	3946 abc
Maancozeb 2.0 lb	1-7	5.9 b	2.8 b	3930 abc
Macozeb 2.0 lb + Topsin 4.5F 10.0 fl oz	1-7	5.8 bc	1.8 b	3823 abc
Mancozeb 2.0 lb + Topsin 4.5F 10.0 fl oz Mancozeb 2.0 lb + Muscle 3.6F 7.2 fl oz	1,2,7 3,4,5,6	5.8 bc	2.0 b	3831 abc
CuproFix Ultra 2.0 lb + Topsin 4.5F 10.0 fl oz	1-7	5.7 bcd	2.5 b	3938 abc
CuproFix Ultra 2.0 lb + Topsin 4.5F 10.0 fl oz Mancozeb 2.0 lb + Muscle 3.6F 7.2 fl oz	1,2,7 3,4,5,6	5.3 b-e	2.3 b	3976 abc
Absolute 500F 3.5 fl oz Muscle ADV 32.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5,6 7	4.9 de	2.3 b	4167 ab
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	4.7 e	1.3 b	4343 a
Echo 720 24.0 fl oz	1-7	5.1 cde	2.3 b	3892 abc
Domark 2.1 fl Oz + Echo 720 16.0 fl oz	1-7	5.3 b-e	2.8 b	4152 ab
Domark 3.2 fl oz + Echo 720 24.0 fl oz	1-7	6.0 b	2.8 b	3586 bc
Domark 3.2 fl oz	1-7	5.5 bcd	2.3 b	4053 abc
LSD (P≤0.05)		*0.8*	*1.8*	*602*

[1]Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Numbers followed by the same letter do not differ significantly.

COMPARISON OF FUNGICIDE R_X PROGRAMS FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, M. Pegues and J. Jones

Objective: To evaluate and compare four different fungicide R_x programs for control of early and late leaf spot, rust, stem rot and yield response in an irrigated peanut production system in southeast Alabama.

Methods: Peanut cultivar 'Tufrunner 511' was planted on May 17 at the Gulf Coast Research and Extension Center near Fairhope, Ala., at a rate of five seed per foot of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was a Malbis fine sandy loam (Organic matter <1%). Thrips were controlled with an in-furrow application of 6-7 bl/A of Thimet 20G at planting. 5.0 lb/A of Rhizobium inoculant was also applied at planting. On May 17, after planting, 1 qt/A of Makazie + 1 qt/A of Prowl H2O + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied to the test area for weed control. On June 8, 8 oz/A of Gramoxone + 1.5 pt/A of Storm + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied for post-emergent weed control. On June 17, 1 ptA of Poast + 1 qt/A of Crop Oil were applied to test area for post-emergent weed control. On July 1, 0.45 oz/A of Strongarm + 2 oz/A of Cadre + LI700 at 1 qt/100 gal of H_20 were applied for weed control. Boron was applied to the test area on July 7 and July 19. On Aug. 25, 8 oz/A of Intrepid + 6 oz/A of Sniper were applied for insect control.

Plots, which consisted of four 30-ft rows on 38-inch centers, were arranged in a randomized complete block with six replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) June 29, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, and 7) Sept. 21 as a full canopy spray using a four-row ATV mounted CO_2 sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Late leaf spot and rust were visually rated on Oct. 28 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants) and the ICRISAT rust rating scale (1 = no disease, ...9 = plants severely affected, 80-100% leaves withering).

Counts of stem rot loci (SR) were made on Oct. 29 immediately after plot inversion by determining the number of disease loci (one foot is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 4 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 production season, temperatures were near normal during June, July, August and September. Monthly rainfall totals were near normal during these months. The level of leaf spot severity and defoliation was higher than had been observed in previous years. Late leaf spot appeared in the last week of August and progressed in September due to continued rainfall throughout the month. Of the disease index programs tested, all gave better leaf spot control than was observed in the non-treated control plots. Comparison of the low index programs found that the Bravo/Provost program gave the best leaf spot control. When compared with the four application Bravo only treatment, all low index programs gave similar leaf spot control. When the medium index programs were compared, none gave significantly better leaf spot control than was observed with the five application Bravo only treatment. When compared with the full-season Bravo only treatment, all high index treatment programs with the exception of Headline/Conovy+Bravo+Topsin/Convoy+Headline/Convoy+Bravo/Topsin+Bravo gave better leaf spot than did the Bravo only treatment. Stem rot incidence was similar to that observed in previous years. Because stem rot incidence was low, all of the index treatment programs had similar levels of control. Yield among the treatment programs varied. Among all the treatment programs, the highest yield was with the Bravo+Alto/Elatus/Bravo program. Compared with the untreated control, all plots had numerically higher yields, however only the Proline/Provost/Bravo (high), Headline/Convoy+Bravo+Topsin/Convoy+Headline/Topsin+Bravo (low), Headline/Convoy+Bravo+Topsin/Convoy+Headline/Convoy+Bravo/Topsin+Bravo (medium), Bravo+Elatus/Elatus (low), Bravo+Alto/Elatus/Bravo (high), Priaxor/MuscleADV/Priaxor/Bravo (high) and Bravo (medium) programs yielded significantly higher than the non-treated control.

Summary: Generally in a year when the disease pressure is high and conditions are conducive to leaf spot, the more fungicide applications will result in better disease control and higher yields. Because late leaf spot pressure was higher in 2016, the high index (6 or more applications) R_x programs outperformed the low and medium index programs and also had higher yields.

COMPARISON OF FUNGICIDE R_x PROGRAMS FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCRECC

