Peanut Disease Control Field Trials, 2005: Standard Fungicide Trials

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Peanut Disease Control Field Trials, 2005

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, Alabama, and at the Gulf Coast Research and Extension Center (GCREC) in Fairhope, Alabama. This report summarizes the results of those trials.

During the 2005 production season, at the WREC temperatures were near historical averages (Figure 1) and monthly rainfall totals were near to above historical averages through August, but a late season drought had little impact on disease severity or yield (Figure 2). As a result, increases in leaf spot severity were observed in all trials whereas soil-borne disease incidence was reduced.

At the GCREC, temperatures were near normal throughout the entire growing season and rainfall was at or above historical averages through August. Drought conditions occurred in September and October but disease severity and yield were not negatively impacted. Heavy rains due to Hurricane Dennis on July 10 and Hurricane Katrina on August 29 did not impact yield in any of the tests.

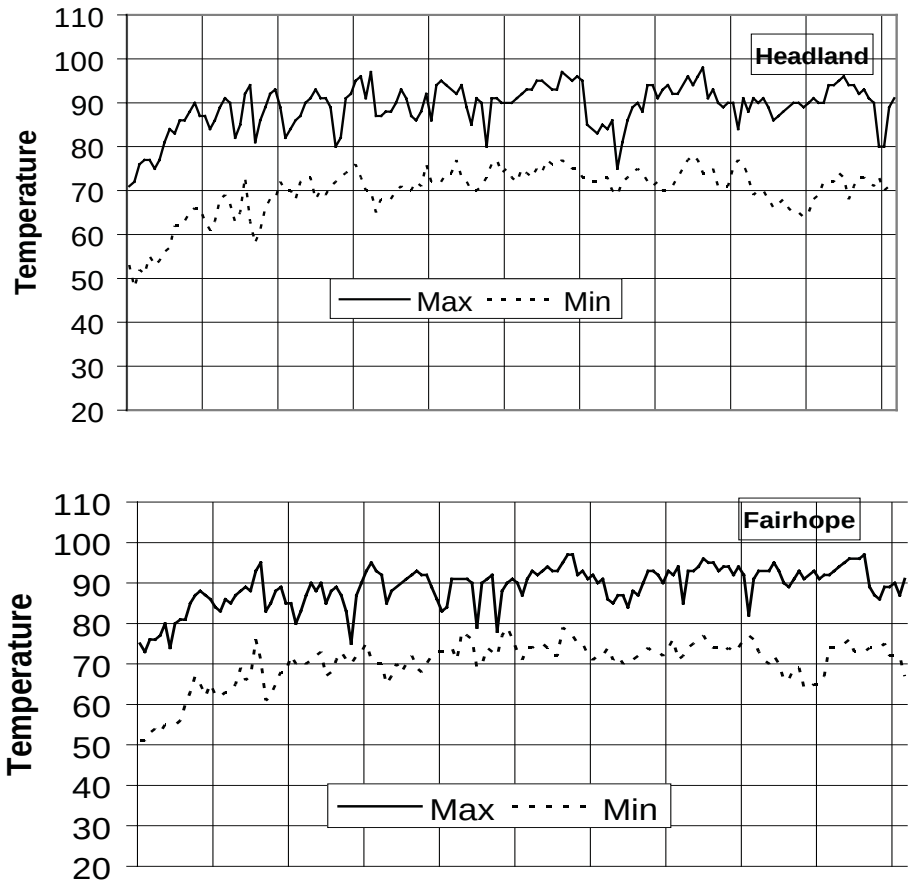
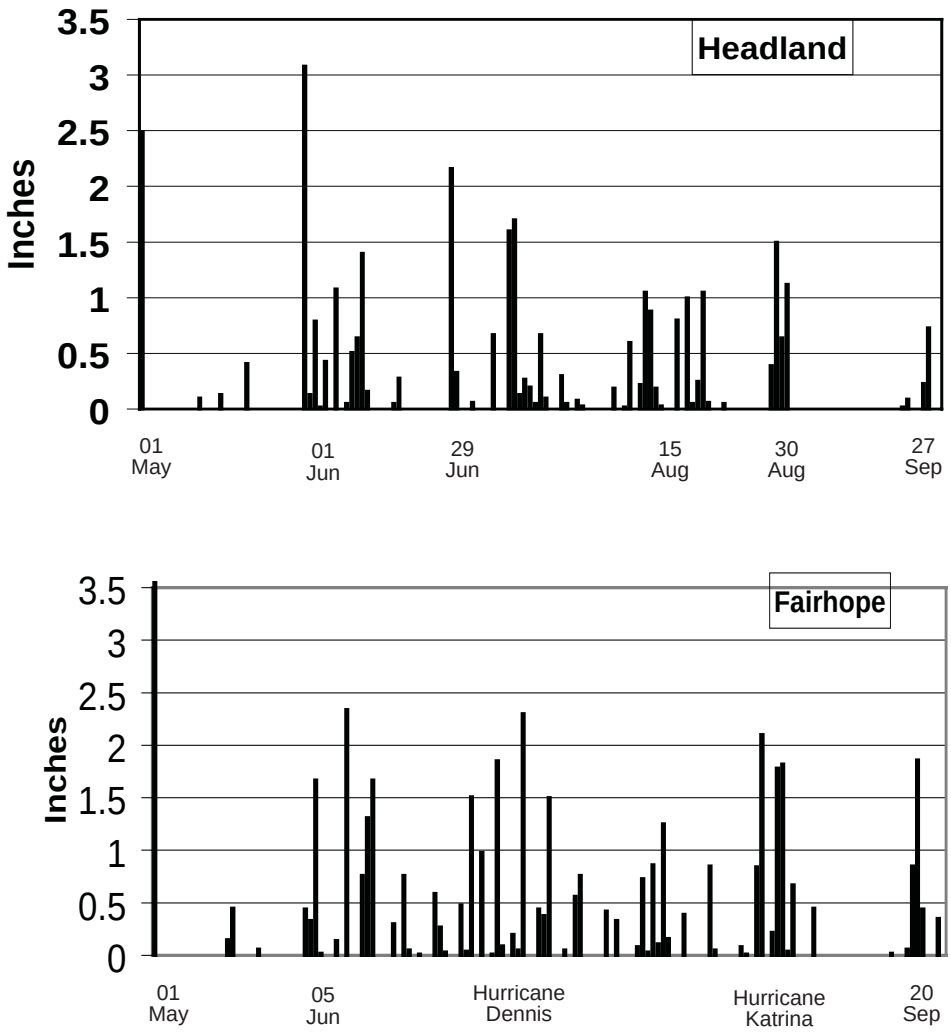


Figure 1. Daily minimum and maximum temperature (ºF), May to October 2005.

Figure 2. Daily precipitation (inches), May to October 2005.



CALENDAR AND AU-PNUT ADVISORY SCHEDULES FOR LEAF SPOT AND WHITE MOLD CONTROL ON DRYLAND PEANUTS WITH RECOMMENDED FUNGICIDE TREATMENT PROGRAMS, WREC

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

Objective: To assess the effectiveness of recommended fungicides applied at calendar application intervals of two, three, and four weeks and according to the AU-Pnut leaf spot advisory for the control of early leaf spot and white mold, as well as on the yield of the disease-resistant Florida C-99R peanut in a dryland production system.

Methods: On May 10, the peanut cultivar Florida C-99R (maturity group 5), which is partially resistant to early and late leaf spot as well as white mold, was planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama. The soil type was in a Dothan fine sandy loam (OM < 1 percent). Seed were sown at a rate of six seed per foot of row using conventional tillage practices. Plots consisted of four 30-foot rows spaced 30 feet apart.

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre Sonolan + 0.45 ounce per acre Strongarm was made, followed on May 26 with an application of 3 pints per acre of Prowl. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pints per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was not irrigated. A randomized complete block design with four replications per fungicide program was used. Full canopy sprays of each fungicide treatment were made on a 14-, 21-, and 28-day calendar schedule as well as according to the AU-Pnut leaf spot advisory with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallon per acre spray volume. Calendar fungicide program applications in 2005 were made on June 23, July 8, July 22, August 4, August 17, and September 1, and September 14 for the two-week schedule; June 23, July 15, August 4, August 26, September 14 for the three-week schedule; and June 23, July 22, August 17, and September 14 for the four-week schedule. In 2005, the AU-Pnut leaf spot advisory triggered fungicide applications on June 16, July 5, July 22, August 22, and September 8.

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions in lower and upper leaf canopy, 4 = some lesions in lower and upper canopy with light defoliation (≤ 10 percent), 5 = lesions noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = lesions numerous with significant defoliation (≤ 50 percent), 7 = lesions numerous with heavy defoliation (≤ 75 percent), 8 = numerous lesions on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on July 5, July 19, August 2, August 16, August 30, September 13, September 27, and October 12. Counts of white mold hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made on October 13.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Monthly rainfall totals in 2005 were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October. Temperatures in May were also below normal.

Application schedule had a significant impact on the level of leaf spot control provided by the Bravo Ultrex, Folicur, and Abound calendar programs. The four-week calendar programs for Bravo Ultrex, Folicur, and Abound were less effective in controlling leaf spot diseases compared with the two- and three-week calendar schedules of the above fungicides. When applied according to the AU-Pnut advisory, all three fungicide programs had leaf spot ratings that were considerably higher than those recorded for the two-week and often the three-week calendar schedules of the Bravo Ultrex, Folicur, and Abound programs. Incidence of white mold was similar for all of the treatment schedules for the Abound, Folicur, and Bravo Ultrex programs. Due to dry weather in September and October, yields were below expectations. All yields for all treatment regimes of the Bravo Ultrex, Folicur, and Abound programs were statistically similar, which suggests that defoliation levels may not always be closely tied to yield loss.

Summary: While application interval had a significant impact on leaf spot control, yields were similar across fungicide programs and treatment intervals. For the three- and four-week calendar schedules, fungicides were applied five and four times, respectively, compared to seven times for the traditional two-week calendar programs. A total of five applications were scheduled using the AU-Pnut leaf spot advisory. White mold damage was similar across all treatment intervals for all three fungicide programs. Yield was limited by approximately five weeks of dry weather in September and October as well as dry soil conditions that interfered with digging operations.

IMPACT OF APPLICATION INTERVAL ON THE CONTROL OF LEAF SPOT DISEASES AND WHITE MOLD WITH BRAVO ULTREX, FOLICUR 3.6F, AND ABOUND 2SC TREATMENT PROGRAMS ON THE FLORIDA C-99R PEANUT

Treatment and rate/ac	Schedule	Application date (DAP)[1]	——Disease ratings—— LS[2]	WM[3]	Yield *lb/ac*
Bravo Ultrex 1.4 lb	2-wk	44, 59, 73, 86, 99, 114, 128	5.5[4]	8.0	2892
Bravo Ultrex 1.4 lb	3-wk	44, 66, 86, 108, 128	5.4	9.0	2844
Bravo Ultrex 1.4 lb	4-wk	44, 73, 99, 128	7.0	10.0	2626
Bravo Ultrex 1.4 lb	AU-Pnut[5]	37,51,64,89,103	6.6	10.5	2867
Bravo Ultrex 1.4 lb Folicur 3.6F	2-wk	44, 59, 128 73, 86, 99, 114	5.8	7.3	2759
Bravo Ultrex 1.4 lb Folicur 3.6F	3-wk	44, 66, 86, 108, 128	6.1	7.5	2940
Bravo Ultrex 1.4 lb Folicur 3.6F	4-wk	44, 73, 99, 128	7.3	10.5	2468
Bravo Ultrex 1.4 lb Folicur 3.6F	AU-Pnut	37, 51,64,89,103	6.8	12.8	2602
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	44, 59, 86, 114, 128 73, 99	5.0	12.0	2952
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	3-wk	44, 66, 128 86, 108	5.5	8.0	2928
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	4-wk	44, 128 73, 99	6.3	11.5	2432
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut	37, 51,103 64,89	6.5	13.8	2650
LSD (P = 0.05)			**0.9**	**6.1**	**794**

[1] The number of days after planting (DAP) when fungicide applications were made.
[2] Early and late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease;… 10 = completely dead plants).
[3] White mold (WM) incidence was expressed as the number of diseased plants per 60 feet of row.
[4] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).
[5] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (<0.10 inch) and second and subsequent applications immediately after three rain events.