Treatment and Rate/A	Application Timing	Spray index	Disease ratings		
			Leaf Spot[1]	Stem Rot[2]	Yield lb/A
Untreated Control	---	---	6.7 a[3]	3.7 a	3938 e
Bravo WS 24.0 fl oz Provost 433SC 10.7 fl oz	1,7 3,5	Low 4 appl	3.9 fgh	0.7 d	4459 cde
Proline 480SC 5.7 fl oz Provost 433 SC 10.7 fl oz Bravo WS 24.0 fl oz	1 2.5,4,5.5 7	Med 5 appl	4.5 c-g	2.0 a-d	4478 cde
Proline 480SC 5.7 fl oz Provost 433 SC 10.7 fl oz Bravo WS 24.0 fl oz	1.5 3,4,5,6 7	High 6 appl	3.0 h	0.7 d	5230 ab
Headline 2.09SC 9.0 fl oz Convoy 21 fl oz + Bravo WS 24 fl oz + Topsin 5 fl oz Convoy 21 fl oz + Headline 9 fl oz Topsin + Bravo WS 5 fl oz + 16 fl oz	1 3 5 7	Low 4 appl	4.9 b-e	1.5 bcd	4547 bcd
Headline 2.09SC 9.0 fl oz Convoy + Bravo + Topsin 21 + 16 + 5 fl oz Convoy + Headline 21 + 9.0 fl oz Convoy 16 fl oz + Bravo WS 24 fl oz Topsin 5 fl oz + Bravo WS 16 fl oz	1.5 2.5 4 5.5 7	Med 5 appl	4.3 d-g	2.0 a-d	4611 bcd
Headline 2.09SC 9.0 fl oz Convoy 13 fl oz + Bravo 16 fl oz + Topsin 5 fl oz Convoy 13 fl oz + Bravo 24 fl oz Convoy 16 fl oz + Headline 9 fl oz Bravo WS 24 fl oz	1.5 3,6 4 5 7	High 6 appl	5.4 bc	3.3 ab	4219 de
Bravo 16 fl oz + Alto 5.5 fl oz Elatus 45WG 9.5 oz	1,7 3.5	Low 4 appl	4.5 c-g	1.3 cd	4695 a-d
Bravo 16 fl oz + Alto 5.5 fl oz Elatus 45WG 9.5 oz Bravo WS 24.0 fl oz	1,7 2.5, 5.5 4	Med 5 appl	4.5 c-g	1.5 bcd	4542 cde
Bravo 16 fl oz Alto 5.5 fl oz Elatus 9.5 oz Bravo WS 24.0 fl oz	1,6 3,5 2,4,7	High 7 appl	3.6 gh	0.7 d	5283 a
Muscle ADV 32.0 fl oz Fontelis 12.0 fl oz Bravo 24.0 fl oz	1 3,5 7	Low 4 appl	5.4 bc	2.7 abc	4166 de
Muscle ADV 32.0 fl oz Fontelis 16.0 fl oz Bravo 24.0 fl oz	1, 4 2.5,5.5 7	Med 5 appl	5.2 bcd	1.8 a-d	4432 cde
Muscle ADV 32.0 fl oz Fontelis 16.0 fl oz Bravo 24.0 fl oz	1,2 3,4,5 6,7	High 7 appl	4.1 efg	1.5 bcd	4511 cde
Priaxor 6 fl oz Priaxor 6 floz + Bravo 24 fl oz Muscle ADV 32 fl oz	1 3 5,7	Low 4 appl	5.2 bcd	1.1 cd	4313 de
Priaxor 6 fl oz Muscle ADV 32 fl oz Priaxor 8 fl oz Bravo 24 fl oz	1 2.5, 5.5 4 7	Med 5 appl	5.4 bc	3.3 ab	4336 de
Priaxor 6 fl oz Muscle ADV 32 fl oz Priaxor 8 fl oz Bravo 24 fl oz	1.5 3,5,6 4 7	High 6 appl	4.2 d-g	0.5 d	5024 abc
Bravo WS 24.0 fl oz	1,3,5,7	Low (4)	5.4 bc	1.8 a-d	4267 de
Bravo WS 24.0 fl oz	1,2.5,4,5.5,7	Med (5)	4.8 b-f	1.5 bcd	4334 bcd
Bravo WS 24.0 fl oz	1-7	High (7)	5.5 b	1.8 a-d	4320 de
LSD (P ≤0.05)			*0.9*	*1.8*	*621*

[1]Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).
[2]Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3]Numbers followed by the same letter do not differ significantly.

EVALUATION OF EXPERIMENTAL PEANUT VARIETIES USING DIFFERENT FUNGICIDE IMPUTS FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, M. Pegues and J. Jones

Objective: To evaluate two experimental peanut cultivars and compare them against peanut cultivar 'Georgia 06G' at varying fungicide inputs for control of early and late leaf spot and stem rot and yield response in a dry-land peanut production system in southwest Alabama.

Methods: Peanut cultivar 'Georgia 06G', 'MRS 37', and 'MRS 38' were planted on May 17 at the Gulf Coast Research and Extension Center near Fairhope, Ala., at a rate of five seed per foot of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was a Malbis fine sandy loam (Organic matter <1%). Thrips were controlled with an in-furrow application of 6-7 bl/A of Thimet 20G at planting. Also, 5 lb/A of Rhizobium inoculant was applied at planting. On May 17, after planting, 1 qt/A of Makazie + 1 qt/A of Prowl H2O + 3 0z/A of Valor were applied to the test area for weed control. On June 8, 8 oz/A of Gramoxone + 1.5 pt/A of Storm + 1 pt/A of 2,4 DB + LI 700 at 1 qt/100 gal of H_20 were applied for post-emergent weed control. On June 17, 1.5 pt/A of Poast + 1 qt/A of Crop Oil were applied for weed control. On July 1, 0.45 oz/A of Strongarm + 2 oz/A of Cadre + LI 700 at 1 qt/100 gal of H_20 were applied for weed control. Boron at 1 pt/A was applied to the test area on July 7 and July 19.

Plots, which consisted of four 30-ft rows on 38-inch centers, were arranged in a randomized complete block with six replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) June 29, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, 7) Sept. 21, and 8) Oct. 3 as a full canopy spray using a four-row ATV mounted CO_2 sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Late leaf spot and rust were visually rated on Oct. 13 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants).

Counts of stem rot loci (SR) were made on Oct. 14 immediately after plot inversion by determining the number of disease loci (one foot is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 19 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near average and monthly rainfall totals were near average during May, June, July, August, and September. The level of leaf spot severity and defoliation was higher than had been observed in previous years. Late leaf spot appeared in the last week of August and progressed throughout September due to continued rainfall throughout the month. Stem rot incidence was similar to that observed in previous years. Among the three cultivars tested, 'Georgia 06G' had higher incidence of late leaf spot than did either 'MRS 37' or 'MRS 38'. This was observed with all fungicide inputs. In both 'MRS 37' and 'MRS 38', the Echo 720 only full-season treatment provided similar or better leaf spot control than did the hi-input spray program. The Echo 720/Muscle ADV treatment program provided the poorest control compared with the other programs. Because stem rot incidence was low, little differences were observed among the cultivars tested. However, higher incidence was noted with 'Georgia 06G'. Late leaf spot severity affected yield among all three cultivars. With 'MRS 37', all fungicide treatments except Echo 720 only yielded higher than the non-treated control plot. With 'MRS 38', none of the treatment programs tested yielded significantly higher than did the non-treated control. Highest yield recorded was with the Georgia 06 hi-input spray program and the yield was significantly higher than all other cultivars and treatment programs except the 'Georgia 06G' Echo 720/Muscle ADV treatment program.

EVALUATION OF EXPERIMENTAL PEANUT VARIETIES USING DIFFERENT FUNGICIDE INPUTS FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

Cultivar	Treatment and Rate/A	Application Timing	Disease ratings		Yield lb/A
			Leaf Spot[1]	Stem Rot[2]	
MRS 37	Untreated Control	---	5.8 b[3]	0.8 bc	4560 e
	Echo 720 24.0 fl oz	1-7	4.4 de	0.2 cd	5062 cde
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	5.3 bc	0.2 cd	5337 bcd
	Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 2.08SC 18.5 fl oz Echo 24.0 fl oz + Convoy 21 fl oz	1,2 3,5 4,6 7	4.6 de	0.5 cd	5139 cde
MRS 38	Untreated Control	---	5.0 cd	0.3 cd	4833 de
	Echo 720 24.0 fl oz	1-7	4.2 e	0.2 cd	5116 cde
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	4.3 e	0.2 cd	5054 cde
	Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 2.08SC 18.5 fl oz Echo 24.0 fl oz + Convoy 21 fl oz	1,2 3,5 4,6 7	4.3 e	0.2 cd	5062 cde
GA 06G	Untreated Control	---	7.0 a	2.0 a	5314 bcd
	Echo 720 24.0 fl oz	1-7	5.8 b	1.5 ab	5559 bc
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	5.8 bc	0.8 bc	5865 ab
	Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 2.08SC 18.5 fl oz Echo 24.0 fl oz + Convoy 21 fl oz	1,2 3,5 4,6 7	5.5 bc	0.8 bc	6293 a
LSD (P ≤0.05)			*0.8*	*0.8*	*716*

[1] Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).
[3] Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3] Numbers followed by the same letter do not differ significantly.