RECOMMENDED FUNGICIDE PROGRAMS COMPARED FOR THE CONTROL OF LEAF SPOT DISEASES AND WHITE MOLD ON SELECTED PEANUT CULTIVARS IN A DRYLAND PEANUT PRODUCTION SYSTEM, WREC

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

Objective: To evaluate yield response and disease control with recommended fungicide programs on selected peanut cultivars in a dryland production system.

Methods: On May 16, the peanut cultivars Andru II (maturity group 3), Carver (maturity group 4), and Florida C-99R (maturity group 5) were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent).

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre of Sonolan + 0.45 ounce per acre of Strongarm was made, followed on May 26 with an application of 3 pints per acre of Prowl. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pints per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was not irrigated.

A split plot design with peanut cultivars as whole plots and fungicide treatments as subplots was used. Whole plots were randomized in four complete blocks. Individual subplots consisted of four 30-foot rows spaced 3 feet apart. Full canopy sprays of each treatment were made on a 14-day calendar schedule on June 13, June 28, July 12, August 9, August 23, September 7, September 15 with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered 15 gallons of spray volume per acre.

Early and late leaf spot were rated together using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on September 13 for Andru II, September 27 for Carver, and October 12 for Florida C-99R. Counts of white mold (southern stem rot [SSR]) hits (one hit was defined as ≤ 1 foot of consecutive SSR-damaged plants) were made on September 15 for Andru II, October 3 for Carver, and October 17 for Florida C-99R.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05). Since the cultivar x treatment interaction for leaf spot, SSR, and yield were not significant, data presented in the table were pooled across peanut cultivars.

Results: In 2005, monthly rainfall totals were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October.

Significant differences in leaf spot ratings and white mold incidence but not yield were found between fungicide programs (Table 1). The Stratego, Abound 2SC, and Headline 2.09E programs controlled leaf spot diseases better than the Folicur 3.6Fprogram. The level of control provided by Bravo Ultrex alone and both of the Bravo Ultrex + Moncut 70DF programs was similar to that obtained with Folicur 3.6F as well as the Abound 2SC and Stratego programs. The Headline 2.09E program gave much better control of leaf spot than the other fungicide programs. Incidence of white mold was higher for the Stratego, Headline 2.09E, and Bravo Ultrex programs compared with the Abound 2SC, Folicur 3.6F, and four application Bravo Ultrex + Moncut 70DF programs. The program with the single application of Bravo Ultrex + Moncut 70DF did not control this disease as effectively as the four application Bravo Ultrex + Moncut 70DF program. Yields were similar across all fungicide programs.

Across all fungicide programs, no differences in leaf spot ratings were noted between fungicide cultivars (Table 2). While white mold hit counts were lower on Carver than Andru II or Florida C-99R, yields of all three peanut cultivars were similar.

On Andru II and Carver, the best leaf spot control was obtained with the recommended Headline 2.09E program (Table 3). Leaf spot ratings for the above program on Florida C-99R were similar to those reported for two other fungicide programs. The Stratego and Abound 2SC programs controlled leaf spot better than the Folicur 3.6F program on Andru II but not on Carver or Florida C-99R. Generally, the disease ratings for the Folicur 3.6F, Bravo Ultrex, and two Bravo Ultrex + Moncut 70DF programs were similar on all three peanut cultivars. As was previously noted, the most consistent reduction in white mold incidence was obtained with the Bravo Ultrex at 1.4 pounds per acre + Moncut 70DF at 0.4 pound per acre. Abound 2SC performed well on the Andru II and Carver peanut, while the best activity against white mold with Folicur 3.6F was seen on Carver and Florida C-99R. Headline 2.09E and Stratego demonstrated little activity against white mold on any of the three peanut cultivars. Despite differences in ratings for leaf spot and white mold, no differences in yield were attributed to fungicide treatments.

Summary: As has been seen in several previous trials, the recommended Folicur 3.6F program is often less effective in controlling leaf spot diseases than the labeled Abound 2SC and particularly Headline 2.09E programs. The Folicur 3.6F and Bravo Ultrex programs were equally effective in controlling leaf spot diseases. Again, Bravo Ultrex + Moncut 70DF along with the Folicur 3.6F and Abound 2SC programs gave the best white mold control. Despite noticeable differences in disease control between fungicide treatments, yields were similar.

TABLE 1. YIELD RESPONSE AND DISEASE CONTROL WITH RECOMMENDED FUNGICIDE PROGRAMS AVERAGED ACROSS PEANUT CULTIVARS IN A DRYLAND PRODUCTION SYSTEM, WREC

Treatment and rate/ac	Application timing	Leaf spot rating	White mold hits/60 ft	Yield *lb/ac*
Bravo Ultrex 1.4 lb	1 to 7	4.6 ab[1]	5.1 ab	3701 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	5.0 a	2.4 c	3609 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	4.5 b	4.3 bc	3775 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	4.5 b	1.1 d	3674 a
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.2 b	2.7 cd	3797 a
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	2.7 c	5.3 ab	3755 a
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.2 b	6.6 a	3564 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 2. DISEASE RATINGS AND YIELDS BY PEANUT CULTIVAR IN A DRYLAND PRODUCTION SYSTEM

Peanut cultivar	Leaf spot rating	White mold hits/60 ft	Yield lb/ac
Andru II	4.1 a[1]	4.1 ab	3743 a
Carver	4.3 a	3.0 b	3661 a
Florida C-99R	4.2 a	4.7 a	3682 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 3. DISEASE RATINGS AND YIELD BY FUNGICIDE PROGRAM AND PEANUT CULTIVAR IN A DRYLAND PRODUCTION SYSTEM, WREC

Treatment and rate/ac	Application timing	Leaf spot rating	White mold hits/60 ft	Yield *lb/ac*
	Andru II			
Bravo Ultrex 1.4 lb	1 to 7	4.8 ab[1]	3.8 bcde	3854 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	5.1 a	3.0 def	3793 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	4.8 ab	5.0 abcd	3791 a
Bravo Ultrex 1.4 lb	1,2,4,6,7	4.5 abcd	0.5 ef	3727 a
Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	3,5			
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	3.8 de	0.8 ef	3890 a
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	2.3 f	7.8 a	3763 a
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	3.9 cde	7.5 a	3394 a
	Carver			
Bravo Ultrex 1.4 lb	1 to 7	4.8 ab	4.5 abcd	3400 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	5.1 a	1.5 def	3329 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	4.6 abc	4.5 abcd	3630 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	4.5 abc	0.0 f	3957 a
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.6 abc	2.3 def	3775 a
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	2.4 f	3.5 cdef	3933 a
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.4 abcd	5.0 abcd	3606 a
	Florida C-99R			
Bravo Ultrex 1.4 lb	1 to 7	4.4 abcd	7.0 abc	3848 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	4.6 abc	2.8 def	3691 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	4.1 bcde	3.5 cdef	3908 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	4.6 abc	2.8 def	3340 a
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.1 bcde	5.0 abcd	3727 a
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	3.4 e	4.5 abcd	3570 a
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.3 bcd	7.3 ab	3691 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

CALENDAR AND AU-PNUT SCHEDULES COMPARED FOR LEAF SPOT AND WHITE MOLD CONTROL ON IRRIGATED FLORIDA C-99R PEANUTS, WREC

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

Objective: To assess the impact of two-, three-, and four-week calendar application intervals as well as the AU-Pnut leaf spot advisory on the effectiveness of recommended fungicide treatment programs for the control of late leaf spot and white mold on the partially disease-resistant peanut cultivar Florida C-99R in an irrigated production system.

Methods: On May 23, the peanut cultivar Florida C-99R (maturity group 5), which is partially resistant to early and late leaf spot as well as white mold (southern stem rot), was planted at the Wiregrass Research and Extension Center (WREC) at Headland, Alabama. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent). Plots consisted of four 30-foot rows spaced 3 feet apart.

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre of Sonolan + 0.45 ounce per acre of Strongarm was made, followed on May 26 with an application of 3 pints per acre of Prowl EC. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pint per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was irrigated with 0.6 and 0.75 inch acres of water on August 1 and September 13, respectively. A randomized complete block design with four replications per fungicide program was used. Full canopy sprays of each fungicide treatment were made on a 14-, 21-, or 28-day calendar schedule as well as according to the AU-Pnut leaf spot advisory, with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons of spray volume per acre.

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spotss in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on July 5, July 19, August 2, August 16, August 30, September 13, September 27, and October 12. Counts of white mold hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made on October 20 when the test was inverted.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Monthly rainfall totals in 2005 were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October. Temperatures were below normal through much of May but near normal for the remainder of the production season.

Application interval had a significant impact on the level of leaf spot control obtained with Folicur 3.6F but not with Bravo Ultrex or Abound 2SC programs. The 14-day Folicur 3.6F program provided better leaf spot control compared to the 21- and 28-day schedules. Disease ratings for the Folicur 3.6F 14-day and AU-Pnut advisory were similar. When applied on a 14-day schedule, the Folicur 3.6F program was as equally effective against leaf spot as the 14-day Abound program and more effective than the 14-day Bravo Ultrex program. Incidence of white mold was similar across all treatments. For the Bravo Ultrex, Folicur 3.6F, and Abound 2SC programs, yields for the 14-, 21-, and 28-day schedules did not differ significantly. Also, yields for the corresponding Bravo Ultrex, Folicur 3.6F, and Abound 2SC programs were similar.

Summary: Application interval had an impact on leaf spot damage levels but had no influence on white mold control or more importantly on peanut yield in an irrigated production system. With the exception of late Septem-

ber and October, rainfall was not a factor limiting peanut yields. While some differences in leaf spot ratings due to application interval were seen, damage levels never reached the point that yield losses would occur. Overall, lengthening application intervals on a disease-resistant peanut cultivar may be a reasonable strategy for reducing production costs without jeopardizing peanut yield.

IMPACT OF APPLICATION INTERVAL ON THE CONTROL OF LEAF SPOT AND WHITE MOLD AS WELL AS THE YIELD ON FLORIDA C-99R

Treatment and rate/ac	Schedule	Application date (DAP)[1]	——Disease ratings—— LS[2]	WM[3]	Yield *lb/ac*
Bravo Ultrex 1.4 lb	2-wk	24, 42, 61, 75, 87, 98	4.8[4]	2.8	3570
Bravo Ultrex 1.4 lb	3-wk	24, 42, 61, 87, 98	4.8	3.5	3170
Bravo Ultrex 1.4 lb	4-wk	24, 51, 75, 98	4.1	4.3	3049
Bravo Ultrex 1.4 lb	AU-Pnut[5]	24, 42, 56, 87, 98	4.3	3.5	3606
Bravo Ultrex 1.4 lb Folicur 3.6F	2-wk	24, 42 61, 75, 87, 98	3.6	3.5	3799
Bravo Ultrex 1.4 lb Folicur 3.6F	3-wk	24, 42, 61, 87, 98	4.9	4.0	4090
Bravo Ultrex 1.4 lb Folicur 3.6F	4-wk	24 51, 75, 98	4.8	3.8	3582
Bravo Ultrex 1.4 lb Folicur 3.6F	AU-Pnut	24 42, 56, 87, 98	4.0	3.9	3763
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	24, 42, 75, 98 61, 87	4.1	3.8	3920
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	3-wk	24, 42, 98 61, 87	3.9	3.3	3691
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	4-wk	24, 98 51, 75	4.6	4.0	3364
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut	24, 42, 98 56, 87	4.1	3.0	4005
LSD (P = 0.05)			**0.9**	**2.1**	**1142**

[1] The number of days after planting (DAP) when fungicide applications were made.
[2] Early and late leaf spot were assessed using the Florida leaf spot scoring system (1 = no disease;… 10 = completely dead plants).
[3] White mold (WM) incidence was expressed as the number of diseased plants per 60 feet of row.
[4] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).
[5] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (<0.10 inch) and second and subsequent applications immediately after three rain events.

RECOMMENDED FUNGICIDE PROGRAMS COMPARED FOR THE CONTROL OF LEAF SPOT DISEASES AND WHITE MOLD ON SELECTED PEANUT CULTIVARS IN AN IRRIGATED PRODUCTION SYSTEM, WREC

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

Objective: To evaluate the effectiveness of recommended Bravo Ultrex, Folicur 3.6F, Abound 2SC, Bravo Ultrex + Moncut 70DF, Headline 2.09E, and Stratego programs for controlling leaf spot diseases and white mold as well as the impact of controlling these diseases on the yield of Andru II, Carver, and Florida C-99R in an irrigated production system.

Methods: On May 23, the peanut cultivars Andru II (maturity group 3), Carver (maturity group 4), and Florida C-99R (maturity group 5) were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent).