EVALUATION OF APROACH, APROACH PRIMA AND OTHER FUNGICIDES FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

H.L. Campbell, A.K. Hagan, K.L. Bowen, M. Pegues and J. Jones

Objective: To evaluate the new fungicide Aproach and Aproach and compare them against other currently registered products for control of late leaf spot, and stem rot and yield response in a dry-land peanut production system in southwest Alabama.

Methods: Peanut cultivar 'Tufrunner 511' was planted on May 17 at the Gulf Coast Research and Extension Center near Fairhope, Ala., at a rate of five seed per ft of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was a Malbis fine sandy loam (Organic matter <1%). Thrips were controlled with an in-furrow application of 6-7 bl/A of Thimet 20G at planting. 5.0 lb/A of Rhizobium inoculant was also applied at planting. On May 17, after planting, 1 qt/A of Makazie + 1 qt/A of Prowl H2O + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied to the test area for weed control. On June 8, 8 oz/A of Gramoxone + 1.5 pt/A of Storm + 1 pt/A of 2,4 DB + LI700 at 1 qt/100 gal of H2O were applied for post-emergent weed control. On June 17, 1 ptA of Poast + 1 qt/A of Crop Oil were applied to test area for post-emergent weed control. On July 1, 0.45 oz/A of Strongarm + 2 oz/A of Cadre + LI700 at 1 qt/100 gal of H_20 were applied for weed control. Boron was applied to the test area on July 7 and July 19. On Aug. 25, 8 oz/A of Intrepid + 6 oz/A of Sniper were applied for insect control.

Plots, which consisted of four 30-ft rows on 38 in. centers, were arranged in a randomized complete block with six replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) June 29, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, and 7) Sept. 21 as a full canopy spray using a four-row ATV mounted CO_2 sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Late leaf spot and rust were visually rated on Oct. 28 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants) and the ICRISAT rust rating scale (1 = no disease, ...9 = plants severely affected, 80-100% leaves withering).

Counts of stem rot loci (SR) were made on Oct. 29 immediately after plot inversion by determining the number of disease loci (1 ft is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 4 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near average and monthly rainfall totals were near average during May, Jun, Jul, Aug, and September. The level of leaf spot severity and defoliation was higher than had been observed in previous years. Late leaf spot appeared the last week of August and progressed in September due to continued rainfall throughout the month. Stem rot incidence was similar to that observed in previous years. All fungicide programs had significantly lower leaf spot severity than the untreated control. Among the fungicide treatment programs, the highest leaf spot severity was observed with the Echo/Echo + Convoy treatment program. When compared to the season-long Echo 720 standard, the best leaf spot control was with the Aproach Prima/ Fontelis/Echo 720 program. Control among all remaining treatment programs was similar to that observed with the season long Echo 720 standard. All treatment programs had lower stem incidence than that observed with the untreated control. Among the treatment programs, none had significantly lower stem rot indices than the season-long Echo 720 standard. Among the treatment programs, except for Bravo WS/Muscle ADV and Bravo WS standard, all remaining programs significantly increased yield compared to the untreated control. Among the treatment programs, significant yield increases were obtained with the Aproach + Alto/Fontelis/Echo 720 and Echo 720/Fontelis programs when compared with the non-treated control. Yield for all other fungicide programs was similar.

EVALUATION OF APROACH, APROACH PRIMA AND OTHER FUNGICIDES FOR PEANUT DISEASE CONTROL IN SOUTHWEST ALABAMA, GCREC

Treatment and Rate/A	Application Timing	Disease ratings		Yield lb/A
		Leaf Spot[1]	Stem Rot[2]	
Untreated Control	---	5.3 a[3]	3.7 a	4557 b
Aproach 5.5 fl oz + Alto 0.83SL 5.5 fl oz Fontelis 16.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5 6,7	3.7 b-e	0.7 b	5223 a
Aproach Prima 6.8 fl oz Fontelis 16.0 fl oz Echo 720 24.0 fl oz	1,2 3,4,5 6,7	3.3 e	1.0 b	5054 ab
Priaxor 4.0 fl oz Elatus 45WG 8.0 oz Echo 720 24.0 fl oz	1,2 3,4,5 6,7	3.7 b-e	1.0 b	4940 ab
Priaxor 4.0 fl oz Elatus 45 WG 9.5 oz Echo 720 16.0 fl oz+ Alto 0.83SL 5.5 fl oz Echo 720 24.0 fl oz	1,2 3,5 4 6,7	3.7 b-e	0.8 b	5001 ab
Echo 720 24.0 fl oz Headline 2.09SC 9.0 fl oz	1,2,4,6,7 3,5	3.3 de	1.1 b	4978 ab
Echo 720 24.0 fl oz Priaxor 6.0 fl oz	1,2,4,6,7 3,5	4.0 bc	1.5 b	4611 b
Priaxor 6.0 fl oz Echo 720 24.0 fl oz	1.5, 3,5 4,6,7	3.6 b-e	1.3 b	4817 ab
Priaxor 6.0 fl oz Echo 720 24.0 fl oz Priaxor 8.0 fl oz	1.5,3 2,4,6,7 5	3.4 cde	1.1 b	4939 ab
Echo 720 24.0 fl oz Elatus 9.5 oz	1,2,4,6,7 3,5	3.8 b-e	1.8 b	4733 ab
Priaxor 6.0 fl oz Muscle 3.6F 7.2 fl oz Priaxor 8.0 fl oz Echo 720 24.0 fl oz	1.5 3,5 4 6,7	4.1 b	1.7 b	4947 ab
Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.8 b-e	0.8 b	4993 ab
Echo 720 24.0 fl oz Provost Optima 10.7 fl oz	1,2,7 3,4,5,6	3.5 cde	0.5 b	4886 ab
Echo 720 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	3.7 b-e	1.8 b	5184 a
Echo 720 24.0 fl oz Echo 720 24.0 fl oz + Convoy 26.0 fl oz	1,2,4,6,7 3,5	4.2 b	2.0 b	5023 ab
Echo 720 24.0 fl oz	1-7	3.9 bcd	1.7 b	4825 ab
LSD (P ≤0.05)		*0.6*	*1.6*	*510*

[1] Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).

[2] Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.

[3] Numbers followed by the same letter do not differ significantly.

RECOMMENDED FUNGICIDE PROGRAMS COMPARED FOR YIELD RESPONSE AS WELL AS CONTROL OF LEAF SPOT AND WHITE MOLD IN TWO PEANUT VARIETIES IN SOUTHWEST ALABAMA, GCREC

A. K. Hagan, H. L. Campbell, M. Pegues, and J. Jones

Objective: Compared the yield response and disease control with recommended fungicide programs on two peanut varieties at the Gulf Coast Research and Extension Center in Fairhope, Ala., in 2016.

Production Methods: A burndown application of 1 quart per acre Roundup WeatherMAX was made on March 23 to the winter rye covercrop. After the rows were laid off with a KMC strip till rig with rolling baskets on April 21, the runner-market type peanut varieties 'Georgia-06G' and 'TUFRunner 511' were planted on May 17 at a rate of 6 seed per row foot in a Malbis fine sandy loam (OM<1%) soil in a field cropped to peanut every third year at the Gulf Coast Research and Extension Center in Fairhope, Ala. Weed control was obtained with an at-plant broadcast application of 1 quart per acre Makazie + 1 quart per acre Prowl H2O + 3 ounces per acre Valor on May 17 followed by 8 fluid ounces Gramoxone + 1.5 pint per acre Storm + 1 pt per acre 2.4 DB on June 16, and 2 ounces per acre Cadre + 0.45 ounces per acre Strongarm on July 1. Soil fertility recommendations of the Alabama Cooperative Extension System were followed. The study area was not irrigated. Plots received 0.35 inches of water via a lateral irrigation system on July 11 and July 13. A split plot design with peanut variety as whole plots and fungicide programs as sub-plots was used. Whole plots were randomized in four complete blocks. Individual sub-plots consisted of four 30-foot rows spaced 3.2-feet apart. Thimet 20G at 5 lbs./A was applied in-furrow for thrips control. Fungicides were applied on 1) June 29, 1.5) July 6, 2) July 13, 3) July 28, 4) Aug. 9, 5) Aug. 23, 6) Sept. 8, and Sept. 21 with an ATV mounted boom sprayer with three TX-8 nozzles per row calibrated to deliver 15 gallons per acre of spray volume at 45 psi.

Disease Assessment: Late leaf spot was rated on Sept. 28 using the 1-10 Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting and < 10% defoliation, 5 = leaf spots noticeable and < 25% defoliation, 6 = leaf spots numerous and < 50% defoliation, 7 = leaf spots very numerous and < 75% defoliation, 8 = numerous leaf spots on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with leaf spots and < 95% defoliation, and 10 = plants defoliated or dead. Defoliation values were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)]. White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion on Sept. 29. Plots were inverted on Sept. 29. Significance of interactions

was evaluated using PROC GLIMMIX procedure in SAS. Statistical analyses were done on rank transformations for non-normal data for leaf spot defoliation, white mold incidence, and yield, but back transformed data are presented. Means were separated using Fisher's least significant difference (LSD) test ($P \leq 0.05$).

Weather: Rainfall totals for May, June, July, and September were below the 30-year average and above average for August. Temperatures were generally at or slightly above average from May through September.

Results: While late leaf spot defoliation was higher in 'TUFRunner 511' than 'Georgia-06G', white mold incidence and yields were similar for both varieties. Significant differences in late leaf spot defoliation attributed to late leaf spot or white mold incidence were not observed between fungicide programs. Yield for the Echo/Provost Opti program were greater compared with the Echo/Convoy + Echo, Echo/Artisan + Echo, Echo/Muscle ADV, Echo/Abound + Alto programs, all of which all had similarly lower yields. Low yields reported for the Echo/Artisan + Echo program were also matched by the Echo/Fontelis and Also + Echo/Echo/Elatus programs.

RECOMMENDED FUNGICIDE PROGRAMS COMPARED FOR YIELD RESPONSE AS WELL AS CONTROL OF LEAF SPOT AND WHITE MOLD IN TWO PEANUT VARIETIES IN SOUTHWEST ALABAMA, GCREC

Source of Variation	Application Schedule	Late leaf spot % defoliation[1]	White mold # hits/60 ft[2]	Yield lb/A
Variety	---	14.99**[3]	0.69	0.23
Fungicide program	---	1.62	0.55	2.16*
Variety x Fungicide program	---	0.46	0.54	1.89
Variety				
TUFRunner 511	---	15.7 a[4]	1.0 a	6232 a
Georgia-06G	---	4.9 b	1.3 a	6174 a
Fungicide program and rate per acre				
Echo 720 1.5 pt	1-7	6.9 a	1.4 a	6400 abc
Priaxor 6 fl oz Muscle ADV 1 qt Priaxor 6 fl oz Echo 720 1.5 pt	1.5 3,5 4,6 7	4.8 a	0.9 a	6446 ab
Echo 720 1.5 pt Provost Opti 10.7 fl oz	1,2,7 3-6	3.6 a	1.1 a	6526 a
Echo 720 1.5 pt Convoy 26 fl oz + Echo 720 1.5 pt	1,2,4,6,7 3,5	16.1 a	1.3 a	5987 cd
Echo 720 1.5 pt Artisan 26 fl oz + Echo 720 1.5 pt	1,2,4,6,7 3,5	12.4 a	0.9 a	5936 d
Echo 720 1.5 pt Muscle ADV 1 qt	1,2,7 3-6	5.1 a	0.6 a	6050 bcd
Echo 720 1.5 pt Fontelis 1 pt	1,2,6,7 3,4,5	17.2 a	1.5 a	6208 a-d
Echo 720 1.5 pt Abound 18.2 fl oz + Alto 5.5 fl oz	1,2,4,6,7 3,5	15.7 a	1.4 a	6068 bcd
Alto 5.5 fl oz + Echo 720 1 pt Echo 720 1.5 pt Elatus 9.5 oz	1,6 2,4,7 3,5	10.8 a	1.3 a	6211 a-d

[1] Leaf spot disease intensity was rated using the Florida 1 to 10 scale on Sept. 28 and converted to % defoliation values.

[2] White mold incidence, which is expressed as the number of hits per 60 ft of row, was recorded on Sept. 29.

[3] Significance of F values at the 0.05, 0.01, and 0.001 levels is indicated by *, **, or ***, respectively.

[4] Means in each column followed by the same letter are not significantly different.

YIELDS AND DISEASE CONTROL IN COMMERCIAL RUNNER PEANUT VARIETIES AS IMPACTED BY FUNGICIDE PROGRAM IN SOUTHWEST ALABAMA, GCREC

A. K. Hagan, H. L. Campbell, M. Pegues, and J. Jones

Objective: Compare the yields as well as level of leaf spot and white mold control obtained with a standard and high input fungicide program on selected commercial peanut cultivars at the at the Gulf Coast Research and Extension Center in Southwest Alabama.

Production Methods: A burndown application of 1 quart per acre Roundup WeatherMAX was made on March 23 to the winter rye cover crop. After the rows were laid off with a KMC strip till rig with rolling baskets on April 21, the runner-market type peanut varieties 'Georgia-06G' and 'TUFRunner 511' were planted on May 17 at a rate of 6 seed per row foot in a Malbis fine sandy loam (OM<1%) soil in a field cropped to peanut every third year at the Gulf Coast Research and Extension Center in Fairhope, Ala. Weed control was obtained with an at-plant broadcast application of 1 quart per acre Makazie + 1 quart per acre Prowl H2O + 3 ounces per acre Valor on May 17 followed by 8 fluid ounces Gramoxone + 1.5 pint per acre Storm + 1 pt per acre 2.4 DB on June 16, and 2 ounces per acre Cadre + 0.45 ounces per acre Strongarm on 1 Jul. Soil fertility recommendations of the Alabama Cooperative Extension System were followed. The study area was not irrigated. Plots received 0.35 inches of water via a lateral irrigation system on July 11 and July 13. A factorial design arranged in a split plot with peanut variety as whole plots and fungicide program as sub-plots was used. Whole plots were randomized in four complete blocks. Individual sub-plots consisted of four 30-foot rows spaced 3.2-feet apart. Thimet 20G at 5 pounds per acre was applied in-furrow for thrips control. While the standard fungicide program consisted of seven applications of 1.5 pints per acre Bravo WeatherStik 6F, the high input program included two initial applications of 3.5 fluid ounces per acre Absolute 500F followed by 10.7 fluid ounces per acre Provost Opti, 18.5 fluid ounces per acre Abound 2SC, 10.7 fluid ounces per acre Provost Opti, 18.5 fluid ounces per acre Abound 2SC, and a final application of 1.5 pints per acre Bravo Weather Stik 6F. Fungicides were applied on 1) July 7, 2) July 21, 3) Aug. 4, 4) Aug. 24, 5) Sept. 1, 6) Sept. 14, and 7) Sept. 30 with an ATV mounted boom sprayer with three TX-8 nozzles per row calibrated to deliver 15 gallons per acre of spray volume at 45 psi.