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre of Sonolan + 0.45 ounce per acre of Strongarm was made, followed on May 26 with an application of 3 pints per acre of Prowl. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pints per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was irrigated with 0.6 and 0.75 acre inches of water on August 1 and September 13.

A split plot design with peanut cultivars as whole plots and fungicide treatments as subplots was used. Whole plots were randomized in four complete blocks. Individual subplots consisted of four 30-foot rows spaced 3 feet apart. Full canopy sprays of each fungicide treatment were made on a 14-day calendar schedule on June 22, July 8, July 21, August 4, August 19, September 8, and September 21 with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons of spray volume per acre.

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few spots on leaves in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Final leaf spot ratings were taken on September 13 for Andru II, September 27 for Carver, and October 12 for Florida C-99R. Counts of white mold [southern stem rot (SSR)] hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made on September 22 for Andru II, September 30 for Carver, and October 20 for Florida C-99R.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05). Since the cultivar x treatment interactions for leaf spot, white mold, and yield were not significant, data presented in the Table 1 were pooled across peanut cultivars.

Results: In 2005, monthly rainfall totals were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October.

While significant differences in the leaf spot control were seen among the fungicide programs, the incidence of white mold and yields were similar (Table 1). Late leaf spot was much more common than early leaf spot. The Stratego, Abound 2SC, and Headline 2.09E programs gave better control of leaf spot diseases than the Folicur 3.6F program. The level of control provided by Bravo Ultrex alone and both of the Bravo Ultrex + Moncut 70DF programs was similar to that obtained with Folicur 3.6F and, in most cases, the Abound 2SC and Stratego programs. The lowest leaf spot ratings were recorded on the peanuts treated with Headline 2.09E. Incidence of white mold and yield were similar across all fungicide programs.

While leaf spot ratings were significantly higher for Florida C-99R than for Carver peanut, ratings for Andru II were intermediate between the two (Table 2). White mold damage levels were much higher on Florida C-99R

compared with Carver and Andru II. Damage levels were also higher on Carver than Andru II. Carver yielded significantly higher than Andru II and Florida C-99R. Yield for Florida C-99R probably was reduced by a combination of heavy late season white mold damage and unusually dry soil conditions at digging.

As shown in the pooled data, Headline 2.09E typically gave better leaf spot control than most of the other fungicide program, particularly on the Carver peanut (Table 3). On Andru II and Florida C-99R, the Abound 2SC and Stratego program gave leaf spot control that was statistically similar to the control given by the Headline 2.09E program, but the Bravo Ultrex and Folicur 3.6F programs were less effective against these diseases. On each cultivar, little difference in the level of leaf spot control was seen between any programs that included Bravo Ultrex and the Folicur 3.6F program. Fungicide programs had no influence on the level of white mold damage or yield response on Andru II, Carver, or Florida C-99R.

Summary: Headline 2.09E remains the standard for leaf spot control on peanut. Statistically, the Abound 2SC and Stratego programs were not quite as effective as Headline 2.09, but Bravo Utrex alone, Bravo Ultrex + Moncut 70DF, and Folicur 3.6F were clearly inferior. The failure of several of these fungicide programs to control white mold was puzzling. Possibly, the damage was due to another disease, particularly Cylindrocladium black rot, rather than white mold. The extended period of dry weather in September and October may have interfered with digging operations and reduced the yield of Carver and Florida C-99R.

TABLE 1. YIELD RESPONSE AND DISEASE CONTROL WITH RECOMMENDED FUNGICIDE PROGRAMS AVERAGED ACROSS PEANUT CULTIVARS IN AN IRRIGATED PRODUCTION SYSTEM, WREC

Treatment and rate/ac	Application timing	Leaf spot rating	White mold hits/60 ft	Yield *lb/ac*
Bravo Ultrex 1.4 lb	1 to 7	5.3 bcd[1]	7.1 a	3132 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	5.9 a	6.5 a	3095 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	5.5 ab	5.8 a	3186 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	5.4 abc	7.3 a	3146 a
Bravo Ultrex 1.4 lb. Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.9 cd	5.8 a	3194 a
Bravo Ultrex 1.4 lb. Headline 2.09EC	1,2,4,6,7 3,5	3.8 e	7.4 a	3110 a
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.8 d	7.3 a	3058 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 2. DISEASE RATINGS AND YIELDS BY PEANUT CULTIVAR IN AN IRRIGATED PRODUCTION SYSTEM

Peanut cultivar	Leaf spot rating	White mold hits/60 ft	Yield *lb/ac*
Andru II	5.1 ab[1]	1.4 c	2969 b
Carver	4.9 b	4.1 b	3379 a
Florida C-99R	5.3 a	14.2 a	3054 b

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 3. DISEASE RATINGS AND YIELD BY FUNGICIDE PROGRAM AND PEANUT CULTIVAR IN AN IRRIGATED PRODUCTION SYSTEM, WREC

Treatment and rate/ac	Application timing	Leaf spot rating	White mold hits/60 ft	Yield *lb/ac*
	Andru II			
Bravo Ultrex 1.4 lb	1 to 7	5.5 a-d[1]	2.0 b	2608 d
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	5.8 abc	0.7 b	2719 cd
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	5.3 a-e	0.8 b	3122 a-d
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	5.8 abc	1.8 b	2989 a-d
Bravo Ultrex 1.4 lb. Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.9 b-f	2.0 b	3267 a-d
Bravo Ultrex 1.4 lb. Headline 2.09EC	1.2.4.6.7 3,5	4.0 fg	1.8 b	2965 a-d
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.8 c-f	1.0 b	3049 a-d
	Carver			
Bravo Ultrex 1.4 lb	1 to 7	5.1 a-e	4.5 b	3642 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	6.1 a	4.8 b	3182 a-d
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	5.4 a-d	2.3 b	3340 abc
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	4.6 def	4.5 b	3340 abc
Bravo Ultrex 1.4 lb. Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.9 b-f	2.8 b	3461 ab
Bravo Ultrex 1.4 lb. Headline 2.09EC	1,2,4,6,7 3,5	3.1 g	6.0 b	3388 abc
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.8 c-f	3.7 b	3146 a-d
	Florida C-99R			
Bravo Ultrex 1.4 lb	1 to 7	5.4 a-d	13.8 a	3146 a-d
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	5.9 ab	12.5 a	3291 abc
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	6.0 a	14.5 a	3098 a-d
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	5.8 abc	15.5 a	3110 a-d
Bravo Ultrex 1.4 lb. Abound 2SC 1.6 pt	1,2,4,6,7 3,5	4.9 b-f	12.5 a	3013 a-d
Bravo Ultrex 1.4 lb. Headline 2.09EC	1,2,4,6,7 3,5	4.3 ef	14.5 a	2904 bcd
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.9 b-f	16.3 a	2819 bcd

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

YIELD RESPONSE AND REACTION OF COMMERCIAL PEANUT LINES TREATED WITH SELECTED RATES OF TEMIK 15G TO TOMATO SPOTTED WILT VIRUS, LEAF SPOT, AND SOUTHERN STEM ROT, WREC

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

Objective: To evaluate the effect of Temik 15G rate on peanut root-knot nematode control, diseases, and yield of commercial runner peanut cultivars.

Methods: On May 10, commercial runner peanut cultivars were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent).

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm was applied, followed on May 26 with an application of 3 pints per acre of Prowl EC. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pints per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. The test area was irrigated with 0.6 and 0.75 acre inches of water on August 1 and September 13.

A split plot design with peanut cultivars as whole plots and nematicide treatments as subplots was used. Whole plots were randomized in four complete blocks. Subplots, which consisted of four 30-foot rows spaced 3 feet apart, were randomized within each whole plots. Subplot nematicide treatments were 6.7 pounds per acre of Temik 15G applied at planting in-furrow, 13.3 pounds per acre of Temik 15G applied on a narrow band at planting, and an untreated control. Leaf spot and white mold control was provided by an application of Bravo Ultrex at 1.4 pounds per acre on June 13 followed by applications of Bravo Ultrex at 1.4 pounds per acre + Moncut 70DF at 0.54 pound per acre on June 28, Abound 2SC at 1.6 pints per acre on July 12, Bravo Ultrex at 1.4 pounds per acre + Moncut 70DF at 0.54 pound per acre on August 9, Abound 2SC at 1.6 pints per acre on August 23, Bravo Ultrex at 1.4 pounds per acre + Moncut 70DF at 1.4 pounds per acre on September 7, and Bravo Ultrex at 1.4 pounds per acre on September 15. Fungicides were applied with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons of spray volume per acre.

Incidence of tomato spotted wilt virus (TSWV) was determined on September 28 for the maturity group 3 (Andru II), 4 (AP-3, ANorden, Carver, Georgia Green), and 5 (Tifrunner, Florida C-99R, GA01R, GA02C) peanut lines. Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leafs spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on September 13, October 6, and October 20 for the maturity group 3, 4, and 5 peanut cultivars, respectively. Counts of white mold hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made immediately after plot inversion on September 13, October 6, and October 16 for the maturity group 3, 4, and 5 peanut cultivars, respectively.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Monthly rainfall totals were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October. The late season dry weather patterns probably suppressed the development of leaf spot diseases and white mold. Temperatures were below normal for April and early May but near seasonal levels for the remainder of the production season.

Significant differences in ratings for TSWV, leaf spot, white mold, and yield were noted between the nine peanut cultivars. The lowest incidence of TSWV was noted in AP-3 and GA02C. Florida C-99R had the highest incidence of TSWV (Table 1). TSVW incidence for Georgia Green, GA01R, and Tifrunner was similar. Overall leaf spot and white mold pressure was not very high. Tifrunner, which had the highest leaf spot rating of 4.3, suffered only moderate leaf spotting and from no more than 15 to 20 percent premature defoliation. Highest leaf spot

ratings were recorded for Tifrunner, GA02C, Carver, and Florida C-99R. Little if any defoliation was noted on AP-3 and GA01R, which had the lowest leaf spot ratings of the nine peanut cultivars. White mold hit counts were higher on ANorden than any of the other peanut cultivars.

Incidence of this disease on Georgia Green was similar to the hit counts for all cultivars except for AP-3 and GA02C. Despite the highest TSWV counts, Florida C-99R was the highest yielding peanut. Other cultivars that had yields similar to those recorded for Florida C-99R were GA01R, Tifrunner, and AP-3. The lowest yielding cultivars were Andru II, ANorden, and Carver. Yield of the industry standard Georgia Green was similar to those of AP-3, GA02C, ANorden, and Carver.

Damaging populations of the peanut root knot nematode were absent.

When compared with the untreated control, the low rate of Temik 15G reduced the incidence of TSWV (Table 2). The virus rating for the high rate of Temik 15G was intermediate between that of the untreated control and the low rate of this same nematicide. As expected, Temik 15G had no influence on the level of damage attributed to leaf spot diseases or white mold. Yield response was significantly higher for the high rate of Temik 15G than the untreated control. Yield for the peanuts treated with the low rate of Temik 15G were similar to those recorded for the untreated control and the high rate of this nematicide.

On the individual peanut cultivars, Temik 15G application rate had no impact on the incidence of TSWV (Table 3). For nine out of ten peanuts cultivars, leaf spot severity and white mold incidence were also not impacted by the rate of Temik 15G. On ANorden, leaf spot ratings were lower for the untreated plots compared with those treated with either rate of Temik 15G. In addition, white mold incidence was much higher for the ANorden peanuts treated with the high rate of Temik 15G than the low rate of this same nematicide/insecticide and the untreated control. Significant yield gains with Temik15G were noted only on Florida C-99R. Although the high rate of Temik 15G on this peanut cultivar did not reduced TSWV incidence, yield for this treatment was significantly higher compared with the untreated control. Otherwise, yield for the remaining nine peanut cultivars was similar across all Temik 15G treatments and the untreated control.

Summary: The peanut cultivars AP-3 and GA02C had the best disease resistance package among the 10 peanut lines screened. Although Florida C-99R, GA01R, and Tifrunner had higher TSWV and leaf spot ratings, yield responses of these three peanut cultivars ranged from comparable to to slightly superior to those obtained with AP-3 and GA02C. Yield for the industry standard Georgia Green was not comparable to those of the above peanut lines but was similar to those recorded for Carver and ANorden. While yield of Georgia Green probably was reduced by TSWV, both TSWV and white mold had a negative impact on ANorden yields. Diseases did not appear to be directly related to the relatively poor yields obtained for Carver and Andru II.