Disease Assessment: Late leaf spot was rated on Sept. 28 using the 1-10 Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting and < 10% defoliation, 5 = leaf spots noticeable and < 25% defoliation, 6 = leaf spots numerous and < 50% defoliation, 7 = leaf spots very numerous and < 75% defoliation, 8 = numerous leaf spots on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with leaf spots and < 95% defoliation, and 10 = plants defoliated or dead. Defoliation values

were calculated from leaf spot intensity ratings using the formula [% Defoliation = 100/(1+e(-(Florida scale value-6.0672)/0.7975)]. White mold hit counts (1 hit was defined as < 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion on Sept. 29. Plots were inverted on Sept. 29. Significance of interactions was evaluated using PROC GLIMMIX procedure in SAS. Statistical analyses were done on rank transformations for non-normal data for late leaf spot defoliation, white mold incidence, and yield, but back transformed data are presented. Means were separated using Fisher's least significant difference (LSD) test ($P \leq 0.05$).

Weather: Rainfall totals for May, June, July, and September were below the 30-year average and above average for August. Temperatures were generally at or slightly above average from May through September.

Results: Despite minimal TSW pressure, significant differences in disease incidence were noted between peanut varieties with 'TUFRunner 511' having greater TSW hit counts than all varieties except for 'Florida 07', 'FloRun 107', 'FloRun 157', and 'Georgia-06G'. The low TSW incidence noted in 'Georgia-12Y', 'Georgia-13M', and 'TUFRunner 297' was matched by 'Georgia-14N', 'Tifguard', 'TUFRunner 727', 'Georgia-09B', 'Georgia-06G', and 'Florida 07'. Defoliation attributed to late leaf spot differed considerably among the varieties screened with 'Georgia-13M' and 'TUFRunner 511' suffering the heaviest leaf spotting and premature leaf shed. In contrast, the least late leaf spot-incited defoliation observed on 'Georgia-12Y' was matched only by 'FloRun 157'. White mold incidence was higher on 'TUFRunner 511' than any other varieties except for 'FloRun 157', 'FloRun 107', 'TUFRunner 727', and 'TUFRunner 297'. A lower white mold indices was recorded for 'Georgia-14N' than the former five varieties as well as 'Florida 07' and 'Georgia-06G'. Equally high yields reported for 'Georgia-12Y' and 'TUFRunner 297' did not significantly differ from 'FloRun 157' and 'Georgia-06G'. The low yields noted for 'FloRun 107' were similar to 'Georgia-13M', 'Tifguard', 'Florida 07', and 'Georgia-14N'. While the high input fungicide program provided better protection from late leaf spot compared with the season-long Bravo WS standard, similar white mold and TSW incidence along with yield was similar for both fungicide programs. Absence of significant variety x fungicide program interactions illustrated that the response to fungicide inputs was similar across all varieties.

Summary: Overall, the intensive fungicide program provided better late leaf spot control but failed, despite significantly greater product costs, increase yield across 13 peanut varieties. Greatest yields were recorded for 'Georgia-12Y' and 'TUFRunner 297' along with 'TUFRunner 727', 'FloRun 157', and 'Georgia-06G'.

YIELDS AND DISEASE CONTROL IN COMMERCIAL RUNNER PEANUT VARIETIES AS IMPACTED BY FUNGICIDE PROGRAM IN SOUTHWEST ALABAMA, GCREC

Source of Variation	TSW Incidence # hits/60 ft[1]	Late leaf spot % defoliation[2]	White mold # hits/60 ft	Yield lb/A
Variety	2.22* [3]	25.61***	4.14***	3.51**
Fungicide program	0.01	5.63*	0.04	0.91
Variety x Fungicide program	0.48	1.24	0.93	0.92
Variety				
Florida 07	0.8 abc [4]	8.5 bc	1.0 b-e	5236 def
FloRun 107	1.3 ab	10.1 bc	1.5 abc	4909 f
FloRun 157	1.0 ab	4.4 de	1.8 ab	5609 a-d
Georgia-06G	0.8 abc	10.8 bc	1.4 a-d	5643 a-d
Georgia-09B	0.4 bc	10.8 cd	0.4 ef	5528 b-e
Georgia-12Y	0.1 c	2.5 e	0.1 f	6010 a
Georgia-13M	0.1 c	66.3 a	0.6 c-f	5236 def
Georgia-14N	0.5 bc	5.5 cd	0.0 f	5150 ef
TUFRunner 297	0.1 c	26.7 b	1.3 a-e	5935 a
TUFRunner 511	1.6 a	79.2 a	2.6 a	5357 cde
TUFRunner 727	0.9 bc	5.4 cd	1.4 abc	5781 abc
Tifguard	0.4 bc	5.6 cd	0.5 def	5253 def
Fungicide Program				
Bravo WS Standard	0.7 a	17.3 b	1.0 a	5435 a
High Input	0.6 a	22.0 a	1.1 a	5506 a

[1]TSW (tomato spotted wilt) incidence was rated on Sept. 6.

[2]Leaf spot ratings were recorded on Sept. 28.

[3]Significance of F values at the 0.05, 0.01, and 0.001 levels is indicated by *, **, or ***, respectively.

[4]Means in each column followed by the same letter are not significantly different.

YIELDS AND DISEASE REACTION OF SELECTED COMMERCIAL RUNNER AND VIRGINIA-MARKET TYPE PEANUTS IN SOUTHWEST ALABAMA, BARU

H. L. Campbell, A. K. Hagan, and H. B. Miller

Objective: Assess the yield response and reaction of commercial runner- and Virginia-market type peanuts to diseases in a dry-land production setting.

Production Methods: Peanut cultivars were planted on May 26 at a rate of approximately 6 seed/ft in a Benndale sandy loam soil (≤ 1% organic material) at the Brewton Agricultural Research Unit (USDA Hardiness Zone 8a). A pre-plant application of 1 qt/A Dual Magnum on May 26 was followed by an early-post broadcast applications of 1.7 fl oz/A Strongarm + 2 fl oz/A Cadre + 16 fl oz/A Select on June 21 were made for weed control. On July 15, 12 fl oz/A of 2,4,DB + 16 fl oz/A Select were applied to test area for weed control. The study was not irrigated. Equus 720 SST at 1.5 pt/A was applied on June 29, July 14, July 28, Aug. 17, Aug. 24, Sept.7, and Sept.21. Plots consisted of four 30–ft rows, spaced 3 feet apart, arranged in a randomized complete block, with four replications.