TABLE 1. YIELD OF SELECTED PEANUT CULTIVARS AND THEIR RESPONSE TO TSWV, LEAF SPOT DISEASES, AND WHITE MOLD WHEN AVERAGED ACROSS NEMATICIDE TREATMENTS

Peanut cultivar	Maturity group	TSWV hits/ 60 row ft	Leaf spot rating	White mold hits/60 row ft	Yield *lb/ac*
Andru II	3	5.4 de[1]	3.5 cde	2.8 bcd	3033 e
ANorden	4	7.4 cd	3.7 bcd	7.5 a	3348 de
AP-3	4	2.9 f	3.1 e	0.8 d	3759 abc
Carver	4	5.3 de	3.9 abc	3.2 bcd	3392 cde
Florida C-99R	5	12.3 a	3.9 abc	2.6 bcd	4110 a
GA01R	5	8.0 bc	3.1 e	3.2 bcd	3961 ab
GA02C	5	4.0 ef	4.2 ab	1.2 cd	3711 bcd
Georgia Green	4	9.7 b	4.1 ab	4.6 b	3489 cd
Tifrunner	5	8.3 bc	4.3 a	3.4 bc	3908 ab

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 2. DISEASE RATINGS AND YIELD RESPONSE TO NEMATICIDE TREATMENTS FOR DATA AVERAGED ACROSS PEANUT CULTIVARS

Temik 15G rate/ac	TSWV hits/ 60 row ft	Leaf spot rating	White mold hits/60 row ft	Yield *lb/ac*
0	7.8 a[1]	3.6 a	2.9 a	3489 b
6.5	6.5 b	3.7 a	3.2 a	3627 ab
13.3	6.8 ab	3.8 a	3.6 a	3787 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 3. IMPACT OF TEMIK 15G RATE ON THE INCIDENCE OF TSWV AND WHITE MOLD, THE SEVERITY OF LEAF SPOT DISEASES, AND THE YIELD OF INDIVIDUAL PEANUT CULTIVARS

Peanut cultivar	Temik 15G lb/ac	TSWV hits/ 60 row ft	Leaf spot rating	White mold hits/60 row ft	Yield *lb/ac*
Andru II	0	7.3 bcdef[1]	3.5 abcde	4.0 bcd	3049 gh
	6.5	4.0 efgh	3.5 abcde	2.0 cd	2928 h
	13.3	5.0 cdefgh	3.4 bcde	2.3 cd	3122 gh
ANorden	0	7.3 bcdef	3.0 cde	3.5 bcd	3037 gh
	6.5	7.0 bcdef	4.0 ab	7.4 b	3427 cdefgh
	13.3	8.3 bcd	4.0 ab	13.0 a	3630 bcdefg
AP-3	0	3.5 fgh	2.8 e	0.8 d	3678 bcdefg
	6.5	2.3 h	2.9 de	1.0 cd	3920 bcdef
	13.3	3.0 gh	3.6 abcde	0.5 d	3678 bcdefg
Carver	0	7.3 bcdef	3.9 abc	2.5 cd	3461 cdefgh
	6.5	3.8 fgh	3.6 abcde	3.8 bcd	3303 fgh
	13.3	4.8 defgh	4.1 ab	3.3 bcd	3412 defgh
Tifrunner	0	8.8 bc	4.2 ab	3.0 cd	3509bcdefgh
	6.5	9.3 b	4.2 ab	3.8 bcd	4138 ab
	13.3	6.8 bcdefg	4.4 a	3.5 bcd	4078 abc
Florida C-99R	0	13.5 a	3.8 abcd	2.0 cd	3582bcdefgh
	6.5	10.0 ab	3.9 abc	2.0 cd	4126 ab
	13.3	13.3 a	4.0 ab	3.8 bcd	4662 a
GA01R	0	8.5 bcd	2.9 de	3.8 bcd	4066 abcd
	6.5	7.8 bcde	3.0 cde	3.5 bcd	3848 bcdef
	13.3	7.8 bcde	3.5 abcde	2.3 cd	3969 abcde
GA02C	0	4.8 defgh	4.4 a	1.8 cd	3606 bcdefg
	6.5	4.5 efgh	4.1 ab	0.3 d	3485bcdefgh
	13.3	2.3 h	4.0 ab	1.5 cd	4041 abcd
Georgia Green	0	9.8 ab	4.3 ab	5.0 bc	3364 efgh
	6.5	9.3 b	4.3 ab	5.0 bc	3545bcdefgh
	13.3	10.0 ab	3.7 abcde	3.8 bcd	3557bcdefgh

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

CALENDAR AND AU-PNUT ADVISORY SCHEDULES FOR RECOMMENDED FUNGICIDE PROGRAMS EVALUATED FOR CONTROL OF LEAF SPOT DISEASES AND WHITE MOLD ON SELECTED PEANUT CULTIVARS, WREC

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

Objective: To assess the efficacy of recommended Bravo Ultrex, Folicur 3.6F, Headline 2.09E, and Abound 2SC programs applied on a 14-day calendar schedule and according to the standard rules for AU-Pnut leaf spot advisory for the control of leaf spot diseases and white mold on Andru II, Carver, and Florida C-99R peanut cultivars in an irrigated production system.

Methods: On May 16, the peanut cultivars Andru II (maturity group 3), Carver (maturity group 4), and Florida C-99R (maturity group 5) were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent).

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of of 1 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm was made, followed on May 26 with an application of 3 pints per acre of Prowl EC. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pints per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was irrigated with 0.6 and 0.75 inch acres of water on August 1 and September 13.

A split plot design with peanut cultivars as whole plots and fungicide treatments as subplots was used. Whole plots were randomized in four complete blocks. Subplots consisted of four 30-foot rows spaced 3 feet apart. Full canopy sprays were made on a 14-day calendar schedule or according to the AU-Pnut leaf spot advisory with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons per acre spray volume.

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on September 13 for Andru II, September 27 for Carver, and October 12 for Florida C-99R. Counts of white mold [Southern stem rot (SSR)] hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made on September 15 for Andru II, September 30 for Carver, and October 17 for Florida C-99R.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by ANOVA and Fisher's protected least significant difference (LSD) test (P=0.05). Data presented in the table were pooled across peanut cultivars.

Results: Monthly rainfall totals were equal to or higher than the historical average for the months of June, July, and August but below average in May, September, and October. While temperatures were below normal in May, they were near seasonal norms for the remainder of the production season.

When applied on a 14-day calendar schedule, all fungicide programs gave better leaf spot control compared with AU-Pnut leaf spot advisory. With the 14-day calendar schedule and AU-Pnut advisory, the least effective leaf spot control was seen with the Folicur 3.6F program. Calendar and AU-Pnut schedules for the Abound 2SC, Folicur 3.6F, Bravo Ultrex, and Headline 2.09E programs had similar white mold hit counts. With the Abound and Folicur programs, yields for the AU-Pnut advisory were significantly lower than the corresponding 14-day calendar schedule. Despite a reduction of three applications, yield response obtained with the calendar and advisory treatment schedules with the Bravo Ultrex and Headline 2.09E programs was similar. In contrast, yield for the 14-day calendar schedule of the Folicur 3.6F and Abound 2SC programs were higher compared with the AU-Pnut advisory treatments with the same fungicides.

When averaged across fungicide programs, leaf spot ratings and AUDPC (areas under disease progress curves) for Florida C-99R were significantly higher than those recorded for Carver and Andru II (Table 2). Also, Carver suffered more leaf spot damage compared with the early maturing Andru II. While white mold incidence was higher on Florida C-99R than Andru II, ratings for this disease on Carver were intermediate. Although Andru II had lower leaf spot ratings, Carver had higher yields. Yield for Andru II and Florida C-99R was similar.

On each of the three peanut cultivars, all fungicide programs proved more effective when applied on a 14-day calendar schedule than according to the AU-Pnut leaf spot advisory (Table 3). On Florida C-99R, heavy leaf spotting and in excess of 50 percent defoliation was noted with the AU-Pnut treatment schedules for the Abound 2SC, Folicur 3.6F, and Bravo Ultrex programs. When applied on a 14-day calendar schedule or according to the AU-Pnut advisory, the poorest disease control was often obtained with the Folicur 3.6F program. On each cultivar, relatively few differences in white mold damage were noted between fungicide programs. The 14-day calendar schedule for a Headline 2.09E program on Carver gave better control than the corresponding AU-Pnut treatment. On Andru II, the higher leaf spot ratings for the Folicur 3.6F AU-Pnut treatment resulted in a yield reduction when compared to the 14-day calendar schedule with the same fungicide. Otherwise, the yield for the Abound 2SC, Bravo Ultrex, and Headline 2.09E 14-day calendar and AU-Pnut treatments on Andru II were similar. On Carver, yields were higher for the calendar than AU-Pnut treatment for the Folicur 3.6F and Bravo Ultrex programs. Yield response for the calendar and advisory treatments for the Abound 2SC and Headline 2.09E programs on Carver were similar. On Florida C-99R, application scheduling did not have a significant impact on peanut yield.

TABLE 1. COMPARISON OF CALENDAR AND AU-PNUT ADVISORY SCHEDULES OF RECOMMENDED FUNGICIDE PROGRAMS FOR THE CONTROL OF LEAF SPOT DISEASES AND WHITE MOLD ON SELECTED PEANUT CULTIVARS

Treatment and rate/ac	Schedule	Application date (DAP)[1]	——Disease ratings—— LS[2]	WM[3]	Yield *lb/ac*
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	30, 42, 70, 97, 115 58, 83	4.0 d[4]	4.1 ab	3836 a
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut[5]	30, 97 52, 83	5.7 b	4.6 ab	3483 bc
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	2-wk	30, 42, 115 58, 70, 83, 97	4.8 c	3.2 b	4007 a
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	AU-Pnut	30, 52, 83, 97	6.4 a	5.0 ab	3322 c
Bravo Ultrex 1.4 lb	2-wk	30, 42, 58, 70, 83, 97, 115	3.8 d	4.8 ab	3789 ab
Bravo Ultrex 1.4 lb	AU-Pnut	30, 52, 83, 97	5.7 b	5.8 a	3713 ab
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	2-wk	30, 42, 70, 97, 115 58, 83	3.7 d	4.3 ab	3854 a
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	AU-Pnut	30, 97 52, 83	5.3 b	6.1 a	3763 ab

[1] DAP = days after planting when fungicide applications are made. [2] LS = rating for early and late leaf spot. [3] WM = White mold. incidence was expressed as the number of disease loci per 60 feet of row. [4] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05). [5] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (<0.10 inch) and second and subsequent applications immediately after three rain events.

TABLE 2. DISEASE RATINGS AND YIELDS BY PEANUT CULTIVAR

Peanut cultivar	————Leaf spot rating———— Final rating	AUDPC	White mold hits/60 row ft	Yield ***lb/ac***
Andru II	4.4 c[1]	190 c	3.9 b	3590 b
Carver	4.9 b	252 b	4.9 ab	3913 a
Florida C-99R	5.5 a	289 a	5.4 a	3648 b

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Summary: Without exception, the best leaf spot control provided by each fungicide program was obtained with the 14-day calendar schedule and not the AU-Pnut advisory. Differences in leaf spotting and defoliation were sufficient, particularly with the Folicur 3.6F program, to cause significant yield losses for the AU-Pnut advisory treatment. In contrast, Abound 2SC and Headline 2.09E demonstrated the best leaf spot control and yield response on all three cultivars when applied according to the AU-Pnut advisory. Study results also indicate that Florida C-99R is able to tolerate higher levels of leaf spotting and defoliation without losing yield than Carver. While Florida C-99R had the highest overall leaf spot rating, differences in yield between the calendar and advisory treatments appeared greater and more frequently on Carver than Florida C-99R.