Disease Assessment: TSW hit counts were made on Aug. 3 by counting the number of infected loci (1 hit was defined as < 1 ft of consecutive white mold damaged plants per row). Late leaf spot was rated on Oct. 7 for the mid-season, late, and very late maturing cultivars, respectively, using the Florida 1 to 10 scale where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and < 90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. White mold (1 hit was defined as < 1 ft of consecutive white mold damaged plants per row) were made immediately after plot inversion on Oct. 7 for the mid-season, late, and very late maturing cultivars, respectively. Plots were combined on Oct. 12. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Weather: The study site received 3.0 inches of rain in June, 5.81 inches in July, 4.08 inches in August, and 2.29 inches in September. Temperatures were at to slightly above the seasonal average for the study location.

Results: The pressure from TSW was moderate at this site and differences in variety reaction to this disease were observed. The highest number of TSW hits was observed in 'Florunner 157' followed closely by 'TUFrunner 511', 'Wynne', and 'Florida Fancy'. While the majority of peanut varieties had similar leaf spot ratings, 'TUFRunner 297', 'TUFRunner 511' and 'Georgia-13M' had higher leaf spot ratings than all other varieties. White mold incidence was low at this location however differences in varietal reaction to white mold was noted with the highest incidence observed with 'TUFRunner 511'. Disease incidence in both the Virginia-market type varieties along with the runner market type varieties all had equally low white

mold indices. Among the Virginia market type varieties ‘’Sullivan’ had the highest yield while yield among the remaining Virginia varieties was similar. Among the runner type varieties highest yields was recorded with ‘TUFRunner 727’. Yield among the remaining varieties was similar with the exception of ‘Florunner 157’ and ‘TUFRunner 511’ which yielded lowest.

Summary: Among the runner market-type peanut varieties, ‘TUFRunner 727’ had higher yields than all other varieties. No differences in yield were seen between the four Virginia-market type peanuts. ‘Georgia-13M’ and ‘TUFRunner 511’ both had higher leaf spot ratings than the majority of varieties screened and will need more intense fungicide programs to avoid yield losses due to leaf spot diseases.

YIELD AND DISEASE REACTION OF SELECTED COMMERCIAL RUNNER AND VIRGINIA-MARKET TYPE PEANUTS IN CENTRAL ALABAMA, BARU

Cultivar	Market Type	TSW[1]	Leaf Spot[2]	Stem Rot[3]	Yield lb/A
Bailey	Virginia	1.5 bcde[4]	4.4 de	0.3 b	4569 abcd
Sullivan	Virginia	1.0 cde	4.3 de	0.3 b	5374 a
Wynne	Virginia	2.5 abc	4.0 e	0.5 b	4519 abcd
Florida Fancy	Virginia	2.0 abcd	4.6 cd	0.0 b	4236 bcd
Georgia-06G	Runner	1.3 bcde	4.6 cd	0.0 b	4262 bcd
Georgia-09B	Runner	0.8 de	4.4 de	0.0 b	5008 abc
Georgia-12Y	Runner	0.0 e	4.4 de	0.0 b	4731 abcd
Georgia-13M	Runner	0.0 e	5.9 a	0.0 b	4308 bcd
Georgia-14N	Runner	0.3 e	4.3 de	0.3 b	4130 cd
Florunner 107	Runner	1.3 bcde	5.0 bc	0.0 b	4529 abcd
Florunner 157	Runner	3.3 a	4.6 cd	0.5 b	3957 d
TUFRunner 297	Runner	0.5 de	5.8 a	0.3 b	4873 abcd
TUFRunner 727	Runner	1.3 bcde	4.5 cde	0.0 b	5159 ab
TUFRunner 511	Runner	2.8 ab	5.5 ab	1.3 a	4009 d
LSD ($P \leq 0.05$)		1.5	0.5	0.5	945

[1]TSW is expressed as the number of hits per 60 ft of row.
[2]Leaf spot diseases were rated using the Florida 1 to 10 scale.
[3]White mold incidence is expressed as the number of hits per 60 ft of row.
[4]Means in each column followed by the same letter are not significantly different according Fisher’s least significant difference (LSD) test ($P \leq 0.05$).

YIELD AND DISEASE REACTION OF SELECTED COMMERCIAL RUNNER AND VIRGINIA-MARKET TYPE PEANUTS IN CENTRAL ALABAMA, PBU

H. L. Campbell, A. K. Hagan, and J. Burkett

Objective: Assess the yield response and reaction of commercial runner- and Virginia-market type peanuts to diseases in an irrigated production setting.

Production Methods: The test site was disked and chiseled prior to sowing on May 19. Virginia peanut cultivars 'Bailey', 'Sullivan', 'Wynne', and 'Florida Fancy' as well as runner cultivars 'Georgia 06G', 'Georgia 09B', 'Georgia 12Y', 'Georgia 13M', 'Georgia 14N', 'Florunner 107', 'Florunner 157', 'TUfrunner 297', 'TUFrunner 511', and 'TUFruner 727' were evaluated.

Each peanut cultivar was planted at a rate of 6 seed per foot of row in an Independence (Cahaba) loamy fine sand (OM<1%) on May 26. Weed control was obtained with a pre-plant application of Dual Magnum II at 1.0 pt/A on May 25. Post emergent weed control was obtained with Storm applied at 1.5 pt/A + 2,4 DB at 1.5 pt/A on July 8 and with Cadre applied at 4 oz/A on July 15. Section 3 was applied on July 23 for post-emergent weed control. Thrips control was obtained with an early post application of Orthene 90S at 0.5 lb/A. A center pivot irrigation system was used to apply water as needed. Plots, which contained four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with four replications. Fungicides were applied on July 6, July 21, Aug. 5, Aug. 23, Sept. 9, Sept. 23, and Oct. 7 with a four-row tractor mounted sprayer.

Disease Assessment: Early leaf spot (ELS) was rated on Sept. 20 and Oct. 12 using the Florida 1-10 peanut leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions in canopy and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and <90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. White mold hit counts (1 hit was defined as < 1 ft of consecutive white mold-damaged plants per row) were made immediately after plot inversion on Oct. 13. Plots were harvested on Oct. 27 and yields are reported at <10% moisture. Statistical analysis on leaf spot intensity and white mold incidence was done using Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Weather: Monthly rainfall totals for June, July, and August, were near the 30 year historical average but slightly below average during September and October. Plots were irrigated as needed using a central pivot system. Weather patterns were favorable for leaf spot diseases through the second week of September but as the weather patterns changed to a more dry environment, disease development slowed. Weather patterns were not conducive to white mold development. Temperatures were at to slightly above the seasonal average for the study location.