TABLE 3. DISEASE RATINGS AND YIELD BROKEN DOWN BY PEANUT CULTIVAR AND TREATMENT

Treatment and rate/ac	Schedule	Application date (DAP)[1]	——Disease ratings—— LS[2]	WM[3]	Yield *lb/ac*
		Andru II			
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	30, 42, 70, 97, 115 58, 83	3.1 lm[4]	2.0 d	3735 b-h
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut[5]	30, 97 52, 83	4.9 gh	3.8 a-d	3249 gh
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	2-wk	30, 42, 115 58, 70, 83, 97	4.0 ijk	2.8 cd	3866 a-g
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	AU-Pnut	30, 52, 83, 97	6.0 bcd	3.0 bcd	3188 h
Bravo Ultrex 1.4 lb	2-wk	30, 42, 58, 70, 83, 97, 115	3.0 m	4.8 a-d	3588 c-h
Bravo Ultrex 1.4 lb	AU-Pnut	30, 52, 83, 97	5.5 d-g	6.8 ab	3515 e-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	2-wk	30, 42, 70, 97, 115 58, 83	3.1 lm	3.3 b-d	3806 b-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	AU-Pnut	30, 97 52, 83	5.5 d-g	5.0 a-d	3812 b-g
		Carver			
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	30, 42, 70, 97, 115 58, 83	3.8 jkl	4.0 a-d	4187 a-d
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut	30, 97 52, 83	5.8 cde	5.3 a-d	3739 b-h
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	2-wk	30, 42, 115 58, 70, 83, 97	4.9 gh	3.0 bcd	4441 a
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	AU-Pnut	30, 52, 83, 97	6.5 ab	6.5 abc	3340 fgh
Bravo Ultrex 1.4 lb	2-wk	30, 42, 58, 70, 83, 97, 115	4.0 ijk	3.8 a-d	4211 ab
Bravo Ultrex 1.4 lb	AU-Pnut	30, 52, 83, 97	5.5 d-g	6.3 abc	3582 c-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	2-wk	30, 42, 70, 97, 115 58, 83	3.5 klm	3.3 bcd	4199 abc
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	AU-Pnut	30, 97 52, 83	5.3 efg	7.3 a	3606 b-h

continued

TABLE 3, Continued. DISEASE RATINGS AND YIELD BROKEN DOWN BY PEANUT CULTIVAR AND TREATMENT

Treatment and rate/ac	Schedule	Application date (DAP)[1]	——Disease ratings—— LS[2]	WM[3]	Yield lb/ac
		Florida C-99R			
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	30, 42, 70, 97, 115 58, 83	5.0 fgh[4]	6.3 abc	3533 e-h
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut[5]	30, 97 52, 83	6.4 abc	4.8 a-d	3461 e-h
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	2-wk	30, 42, 115 58, 70, 83, 97	5.6 def	3.8 a-d	3715 b-h
Bravo Ultrex 1.4 lb Folicur 3.6F 7.2 fl oz	AU-Pnut	30, 52, 83, 97	6.8 a	5.5 a-d	3436 e-h
Bravo Ultrex 1.4 lb	2-wk	30, 42, 58, 70, 83, 97, 115	4.4 hij	5.8 a-d	3570 d-h
Bravo Ultrex 1.4 lb	AU-Pnut	30, 52, 83, 97	6.1 a-d	4.5 a-d	4041 a-e
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	2-wk	30, 42, 70, 97, 115 58, 83	4.5 hi	6.3 abc	3557 e-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	AU-Pnut	30, 97 52, 83	5.3 efg	6.0 abc	3872 a-f

[1] DAP = days after planting when fungicide applications are made.
[2] LS = rating for early and late leaf spot.
[3] WM = White mold. incidence was expressed as the number of disease loci per 60 feet of row.
[4] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).
[5] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (<0.10 inch) and second and subsequent applications immediately after three rain events.

HEADLINE CALENDAR AND AU-PNUT ADVISORY PROGRAMS COMPARED FOR DISEASE CONTROL ON SELECTED PEANUT CULTIVARS, WREC

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

Objective: To assess the effectiveness of two rates of Headline 2.09E when applied at 14-, 21-, and 28-day calendar schedules and according to the AU-Pnut leaf spot advisory for the control of leaf spot diseases and white mold on Andru II, Carver, and Florida C-99R peanut cultivars.

Methods: On May 18, the peanut cultivars Andru II (maturity group 3), Carver (maturity group 4), and Florida C-99R (maturity group 5) were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama. The rotation in the test area has historically been peanut–cotton–peanut. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent).

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm was made, followed on May 26 with an application of 3 pints per acre of Prowl EC. Escape weeds were either treated with 1 ounce per acre of Cadre + 1.5 pints per acre of Storm on July 15, pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was irrigated with 0.6 and 0.75 inch acres of water on August 1 and September 13. A split plot design with peanut cultivars as whole plots and fungicide treatments as subplots was used. Whole plots were randomized in four complete blocks. Individual subplots consisted of four 30-foot rows spaced 3 feet apart.

Full canopy sprays of each rate of Headline 2.09E were made on a 14-, 21-, and 28-day calendar schedule and according to the AU-Pnut leaf spot advisory with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons of spray volume per acre. The 14-day calendar schedule applications were made on June 23 [36 days after planting (DAP)], July 8 (51 DAP), July 22 (65 DAP), August 4 (78 DAP), August 17 (91 DAP), September 1 (105 DAP), and September 14 (119 DAP); the 21-day calendar schedule applications, on June 23 (36 DAP), July 15 (58 DAP), August 4 (78 DAP), August 26 (100 DAP), and September 14 (119 DAP); and the 28-day calendar schedule applications, on June 23 (36 DAP), July 22 (65 DAP), August 17 (91 DAP), and September 14 (119 DAP). AU-Pnuts triggered applications on June 13 (26 DAP), July 1 (44 DAP), July 14 (57 DAP), August 5 (79 DAP), August 15 (89 DAP), and September 2 (107 DAP).

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spotting seen in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were recorded on July 5, July 19, August 2, August 16, August 30, September 13, September 19, September 27, and October 12. Final leaf spot ratings, which are listed in the tables, were taken on September 19 for Andru II, September 27 for Carver, and October 12 for Florida C-99R. Counts of white mold [Southern stem rot (SSR)] hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made on September 20 for Andru II, October 3 for Carver and October 17 for Florida C-99R.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05). Data presented in Table 1 were pooled across peanut cultivars and fungicide treatments in Table 2.

Results: Monthly rainfall totals were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October. Temperatures were below normal for May but near normal for the remainder of the production season.

Headline at rates of 9 and 15 fluid ounces per acre gave better leaf spot control when applied at 14- and 21-day intervals than on a monthly schedule or according to the AU-Pnut advisory. When applied at 14- and 21-day intervals, both rates of Headline 2.09E also controlled leaf spot diseases more effectively than the standard 14-day calendar Bravo Ultrex and Bravo Ultrex + Moncut 70DF programs. Application interval for the high rate of Headline 2.09E did not significantly impact white mold incidence. At the low rate of Headline 2.09E, white mold incidence was higher for the 21-day calendar schedule compared with the 14- and 28-day calendar schedules and the AU-Pnut advisory treatment. Generally, white mold damage levels for all Headline 2.09E treatments was similar to that recorded for the Bravo Ultrex and Bravo Ultrex + Moncut 70DF standards. At the low rate of Headline 2.09E, yields were significantly higher for the 14-day calendar schedule than those obtained with the 21- and 28-day schedules as well as the AU-Pnut advisory. Yield response with the 14-day calendar schedule for the high rate of Headline 2.09E was significantly higher than that for the 21-day calendar schedule. The 28-day and AU-Pnut advisory treatment with the high rate of Headline 2.09E had yields that were similar to both the 14-day and 21-day schedules of the same rate of this fungicide. With one exception, yield for the Bravo Ultrex and Bravo Ultrex + Moncut 70DF standards was similar to that of all Headline 2.09EC treatments.

Andru II and Carver had lower average leaf spot ratings than Florida C-99R (Table 2). The disease ratings showed that Andru II and Carver had defoliation levels of no more than 10 percent, while Florida C-99R suffered about 20 percent defoliation. White mold damage was lower on the early maturing Andru II than Carver or Florida C-99R. While white mold may have suppressed the yield of Carver compared with the other peanut cultivars, leaf spot damage probably had relatively little impact on yield.

TABLE 1. DISEASE CONTROL AND YIELD RESPONSE WITH TWO RATES OF HEADLINE 2.09E APPLIED ON 14-, 21-, AND 28-DAY CALENDAR SCHEDULES AND ACCORDING TO THE AU-PNUT LEAF SPOT ADVISORY

Treatment and rate/ac	Application schedule	Application number	——Disease ratings—— LS[1]	WM[2]	Yield *lb/ac*
Bravo Ultrex 1.4 lb	14 day	7	4.2 cd[3]	6.7 bcd	3142 a-d
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	14 day	7	3.9 de	7.5 bcd	3434 a
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	21 day	5	3.7 ef	11.3 a	2996 cd
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	28 day	4	5.0 a	6.8 bcd	3031 bcd
Bravo Ultrex 1.4 lb Headline 2.09E 9 lf oz	AU-Pnut[4]	6	4.7 b	8.0 bc	2851 d
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	14 day	7	3.6 ef	6.9 bcd	3366 ab
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	21 day	5	3.5 f	9.2 ab	2965 cd
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	28 day	4	4.7 b	8.2 bc	3085 a-d
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	AU-Pnut	6	4.5 b	5.6 cd	3114 a-d
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70 DF 1.1 lb	14-day	7	4.4 bc	5.0 d	3269 abc

[1] LS = rating for early and late leaf spot. [2] WM = White mold. incidence was expressed as the number of disease loci per 60 feet of row. [3] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05). [4] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (<0.10 inch) and second and subsequent applications immediately after three rain events.

As was previously noted in Table 1, little difference in the level of leaf spot control with the 14- and 21-day treatment schedules with both rates of Headline 2.09E was noted on Andru II, Carver, or Florida C-99R (Table 3). Despite one more application of Bravo Ultrex, the AU-Pnut treatment schedule for both rates of Headline 2.09E did not give the level of leaf spot control that was obtained with the 21-day treatment schedule. A big decline in leaf spot control with both rates of Headline 2.09E was also seen when treatment intervals were extended from 21 to 28 days. On Carver but not the other two peanut cultivars, the 14- and 21- day treatment schedules for the higher rate of Headline 2.09E gave better control of leaf spot than the lower rate applied on the same schedules. At the 14-day treatment schedule, the level of leaf spot control provided by Headline 2.09E was superior to that obtained with Bravo Ultrex alone on Andru II and Carver but not Florida C-99R.

White mold incidence on Andru II and Florida C-99R was similar for all fungicide treatments (Table 3). On Carver, the highest white mold hit counts were noted for the 21-day treatment schedules for both rates of Headline 2.09E.

Yield sharply declined as the application intervals were extended beyond 14 days for the lower rate of Headline 2.09E on Andru II and the high rate of the same fungicide on Carver (Table 3). On Carver, yield response with the AU-Pnut advisory schedule for both rates of Headline 2.09E was also much lower compared with that for the corresponding 14-day calendar treatments. The Andru II peanut treated according to the AU-Pnut advisory with the low rate of Headline 2.09E also had lower yields than the 14-day calendar schedule for this same rate of Headline 2.09E. In contrast, yields for all Headline 2.09 treatment schedules were similar.

Summary: At the recommended 14-day and extended 21-day treatment schedule, Headline 2.09E at the 9.0- and 15-fluid-ounce-per-acre rates controlled leaf spot diseases better than the standard 14-day Bravo Ultrex program on Andru II and Carver. For the late maturing Florida C-99R peanut, leaf spot control with the above Headline 2.09E treatments was comparable to that obtained with the Bravo Ultrex standard. Leaf spot control with both rates of Headline 2.09E broke down when treatment intervals were extended to 28 days or when applications were scheduled using the AU-Pnut leaf spot advisory. With both rates of Headline 2.09E, the level of leaf spot control obtained with the six-application AU-Pnut schedule was often similar to that seen with the four-application 28-day treatments. At the same treatment intervals, the 15-fluid-ounce-per-acre rate of Headline 2.09E did not give better control of white mold than the lower rate of the same fungicide. On Carver, the 21-day treatments for both rates of Headline 2.09 suffered heavier white mold damage than the 14- and, at the low rate, the 28-day treatment. On the other two peanut cultivars, application interval had no impact on the incidence of this disease. Yield response to extending application intervals for both rates of Headline was not consistent for the three peanut cultivars. Regardless of leaf spot and white mold ratings, yields of Florida C-99R were similar for the 14-, 21-, and 28-day treatments of both rates of Headline 2.09E. Carver and to a lesser extent Andru II was sensitive to increasing damage from leaf spot diseases, white mold, or both that resulted from extended application intervals for Headline 2.09E beyond 14 days. Because of its yield stability, Florida C-99R would be a better candidate for a reduced fungicide input peanut production system than Andru II or Carver.

TABLE 2. DISEASE RATINGS AND YIELDS BY PEANUT CULTIVAR

Peanut cultivar	Leaf spot		White mold	Yield
	Final rating	AUDPC	hits/60 row ft	*lb/ac*
Andru II	3.9 b[1]	190 c	5.5 b	3180 a
Carver	4.0 b	229 b	8.5 a	2829 b
Florida C-99R	4.8 a	270 a	8.8 a	3369 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 3. DISEASE RATINGS AND YIELD BY PEANUT CULTIVAR AND FUNGICIDE TREATMENT

Treatment and rate/ac	Applicaiton schedule	Application number	——Disease ratings—— LS[1]	WM[2]	Yield *lb/ac*
		Andru II			
Bravo Ultrex 1.4 lb	14 day	7	3.8	5.3 ef [3]	2904 b-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	14 day	7	3.5	7.0 b-f	3997 a
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	21 day	5	3.6	7.0 b-f	2698 d-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	28 day	4	4.8	4.3 ef	2934 b-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 lf oz	AU-Pnut[4]	6	4.4	6.3 def	3194 b-g
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	14 day	7	3.1	6.5 def	3346 a-e
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	21 day	5	3.0	4.5 ef	2904 b-h
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	28 day	4	4.3	4.0 f	3400 abc
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	AU-Pnut	6	4.0	5.0 ef	3376 abcd
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70 DF 1.1 lb	14-day	7	4.3	5.0 ef	3267 b-g
		Carver			
Bravo Ultrex 1.4 lb	14 day	7	4.3	6.0 def	3025 b-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	14 day	7	3.6	6.5 def	3207 b-g
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	21 day	5	3.5	16.0 a	2807 c-h
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	28 day	4	5.0	8.0 b-f	2626 fgh
Bravo Ultrex 1.4 lb Headline 2.09E 9 lf oz	AU-Pnuty	6	4.5	9.0 b-f	2420 h
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	14 day	7	3.5	6.5 def	3315 a-e
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	21 day	5	3.4	12.0 abc	2686 efgh
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	28 day	4	4.1	9.5 b-e	2614 gh
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	AU-Pnut	6	3.9	6.0 def	2493 h
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70 DF 1.1 lb	14-day	7	4.1	5.0 ef	3098 b-h

continued

TABLE 3, Continued. DISEASE RATINGS AND YIELD BY PEANUT CULTIVAR AND TREATMENT

Treatment and rate/ac	Application schedule	Application number	——Disease ratings—— LS[1]	WM[2]	Yield *lb/ac*
		Florida C-99R			
Bravo Ultrex 1.4 lb	14 day	7	4.5	8.8 b-f [3]	3497 ab
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	14 day	7	4.5	9.0 b-f	3255 b-g
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	21 day	5	4.0	12.5 ab	3436 abc
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	28 day	4	5.3	8.0 b-f	3533 ab
Bravo Ultrex 1.4 lb Headline 2.09E 9 lf oz	AU-Pnut[4]	6	5.1	8.8 b-f	2969 b-h
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	14 day	7	4.3	7.8 b-f	3436 abc
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	21 day	5	4.1	11.0 a-d	3303 a-f
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	28 day	4	5.6	11.0 a-d	3243 b-g
Bravo Ultrex 1.4 lb Headline 2.09E 15 fl oz	AU-Pnut	6	5.6	5.8 def	3473 abc
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70 DF 1.1 lb	14-day	7	4.8	5.0 ef	3443 abc

[1] LS = rating for early and late leaf spot.
[2] WM = White mold. incidence was expressed as the number of disease loci per 60 feet of row.
[3] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).
[4] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (<0.10 inch) and second and subsequent applications immediately after three rain events.

YIELD RESPONSE AND OCCURRENCE OF LEAF SPOT DISEASES, WHITE MOLD, TOMATO SPOTTED WILT VIRUS, AND CYLINDROCLADIUM BLACK ROT IN COMMERCIAL PEANUT LINES IN A ONE-YEAR ROTATION PATTERN, WREC

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

Objective: To assess the yield of commercial peanut cultivars in a one-year rotation pattern and their reaction to leaf spot diseases, white mold, tomato spotted wilt, and Cylindrocladium black rot.

Methods: On May 24, 10 commercial runner peanut lines were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama, in a field maintained in a peanut–cotton–peanut rotation. Seed were sown at a rate of approximately six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (<1 percent OM).

On March 3, the test site was paratilled and turned with a moldboard plow. On May 16, an early postemergent broadcast application of 1 quart per acre Sonolan + 0.45 ounce per acre of Strongarm was followed on May 26 with an application of 3 pints per acre of Prowl. Escape weeds were treated with 1 ounce per acre of Cadre + 1.5 pints per acre Storm on July 15, were pulled by hand, or killed by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow at plant to control thrips. The test area was irrigated with 0.6 and 0.75 acre inches of water on August 1 and September 13, respectively.

A split plot design with peanut lines as the whole plot and fungicide treatments as subplots was used. Whole plots were randomized in four complete blocks. Subplots were four 30-foot rows spaced 3 feet apart randomized within each whole plot. The two fungicide treatment programs were 1.4 pounds per acre of Bravo Ultrex applied seven times and a treatment program that included two initial applications of 1.4 pounds per acre of Bravo Ultrex followed by 1.6 pints per acre of Abound 2SC, 1.4 pounds per acre of Bravo Ultrex + 0.8 pound per acre of Moncut 70DF, 1.6 pints per acre of Abound 2SC, 1.4 pounds per acre of Bravo Ultrex + 0.8 pound per acre of Moncut 70DF, and finally 1.4 pounds per acre of Bravo Ultrex. Full canopy sprays of each fungicide treatment with a tractor-mounted boom sprayer with three TX-8 nozzles per row in 15 gallons of spray volume per acre were made on June 23, July 8, July 21, August 4, August 18, September 7, and September 21.

Incidence of tomato spotted wilt virus (TSWV) was determined on September 15 for the maturity group 3 cultivar (Andru II), on September 28 for the maturity group 4 cultivars (ANorden, AP-3, Carver, Georgia Green, and GA03L), and on October 15 for the maturity group 5 cultivars (DP-1, Florida C-99R, GA01R, GA02C, and Tifrunner) by counting the number of TSWV hits (one hit was defined as ≤ 1 foot of consecutive diseased plant(s) per row) for the middle two rows of each plot. Early and late leaf spot (LS) were rated together using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions noticeable in lower and upper leaf canopy, 4 = some lesions in lower and upper canopy with light defoliation (≤ 10 percent), 5 = lesions noticeable with some defoliation (≤ 25 percent), 6 = lesions numerous with significant defoliation (≤ 50 percent), 7 = lesions numerous with heavy defoliation (≤ 75 percent), 8 = numerous lesions on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were recorded on September 15 for the maturity group 3 line, September 28 for the maturity group 4 lines, and October 15 for the maturity group 5 lines.

Counts of white mold [southern stem rot (SSR)] hits (one hit equals ≤ 1 foot of consecutive white mold-damaged plants per row) for the middle two rows per plot were made immediately after plot inversion on September 23 for the maturity group 3 cultivar, on September 30 for the maturity group 4 cultivars, and on October 20 for the maturity group 5 cultivars. Windrows were also checked for Cylindrocladium black rot (CBR) at this time.

Plots were harvested two to three days after inversion with a field combine and yields were reported at 7 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Monthly rainfall totals in 2005 were close to or exceeded the monthly average for June, July, and August, but May, September, and October were dry, which probably slowed the development of leaf spot diseases and possibly white mold.

Incidence of TSWV was significant higher for the current industry standards Georgia Green, Carver, and Florida C-99R than for the other peanut lines, and it was lowest for AP-3, GA03L, Andru II, and Tifrunner. Late leaf spot was most common on Andru II, AP-3, and Carver while early leaf spot was most common for the remaining peanut lines (data not shown). Leaf spot ratings were highest for Georgia Green and Florida C-99R followed closely by ANorden and GA02C, and it was lowest for AP-3 and GA01R. With the exception of Georgia Green, incidence of white mold was higher for Florida C-99R than for all other peanut lines. The least white mold damage was recorded for GA02C and Tifrunner. Tifrunner, GA02C, and GA01R, which often suffered among the least TSWV and white mold damage, also had the highest yields. Yield-reducing outbreaks of CBR were noted in one replication for AP-3, Florida C-99R, and GA03L. The AP-3 peanut, which demonstrated some resistance to all three diseases, had yields similar to those for GA02C and Tifrunner but less than those for GA01R. Georgia Green yielded less than all other peanut lines except for Andru II, ANorden, Carver, GA03L, and Florida C-99R.

As expected, the fungicide programs had no significant effect on the overall incidence of TSWV on the 10 peanut cultivars (Table 2). However, the Bravo Ultrex/Abound/Moncut program did control early and late leaf spot, and white mold better than the season-long Bravo Ultrex program. However, the improved leaf spot and white mold control obtained with the Bravo Ultrex/Abound/Moncut program did not translate into higher pod yields. When averaged across peanut cultivars, yield response with both fungicide programs was very similar.

TABLE 1. YIELD AND REACTION OF COMMERCIAL PEANUT CULTIVARS TO TSWV, LEAF SPOT DISEASES, AND WHITE MOLD AVERAGED ACROSS FUNGICIDE PROGRAMS, WREC

Peanut line	TSWV hits/ 60 row ft	Leaf spot rating	White mold hits/60 row ft	Yield *lb/ac*
Maturity group 3 (matures 126-140 DAP)				
Andru II	4.0 cd[1]	4.6 de	6.0 cde	3578 cd
Maturity group 4 (matures 130-145 DAP)				
ANorden	7.0 b	5.4 ab	8.1 bc	3430 cd
AP-3	2.6 d	4.0 f	5.4 def	3933 abc
Carver	9.5 a	5.2 bc	7.4 bcd	3775 bc
GA03L	3.6 c	5.1 bcd	4.6 def	3644 cd
Georgia Green	10.0 a	5.8 a	10.8 ab	3273 c
Maturity group 5 (matures 140-165 DAP)				
Florida C-99R	9.2 a	5.8 a	12.0 a	3105 d
GA01R	5.3 bc	4.3 ef	5.0 def	4447 a
GA02C	5.0 c	5.4 ab	3.9 ef	4314 ab
Tifrunner	2.7 d	4.7 cde	2.5 f	4509 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 2. YIELD RESPONSE AND DISEASE CONTROL WITH TWO FUNGICIDE PROGRAMS AVERAGED ACROSS PEANUT CULTIVARS

Fungicide program	Application timing	TSWV hits/ 60 row ft	Leaf spot rating	White mold hits/60 row ft	Yield *lb/ac*
Bravo Ultrex 1.4 lb/ac	1-7	5.9 a[1]	5.4 a	7.8 a	3736 a
Bravo Ultrex 1.4 lb/ac	1,2,7	6.0 a	4.7 b	5.3 b	3827 a
Abound 2SC 1.2 pt/ac	3,5				
Bravo Ultrex 1.4 lb/ac + Moncut 70DF 0.8 lb	4,6				

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

On all cultivars except for Florida C-99R, the incidence of TSWV was similar for both fungicide programs (Table 3). For Florida C-99R, TSWV hits counts were lower with the Bravo Ultrex/Abound/Moncut than Bravo Ultrex program. Fungicide program had relatively little impact on either the severity of leaf spot diseases and white mold or on yield. Better leaf spot control was obtained with the Bravo Ultrex/Abound/Moncut program compared with the Bravo Ultrex program on only Carver, Tifrunner, and ANorden. The Bravo Ultrex/Abound/Moncut program significantly reduced the incidence of white mold on only one of the 10 peanut cultivars, including several that suffered from considerable disease-related damage. Finally, significant yield gains were not obtained on any peanut cultivar with the Bravo Ultrex/Abound/Moncut program.

Summary: Peanut cultivars with the best combination of resistance to TSWV, leaf spot diseases, and white mold, as well as highest yields, were Tifrunner, GA01R, GA02C and AP-3. Although Carver had elevated ratings for TSWV and white mold, yields were statistically similar to those recorded for Tifrunner and AP-3. While the disease ratings for Andru II were similar to those of the above peanut cultivars, yields were significantly lower. In contrast, the high disease ratings for Florida C-99R, ANorden, and Georgia Green were reflected in their low yields.

Given the favorable rotation pattern for high leaf spot and white mold, the failure of the Bravo Ultrex/Abound/Moncut fungicide program to appreciably boost yield of even one of 10 peanut cultivars was very surprising. Normally, such a costly program would be expected to not only reduce leaf spot and white mold damage but increase yields as well.