Results: The pressure from TSW was very low at this site and no differences in variety reaction to this disease was observed (data not shown). Early leaf spot was very severe at this location and even though chlorothalonil was applied seven times, leaf spot severity among the cultivars was severe. Among the runner cultivars, 'Florunner 157' had the worst leaf spot severity and the lowest severity was observed in 'Georgia 09B' and 'TUFrunner 511'. Among the Virginia cultivars, Bailey had the worst leaf spot severity but all had similar levels of leaf spot severity. All cultivars had similar levels of early leaf spot defoliation. Due to heavy early leaf spot pressure, white mold never materialized and disease incidence was minimal. Early leaf spot impacted yields and the lowest yield was obtained with the cultivar with highest leaf spot defoliation, 'Florunner 157'. 'TUFrunner 511' yielded highest and yields obtained with 'Florunnner 107', 'TUFrunner 297', and 'TUFrunner 727' were similar. Among the Virginia market type varieties, 'Sullivan' yielded lowest and was similar to that seen with all other Virginia type varieties.

YIELD AND DISEASE REACTION OF SELECTED COMMERCIAL RUNNER AND VIRGINIA-MARKET TYPE PEANUTS IN CENTRAL ALABAMA, PBU

Cultivar	Market type	Leaf Spot[1]	Stem Rot[2]	Yield lb/A
Bailey	Virginia	4.3 c[3]	1.0 abc	3209 ab
Sullivan	Virginia	3.5 e	1.3 abc	2943 bc
Wynne	Virginia	4.0 cde	1.0 abc	3119 b
Florida Fancy	Virginia	3.6 de	1.5 abc	3073 b
Georgia-06G	Runner	5.0 b	0.8 abc	2765 bc
Georgia-09B	Runner	4.0 cde	1.8 ab	2741 bc
Georgia-12Y	Runner	4.1 cd	0.0 c	2735 bc
Georgia-13M	Runner	4.5 bc	0.5 abc	3079 b
Georgia-14N	Runner	3.6 de	1.5 abc	2998 b
Florunner 107	Runner	4.3 c	1.8 ab	3518 ab
Florunner 157	Runner	5.6 a	2.0 a	2124 c
TUFRunner 297	Runner	4.9 b	1.3 abc	3512 ab
TUFRunner 727	Runner	4.3 c	1.0 abc	3588 ab
TUFRunner 511	Runner	4.0 cde	0.3 bc	4066 a
LSD ($P \leq 0.05$)		*0.5*	*1.6*	*871*

[1] Leaf spot diseases were rated using the Florida 1 to 10 scale.
[2] White mold incidence is expressed as the number of hits per 100 foot of row.
[3] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF EXPERIMENTAL PEANUT VARIETIES USING DIFFERENT FUNGICIDE IMPUTS FOR PEANUT DISEASE CONTROL IN CENTRAL ALABAMA, PBU

H. L. Campbell, A. K. Hagan, and J. Burkett

Objective: To evaluate two experimental peanut cultivars and compare them against peanut cultivar 'Georgia 06G' at varying fungicide inputs for control of early and late leaf spot and stem rot and yield response in a dry-land peanut production system in southwest Alabama. Production Methods: The test site was disked and chiseled prior to planting on May 19. Peanut cultivar 'Georgia 06G', 'MRS 37', and 'MRS 38' were planted on May 17 at the EV Smith Research Center, Plant Breeding Unit near Tallassee, Ala., at a rate of six seed per foot of row in a field that had previously been cropped to peanut. Recommendations of the Alabama Cooperative Extension System for fertility and weed control were followed. The soil type was an Independence (Cahaba) loamy fine sand (OM<1%). Dual Magnum was applied to the test area prior to planting on May 25. Post emergent weed control was obtained with Storm applied at 1.5 pt/A on July 1 and with Cadre applied at 4 oz/A on July 8. Thrips control was obtained with an early post application of Orthene 90S at 0.5 lb/A. Cadre at 4 oz/A was applied on July 15 for weed control. Section 3 at 10 oz/A was applied on July 23 for weed control.

Plots, which consisted of four 30-ft rows on 36-inch centers, were arranged in a randomized complete block with four replications. Plots were irrigated as needed. Foliar fungicides were applied at 14-day intervals on 1) July 16, 2) July 21, 3) Aug. 5, 4) Aug. 23, 5) Sept. 9, 6) Sept. 23, 7) Oct. 7 as a full canopy spray using a four-row tractor mounted sprayer with three TX8 nozzles per row calibrated to deliver 15 gal/A per plot.

Early leaf spot was visually rated on Oct. 24 using the Florida leaf spot scoring system (1 = no disease; 2 = very few lesions in upper canopy; 3 = few lesions in lower and upper canopy; 4 = some lesions with slight defoliation; 5 = lesions noticeable in upper canopy with some defoliation; 6 = lesions numerous with significant defoliation; 7 = lesions numerous with heavy defoliation; 8 = very numerous lesions on few remaining leaves with heavy defoliation; 9 = very few remaining leaves covered with lesions; 10 = completely dead plants).

Counts of stem rot loci (SR) were made on Oct. 24 immediately after plot inversion by determining the number of disease loci (1 ft is defined as < 1 ft of consecutive stem rot damaged plants per row). Plots were harvested on Oct. 29 and yields were reported at <10% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2016 peanut production season, temperatures were near average and monthly rainfall totals were near average during May, June, July, August, and September. The level of leaf spot severity and defoliation was similar to that observed in previous years. Early leaf spot appeared in the last week of August and progressed throughout September due to continued rainfall throughout the month but slowed in October due to insufficient rainfall. Stem rot incidence was higher than that observed in previous years. Early leaf spot severity

was highest in ‘Georgia 06G’ when compared with both ‘MRS 37’ and ‘MRS 38’. The worst leaf spot severity was observed in the non-treated ‘Georgia 06G’ plots which were >75% defoliated at the time of harvest compared to non-treated plots in the other two cultivars. Among the treatment programs, when compared by cultivar, none of the treatment programs significantly reduced early leaf spot when compared with the non-treated control. Even though stem rot incidence was higher than had been observed in previous years, only ‘Georgia 06G’ was impacted. Stem rot incidence observed in ‘MRS 37’ and ‘MRS 38’ was lower when compared with ‘Georgia 06G’ among the treatment programs. Only Echo 720/Muscle ADV reduced stem rot incidence compared with the non-treated control. Early leaf spot had the most effect on yield of ‘Georgia 06G’ compared with the other two cultivars. Yield obtained with the Echo 720 only ‘Georgia 06G’ treatment was similar to the yield obtained with all treatments of ‘MRS 37’ and ‘MRS 38’ including the non-treated controls. Yield in both the mid-input and high- input treatments were not significantly different than the non-treated control with both ‘MRS 38’ and ‘Georgia 06G’.

EVALUATION OF EXPERIMENTAL PEANUT VARIETIES USING DIFFERENT FUNGICIDE INPUTS FOR PEANUT DISEASE CONTROL IN CENTRAL ALABAMA, PBU

Cultivar	Treatment and Rate/A	Application Timing	Disease ratings		Yield lb/A
			Leaf Spot[1]	Stem Rot[2]	
MRS 37	Untreated Control	---	5.3 cd[3]	0.8 c	2315 bcd
	Echo 720 24.0 fl oz	1-7	5.0 cde	0.5 c	2686 abc
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	4.6 de	0.5 c	2762 ab
	Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 2.08SC 18.5 fl oz Echo 24.0 fl oz + Convoy 21 fl oz	1,2 3,5 4,6 7	5.4 c	1.2 c	3098 a
MRS 38	Untreated Control	---	4.9 cde	0.2 c	2704 abc
	Echo 720 24.0 fl oz	1-7	4.6 de	1.0 c	2913 ab
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	4.4 e	0.2 c	3092 a
	Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 2.08SC 18.5 fl oz Echo 24.0 fl oz + Convoy 21 fl oz	1,2 3,5 4,6 7	4.9 cde	0.2 c	3031 a
GA 06G	Untreated Control	---	7.1 a	4.0 a	1799 d
	Echo 720 24.0 fl oz	1-7	6.8 ab	3.8 ab	2066 cd
	Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	6.1 b	1.8 bc	1818 d
	Echo 720 24.0 fl oz Provost Optima 10.7 fl oz Abound 2.08SC 18.5 fl oz Echo 24.0 fl oz + Convoy 21 fl oz	1,2 3,5 4,6 7	6.8 ab	3.8 ab	1745 d
LSD (P ≤0.05)			*0.7*	*2.1*	*687*

[1] Late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease; 10 = completely dead plants).
[2] Stem rot (SR) incidence is expressed as the number of disease loci per 60 foot of row.
[3] Numbers followed by the same letter do not differ significantly.

COMPARISON OF RECOMMENDED FUNGICIDES FOR CONTROL OF EARLY LEAF SPOT AND WHITE MOLD ON PEANUT, PBU

H. L. Campbell, A.K. Hagan, and J. Burkett

Objective: Compare the effectiveness of recommended fungicide programs for the control of early leaf spot and white mold as well as impact on the yield of two peanut cultivars in central Alabama.

Production Methods: The test site was disked and chiseled prior to sowing on May 19. Seed was planted at a rate of 6 seed per foot of row in an Independence (Cahaba) loamy fine sand (OM<1%) on May 26. Weed control was obtained with a pre-plant application of Dual Magnum II at 1.0 pt/A on May 25. Post emergent weed control was obtained with Storm applied at 1.5 pt/A + 2,4 DB at 1.5 pt/A on July 8 and with Cadre applied at 4 oz/A on July 15. Section 3 was applied on July 23 for post-emergent weed control. Thrips control was obtained with an early post application of Orthene 90S at 0.5 lb/A. A center pivot irrigation system was used to apply water as needed. Plots, which contained four 30-ft rows spaced 3 feet apart, were arranged in a randomized complete block with four replications. Fungicides were applied on July 6, July 21, Aug. 5, Aug. 23, Sept. 9, Sept. 23, and Oct. 7 with a four-row tractor mounted sprayer.

Disease Assessment: Early leaf spot (ELS) was rated on Sept. 20 and Oct. 12 using the Florida 1-10 peanut leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticed in lower and upper canopy, 4 = some lesions in canopy and < 10% defoliation, 5 = lesions noticeable and < 25% defoliation, 6 = lesions numerous and < 50% defoliation, 7 = lesions very numerous and < 75% defoliation, 8 = numerous lesions on few remaining leaves and <90% defoliation, 9 = very few remaining leaves covered with lesions and < 95% defoliation, and 10 = plants defoliated or dead. White mold hit counts (1 hit was defined as < 1 ft of consecutive white mold-damaged plants per row) were made immediately after plot inversion on Oct. 13. Plots were harvested on Oct. 27 and yields are reported at <10% moisture. Statistical analysis on leaf spot intensity and white mold incidence was done using Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Weather: Monthly rainfall totals for June, July, and August, were near the 30-year historical average but slightly below average during September and October. Plots were irrigated as needed using a central pivot system. Weather patterns were favorable for leaf spot diseases through the second week of September but as the weather patterns changed to a drier environment, disease development slowed. Weather patterns were not conducive to white mold development. Temperatures were at or slightly above the seasonal average for the study location.

Results: Fungicide treatment and peanut variety interactions for leaf spot intensity and yield were not noted, so pooled data are presented (Table 1). Due to the abundance of rainfall early in the growing season, ELS showed up early and progressed rapidly throughout the growing season. All treatment programs provided leaf spot control that was greater than that observed in non-treated control plots. Among the treatment programs compared, the one that included Priaxor applied three times and Provost applied four timesgave the most significant early leaf spot control throughout the growing season. Of the remaining fungicide treatment programs, those that included either Fontelis gave the best early leaf spot control. When compared with the season-long Echo only program, leaf spot control at the final observation was only significantly lower in the Priaxor and Provost programs. White mold was higher than previous years but never materialized in any of the plots however all of the treatment programs reduced white mold compared with non-treated control. Early leaf spot severely impacted yield in the trial and yield was reflected in the severity of leaf spot in among the non-treated control and among the treatment programs. Early leaf spot effect on yield was seen in the extremely low yields from the non-treated control plots. All of the treatment programs yielded significantly higher than that observed in the non-treated plots. Yield among the treatment programs was similar.

TABLE 1. RECOMMENDED FUNGICIDE PROGRAMS IMPACT EARLY LEAF SPOT CONTROL AS WELL AS YIELD RESPONSE OF TWO PEANUT VARIETIES, PBU

Peanut variety	Application Schedule	ELS[1]	ELS	WM[2]	Yield lb/A
Georgia-06G	---	3.3 b[2]	3.9 b	0.7 b	3361 a
Georgia-09B	---	3.6 a	3.9 a	1.3 a	2834 b
Fungicide mean(rate/A)					
Untreated Control	--	4.6 a	6.2 a	3.0 a	2170 b
Echo 720 24.0 fl oz	1-7	3.4 bc	3.9 bc	1.1 b	3045 a
Priaxor 6.0 fl oz Muscle ADV 32.0 fl oz Priaxor 6.0 fl oz Echo 720 24.0 fl oz	1.5 3,5 4,6 7	2.9 d	3.1 d	0.4 b	3556 a
Echo 24.0 fl oz Provost 433SC 10.7 fl oz	1,2,7 3,4,5,6	3.1 cd	3.2 d	0.6 b	3067 a
Echo 720 24.0 fl oz Convoy 26.0 fl oz + Echo 720 24.0 fl oz	1,2,4,6,7 3,5	3.4 bc	3.7 c	0.9 b	3025 a
Echo 720 24.0 fl oz Artisan 26.0 fl oz + Echo 720 16.0 fl oz	1,2,4,6,7 3,5	3.4 bc	4.1 b	0.5 b	2996 a
Echo 720 24.0 fl oz Muscle ADV 32.0 fl oz	1,2,7 3,4,5,6	3.5 b	4.1 b	1.1 b	3064 a
Echo 24.0 fl oz Fontelis 16.0 fl oz	1,2,6,7 3,4,5	3.2 bcd	3.7 c	0.9 b	3054 a
Echo 24.0 fl oz Abound 2.09SC 18.5 fl oz + Alto 0.83SL 5.5 fl oz	1,2,4,6,7 3,5	3.4 bc	3.9 bc	0.9 b	3452 a
Alto 0.83SKL 5.5 fl oz + Echo 720 24.0 fl oz Echo 720 24.0 fl oz Elatus 9.5 oz	1,6 2,4,7 3,5	3.3 bc	3.9 bc	0.6 b	3547 a

[1] Leaf spot diseases were rated using the Florida 1 to 10 scale.
[2] White mold incidence is expressed as the number of hits per 100 foot of row.
[3] Means in each column followed by the same letter are not significantly different according Fisher's least significant difference (LSD) test ($P \leq 0.05$).