TABLE 3. YIELD AND DISEASE RATINGS FOR EACH FUNGICIDE PROGRAM BY PEANUT CULTIVAR

Peanut Cultivar	Fungicide program	TSWV hits/ 60 row ft	Leaf spot rating	White mold hits/ 60 row ft	Yield lb/ac
Andru II	Bravo Ultrex	3.5 cd[1]	4.8 defg	7.5 abcde	3606 bcdef
	Bravo/Abound/Moncut	4.5 cd	4.5 efgh	4.5 bcde	3551 cdef
Carver	Bravo Ultrex	9.0 a	5.8 abc	9.3 abcd	3666 bcdef
	Bravo/Abound/Moncut	10.0 a	4.6 defgh	5.0 bcde	3884 abcde
Florida C-99R	Bravo Ultrex	8.8 ab	6.1 a	13.3 a	3227 def
	Bravo/Abound/Moncut	4.5 cd	5.4 abcde	10.8 ab	3013 f
GA01R	Bravo Ultrex	6.8 abc	4.5 efgh	5.0 bcde	4344 ab
	Bravo/Abound/Moncut	3.8 cd	4.1 fgh	5.0 bcde	4550 a
GA02C	Bravo Ultrex	4.5 cd	5.9 ab	3.3 de	4344 ab
	Bravo/Abound/Moncut	5.5 bcd	5.0 bcdef	4.5 bcde	4283 abc
GA03L	Bravo Ultrex	4.0 cd	5.5 abcd	7.8 abcde	3404 def
	Bravo/Abound/Moncut	3.3 cd	4.6 defgh	1.5 e	3824 abcde
Ga. Green	Bravo Ultrex	10.0 a	6.1 a	11.0 ab	3182 ef
	Bravo/Abound/Moncut	10.0 a	5.5 abcd	10.5 abc	3364 def
ANorden	Bravo Ultrex	7.0 abc	5.9 ab	11.0 ab	3291 def
	Bravo/Abound/Moncut	7.0 abc	4.9 cdefg	5.3 bcde	3570 cdef
AP-3	Bravo Ultrex	2.8 d	4.2 fgh	7.3 bcde	3933 abcd
	Bravo/Abound/Moncut	2.5 cd	3.8 h	3.5 cde	3933 abcd
Tifrunner	Bravo Ultrex	2.3 d	5.3 abcde	3.0 de	4150 abc
	Bravo/Abound/Moncut	3.3 cd	4.0 gh	2.0 e	4453 a

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

CALENDAR AND AU-PNUT SCHEDULES WITH RECOMMENDED FUNGICIDES COMPARED FOR LATE LEAF SPOT AND RUST CONTROL ON FLORIDA C-99R PEANUT IN SOUTHWEST ALABAMA, GCREC

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

Objective: To assess the impact of two-, three-, and four-week calendar application intervals, as well as the AU-Pnut leaf spot advisory on the effectiveness of recommended fungicide treatment programs for the control of late leaf spot and rust on the partially disease-resistant peanut cultivar Florida C-99R.

Methods: The peanut cultivar Florida C-99R (maturity group 5), which is partially resistant to early and late leaf spot as well as white mold, was planted at the Gulf Coast Research and Extension Center (GCREC) near Fairhope, Alabama, on May 12. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. The soil type was a Malbis fine sandy loam (OM < 1 percent). Plots consisted of four 30-foot rows spaced 3 feet apart.

On April 21, 82 pounds per acre of a 0-0-49 fertilizer that included 10 pounds per acre sulfur and 0.5 pound per acre of boron was broadcast and incorporated with a disk harrow. The plot area was then ripped and bedded. Postemergent weed control was obtained with a broadcast application of Gramoxone at 6 fluid ounces per acre + Storm 4L at 1 pint per acre + Butyrac at 1.75 pints per acre + Induce non-ionic surfactant at 2 quarts per 100 gallons spray volume on June 6. Cadre 70DG at 1.1 ounces per acre + Strongarm 84WDG at 0.3 ounce per acre + Induce at 2 quarts per 100 gallons spray volume were broadcast on June 27. The test area was not irrigated. A randomized complete block design with four replications per fungicide treatment regime was used. Full canopy sprays of each fungicide treatment were made on a 14-, 21-, or 28-day calendar schedule as well as according to the AU-Pnut leaf spot advisory with a four-row, ATV-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 10 gallons per acre of spray volume.

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on July 7, July 20, August 3, August 17, September 8, September 22, and October 10. Rust severity was rated on October 10 using the ICRISAT 1-9 rating scale (1 = no disease to 9 = 80 to 100 percent of leaves withered). Counts of white mold hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made when the peanuts were dug on October 10.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: In 2005, rainfall totals for the months of May, June, July, August, and September reached or exceeded the historical average for this location but were below average for October.

Due to frequent rain events in 2005, seven fungicide applications for the AU-Pnut advisory and the 14-day calendar schedules were made; all applications were made on the same calendar dates. Application intervals had a sizable impact on the efficacy of the Bravo Ultrex, Folicur, and Abound calendar programs for the control of late leaf spot and rust, as well as on pod yield. For all fungicide programs, more effective late leaf spot and rust control were recorded for the 14-day than for the 28-day treatment schedules. While the 14- and 21-day Folicur 3.6F and Abound 2SC programs gave similar control of late leaf spot, Bravo Ultrex was more effective when applied on a 14- than a 21-day schedule in controlling this disease. With the same application dates, the leaf spot ratings for the 14-day and AU-Pnut advisory treatments for the Bravo Ultrex, Abound 2SC, and Folicur 3.6F programs were similar. Among 14-day and AU-Pnut treatments, late leaf spot and rust severity were higher for the Folicur 3.6F program than the Bravo Ultrex and the Abound programs. While a considerable jump in rust ratings for all fungicide programs occurred when the application interval increased from 14 to 21 days, the ratings for this disease for the 21- and 28-day treatment schedules for the Bravo Ultrex, Abound 2SC, and Folicur 3.6F programs were similar. Overall, Folicur 3.6 programs gave poorest control of rust on peanut.

While some significant differences in white mold incidence were noted among fungicide programs, overall pressure from this disease was low and the impact of this disease on yield was minimal (data not shown).

For all fungicide programs, yields were higher for the 14-day than the 21-day treatment schedules. A further decline in yields was noted when application interval for the Bravo Ultrex, Abound 2SC, and Folicur 3.6F programs increased from 21 to 28 days. Despite higher rust and late leaf spot ratings, yield response to the 14-day Folicur program was similar to those obtained with the 14-day Bravo Ultrex and Abound 2SC programs. The AU-Pnut and 14-day treatment schedules for the Bravo Ultrex, Abound 2SC, and Folicur 3.6F programs, which had the same application dates and numbers, also had similar yields.

Summary: Overall, the Abound 2SC and Bravo Ultrex programs gave better control of late leaf spot and rust than the equivalent Folicur 3.6F programs. Severity of both late leaf spot and rust greatly increased as application intervals for all fungicide programs were extended from the traditional 14- to the 28-day calendar schedules. Jumping from a 14- to 21-day interval did not greatly reduce the effectiveness of the Abound 2SC and Folicur 3.6F programs against late leaf spot but did have a detrimental impact on rust control with both these programs as well as with Bravo Ultrex. Yield declined when application intervals were extended beyond the recommended 14 days. Lowest yields and overall highest disease ratings were recorded for the 28-day calendar schedules for Abound 2SC, Bravo Ultrex, and Folicur 3.6F. Due to frequent rain showers, the 14-day calendar and AU-Pnut leaf spot advisory schedules both included seven fungicide applications. Extending application intervals beyond the recommended 14-day intervals will likely result in greatly increased disease-related damage and yield losses of 10 to 20 percent.

IMPACT OF APPLICATION INTERVAL ON DISEASE CONTROL WITH RECOMMENDED FUNGICIDES, GCREC

Fungicide regime and rate/ac	Application schedule	Application date (DAP[1])	Leaf spot rating	Rust rating	Yield *lb/ac*
Bravo Ultrex 1.4 lb	2-wk	41,54,69,81,95,108,120	3.2 [2]	3.8	6309
Bravo Ultrex 1.4 lb	3-wk	41,62,81,104,120	4.3	4.7	5972
Bravo Ultrex 1.4 lb	4-wk	41,69,95,120	4.5	5.0	5666
Bravo Ultrex 1.4 lb	AU-Pnut[3]	41,54,69,81,95,108,120	3.5	3.7	6263
Bravo Ultrex 1.4 lb Folicur 3.6F	2-wk	41,54,120 69,81,95,108	4.1	4.5	6293
Bravo Ultrex 1.4 lb Folicur 3.6F	3-wk	41 62,81,104,120	4.5	6.2	5689
Bravo Ultrex 1.4 lb 4-wk Folicur 3.6F	41	69,95,120	5.3	6.2	5261
Bravo Ultrex 1.4 lb Folicur 3.6F	AU-Pnut	41,54,120 69,81,95,108	3.8	5.2	6385
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	2-wk	41,54,81,108,120 69,95	3.6	3.8	6293
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	3-wk	41,104,120 62, 81	3.9	5.0	5827
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	4-wk	41,120 69,95	4.8	5.2	5123
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut	41,54,81,108,120 69,95	3.3	3.8	6713
LSD (P = 0.05)			**0.7**	**1.1**	**619**

[1] DAP = days after planting when fungicide applications are made. [2] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05). [3] AU-Pnut disease advisory rules specify that the first application be made immediately after six or more rain events (>0.10 in) and second and subsequent applications immediately after three rain events.

RECOMMENDED PEANUT FUNGICIDE PROGRAMS COMPARED FOR THE CONTROL OF LATE LEAF SPOT, RUST, AND WHITE MOLD IN SOUTHWEST ALABAMA IN A DRYLAND PRODUCTION SYSTEM, GCREC

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

Objective: To assess yield response and disease control with recommended fungicide programs on selected peanut cultivars in a dryland production system in southwest Alabama.

Methods: On May 12, the peanut cultivars Andru II (maturity group 3), Carver (maturity group 4), and Florida C-99R (maturity group 5) were planted at the Gulf Coast Research and Extension Center (GCREC) in Fairhope, Alabama, in a field cropped to peanut once every three years. Seed were sown at a rate of six seed per foot of row using conventional tillage. The soil type was a Malbis fine sandy loam (OM < 1 percent).

After the pre-emergent herbicide Prowl EC was applied at a rate of 2 pints per acre on April 21, the test site was disked, ripped, and bedded. Weed control was obtained with an application of 6 fluid ounces per acre of Gramoxone + 1 pint per acre of Storm + 1 pint per acre of Butyrac + Induce adjuvant at 1 pint per 25 gallons of spray volume on June 6 and Cadre at 1.1 ounces per acre + 0.3 ounce per acre of Strongarm on June 27. The test area was not irrigated.

Whole plots were randomized into four complete blocks. Subplots, which consisted of four 30-foot rows spaced 3.2 feet apart, were randomized within each whole plot. Full canopy sprays of each fungicide treatment were made on June 22, July 5, July 20, August 1, August 15, September 1, and September 13 with a four-row ATV-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 10 gallons of spray volume per acre.

Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (<75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot ratings were taken on September 8 for Andru II, September 22 for Carver, and October 10 for Florida C-99R. Rust severity was rated on using the ICRISAT 1-9 rating scale (1 = no disease to 9 = 80 to 100 percent of leaves withered) on September 8 for Andru II, September 22 for Carver, and October 10 for Florida C-99R. Counts of white mold [Southern stem rot (SSR)] hits (one hit was ≤ 1 foot of consecutive white mold-damaged plants per row) were made when the peanuts were inverted on September 13 for Andru II, October 4 for Carver, and October 11 for Florida C-99R.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: In 2005, rainfall totals for the months of May, June, July, August, and September reached or exceeded the historical average for this location but were below average for October.

Late leaf spot was the more common of the two leaf spot diseases observed. The Folicur program gave the poorest leaf spot control over all peanut cultivars (Table 1). Leaf spot symptoms were, however, limited to light to moderate spotting of the leaves as well as less than 10 percent premature defoliation. Leaf spot ratings for the remaining six fungicide programs were similar. The Folicur program also gave less effective control of rust than the Bravo Ultrex alone. Rust ratings recorded for the remaining five fungicide programs were similar to the ratings for the Folicur 3.6F and Bravo Ultrex programs. Incidence of white mold was higher on the Abound-treated peanuts compared with the Folicur 3.6F program and the Bravo Ultrex at 1.4 pounds per acre + Moncut 70DF at 1.4 pounds per acre program. Yield response for the Bravo Ultrex at 1.4 pounds per acre + Moncut 70DF at 1.4 pounds per acre program was superior to that recorded for the Bravo Ultrex and Folicur 3.6F programs.

Of the three peanut cultivars, the highest leaf spot ratings were recorded for Carver (Table 2). Leaf spot ratings for Andru II and Florida C-99R were very similar. Rust and white mold ratings for all three peanut cultivars were also similar. While overall damage from all three diseases was not high, significant differences in yield were

noted among peanut cultivars. Florida C-99R considerably outyielded both Andru II and Carver. Yield for Andru II was significantly higher than that reported for Carver.

While the Abound 2SC program gave better control of leaf spot than the Folicur 3.6F program on Andru II, the ratings for the other fungicide programs were not significantly different (Table 3). On the Carver peanut, the Folicur 3.6F program gave significantly poorer leaf spot control than the other fungicide programs. Several fungicide programs controlled leaf spot diseases better than Folicur 3.6F on Florida C-99R. On Andru II and Carver, rust ratings were similar across all fungicide treatment programs. In contrast, the Folicur 3.6F program gave less control of this disease than the Stratego and the Bravo Ultrex at 1.4 pounds per acre + 1.4 pounds per acre of Moncut 70DF programs on Florida C-99R. Rust ratings for all of the other fungicide programs were similar. On Carver, few differences in yield were noted between fungicide programs. Yield response on Carver for the Bravo Ultrex at 1.4 pounds per acre + 1.4 pounds per acre of Moncut 70DF program was higher than that recorded for the Folicur 3.6F program. Highest yield on Andru II was obtained with the Abound 2SC, Headline 2.09E, and the Bravo Ultrex at 1.4 pounds per acre + Moncut at 1.4 pounds per acre 70DF programs. On Florida C-99R, yields for all fungicide programs were similar.

Summary: While Folicur 3.6F gave the poorest leaf spot control, the overall level of leaf spot control given by all of the fungicide programs, considering the almost daily rain showers and three tropical storms, was very good. Defoliation levels, which did not exceeded 25 percent and were often less than 10 percent, were not high enough to trigger yield loss. Folicur 3.6F gave less control of rust than Bravo Ultrex but was similar in effectiveness to the other fungicide programs. Again, the overall level of rust damage was not severe enough to cause appreciable yield loss. Surprisingly, the highest white mold incidence was seen on the Abound 2SC-treated peanuts. Due to a combination of higher leaf spot and rust ratings, yield response to the Folicur 3.6F program yielded less than the Ultrex at 1.4 pounds per acre + Moncut at 1.4 pounds per acre 70DF program. Yield for Florida C-99R was far superior to that recorded for Andru II and Carver. Dry weather at digging may have contributed to the relatively low yields for the Carver peanut.

TABLE 1. DISEASE RATINGS AND YIELD RESPONSE TO FUNGICIDE TREATMENT PROGRAMS AVERAGED ACROSS PEANUT CULTIVARS

Fungicide regime and rate/ac	Application timing	Leaf spot rating	Rust rating	White mold hits/ 60 ft	Yield *lb/ac*
Bravo Ultrex 1.4 lb	1 to 7	3.2 b[1]	2.8 b	3.1 abc	4733 b
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	3.9 a	3.6 a	2.5 c	4767 b
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	3.3 b	2.9 ab	2.7 bc	5230 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	3.3 b	3.0 ab	3.1 abc	4940 ab
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	3.3 b	3.2 ab	3.9 a	5024 ab
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	3.3 b	3.3 ab	3.6 ab	5058 ab
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	3.4 b	3.0 ab	3.6 ab	4998 ab

[1] Means followed by the same number in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

TABLE 2. DISEASE RATINGS AND YIELDS BY PEANUT CULTIVAR

Peanut cultivar	Leaf spot rating	Rust rating	White mold hits/ 60 ft	Yield *lb/ac*
Andru II	3.2 b[1]	3.1 a*	3.0 a	4770 b
Carver	3.7 a	2.9 a	3.0 a	4193 c
Florida C-99R	3.3 b	3.3 a	3.6 a	5930 a

[1] Means in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD)

TABLE 3. DISEASE RATINGS AND YIELDS BY FUNGICIDE PROGRAM ON EACH PEANUT CULTIVAR

Fungicide regime and rate/ac	Application timing	Leaf spot rating	Rust rating	White mold hits/60 row ft	Yield *lb/ac*
Andru II					
Bravo Ultrex 1.4 lb	1 to 7	3.1 cde[1]	2.8 b	3.0 b-g	4152 ghi
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	3.5 bcd	3.5 ab	1.8 fg	4588 efgh
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	3.1 cde	3.0 ab	2.3 defg	5070 def
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	3.1 cde	2.8 b	4.3 ab	4462 fgh
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	2.9 e	3.0 ab	3.8 abcd	5219 bcd
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	3.0 de	3.0 ab	2.3 defg	5150 cde
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	3.5 bcd	3.5 ab	3.8 abcd	4749 defg
Carver					
Bravo Ultrex 1.4 lb	1 to 7	3.4 bcde	2.8 b	2.5 c-g	4141 ghi
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	4.7 a	3.3 ab	3.0 b-g	3831 i
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	3.5 bcd	3.0 ab	2.0 efg	4611 defg
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	3.6 bc	3.3 ab	1.5 g	4175 ghi
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	3.8 b	2.8 b	4.0 abc	4118 hi
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	3.5 bcd	3.0 ab	4.8 a	4232 ghi
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	3.6 bc	2.8 b	3.3 a-e	4244 ghi
Florida C-99R					
Bravo Ultrex 1.4 lb	1 to 7	3.0 de	3.0 ab	3.8 abcd	5907 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	3.8 b	4.0 a	2.8 b-g	5884 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	3.1 cde	2.8 b	3.8 abcd	6010 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,4,6,7 3,5	3.0 de	3.0 ab	3.5 bcde	6182 a
Bravo Ultrex 1.4 lb Abound 2SC 1.6 pt	1,2,4,6,7 3,5	3.4 bcde	3.8 ab	4.0 abc	5735 abc
Bravo Ultrex 1.4 lb Headline 2.09EC	1,2,4,6,7 3,5	3.3 bcde	3.8 ab	3.8 abcd	5792 ab
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	3.1 cde	2.8 b	3.8 abcd	5999 a

[1] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

YIELD OF SELECTED PEANUT CULTIVARS AND THEIR SENSITIVITY TO TOMATO SPOTTED WILT VIRUS, LEAF SPOT DISEASES, AND WHITE MOLD IN A DRYLAND PRODUCTION SYSTEM, WREC

A. K. Hagan, H. L. Campbell, K. L. Bowen, B. E. Gamble, and J. Bostick

Objective: To assess the yield potential and the susceptibility of commercial and experimental runner peanut cultivars to tomato spotted wilt, early leaf spot, late leaf spot, and white mold in a well-rotated, dryland production system in southeast Alabama.

Methods: On May 10, 18 commercial and experimental runner peanut lines were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama, in a field that was cropped to peanut after two years of cotton. Seed were sown at a rate of approximately six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent). Gypsum and lime at rates of 600 and 1000 pounds per treated acre, respectively, were applied. Plots were two 20-foot rows spaced 3 feet apart.

On April 25, 1.0 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm was broadcast and lightly incorporated with a disk harrow. Select at 8 ounces per acre + 1 quart per acre of crop oil concentrate was broadcast on July 26 for escape grass control. Escape weeds were plowed with flat sweeps on June 22 or pulled by hand. The plot area was not irrigated. A randomized complete block design with four replications per peanut line was used. Full canopy sprays of 1.0 pint per acre of Chloronil + 2 fluid ounces per acre of Tilt 3.6F were made on June 8 and were followed by applications of 1.5 pints per acre of Chloronil on June 21, 1.2 pints per acre of Abound 2SC on July 6, 1.5 pints per acre of Chloronil on July 18, 1.2 pints per acre of Abound 2SC on August 1, and 1.5 pints per acre of Chloronil on August 17 and August 26. An application of 1.5 pints per acre of Chloronil was made on September 21 to the maturity group 5 cultivars. Fungicides were applied with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons of spray volume per acre.

Incidence of tomato spotted wilt virus (TSWV) was determined by counting the number of TSWV hits (one hit was defined as ≤ 1 foot of consecutive symptomatic plants) on September 7, September 15, September 22, and September 28 for the maturity group 3, 4, 4.5 (AP-3), and 5 peanut lines, respectively.

Early and late leaf spot (LS) were rated together using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions in lower and upper leaf canopy, 4 = some lesions in lower and upper canopy with light defoliation (≤ 10 percent), 5 = lesions noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = lesions numerous with significant defoliation (≤ 50 percent), 7 = lesions numerous with heavy defoliation (≤ 75 percent), 8 = numerous lesions on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Ratings for leaf spot diseases were taken on September 15 for Andru II and EXP 215; on September 22 for ANorden, AT3081R, Carver, EXP3085A, GA03L, Georgia Green, and GA H O/L; on September 28 for AP-3, Florida C-99R, C724-19-RB, CRSP 8, CRSP 14, and GA02C; and on October 12 for C12-3-114-58, DP-1, and GA01R. Counts of white mold hits (one hit was defined as ≤ 1 foot of consecutive white mold-damaged plants) were made immediately after plot inversion on September 15 for Andru II and EXP 215; on September 22 for ANorden, AT3081R, Carver, EXP3085A, GA03L, Georgia Green, and GA HI-O/L; on October 3 for AP-3, Florida C-99R, C724-19-RB, CRSP 8, CRSP 14, and GA02C; and on October 15 for C12-3-114-58, DP-1, and GA01R.

Plots were harvested with a field combine. Yields were reported at 7 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference test (P=0.05).

Results: Monthly rainfall totals in 2005 were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October, which may have slowed late-season leaf spot and white mold development. In addition, temperatures were lower than normal in April and early May but seasonal throughout the remainder of the production season.

Incidence of TSWV was significantly higher on EXP 215 and the current standard Georgia Green than for most of the other experimental and commercial peanuts (see table). Lowest incidence of TSWV was recorded for

the experimental runner peanut lines EXP3085A, C 724-19-RB, and C 12-3-114-58 and the commercial cultivars AP-3 and GA03L. Despite frequent and heavy summer rains, overall leaf spot pressure was moderate. The peanuts with the highest leaf spot ratings of 4.4— EXP3085A and Georgia HI-O/L—suffered from moderate leaf spotting throughout the canopy and a relatively low level of premature defoliation. Lowest leaf spot ratings were taken for AP-3. Florida C-99R, GA02C, GA01R, CRSP 14, and ANorden had leaf spot ratings that were similar to those taken for AP-3. Moderate white mold development was seen on Florida C-99R, EXP 215, AP-3, and CRSP 8. Very few white mold hits were found on Georgia HI-O/L, GA 03L, and AT3081R. Peanut lines with the highest TSWV ratings often did not always have the lowest yields. Georgia Green, EXP 215, and CRSP 8 had among the highest incidence of TSWV and lowest yields. Despite a high TSWV hit count, AT3081R was among the higher yielding peanut lines. Highest yield was obtained with the TSWV and leaf spot-resistant cultivar AP-3.

Summary: Tomato spotted wilt clearly had a detrimental impact on peanut yield. The current industry standard Georgia Green proved among the most highly susceptible to tomato spotted wilt (TSWV) and the poorest yielding peanut cultivars. This disease also greatly reduced the yield of CRSP 8, GA01R, and EXP 215. Sensitivity of GA01R was surprising because this peanut typically had demonstrated high yield potential under high virus pressure. In contrast, the TSWV-resistant EXP3085A and AP-3 were among the highest yielding peanut cultivars. High TSWV resistance of the lines C 724-19-RB and C 12-3-114-58 was also reflected in their high yields. Given the high virus pressure experienced in recent years across the Wiregrass region of Alabama, planting a peanut cultivar with better resistance to TSWV than Georgia Green will be critical to making sustainable peanut yields.

YIELDS AND DISEASE SENSITIVITY OF EXPERIMENTAL AND COMMERCIAL PEANUT LINES, WREC

Peanut cultivars	Disease rating			Yield
	TSWV hits/60 ft	Leaf spot rating	White mold hits/60 ft	*lb/ac*
Maturity Group 3 (mature 126-140 DAP)				
Andru II	10.5 de[1]	3.9 abc	2.5 bcde	4147 bcdef
EXP 215	21.0 a	3.8 abc	5.0 ab	3458 fg
Maturity Group 4 (mature 130-145 DAP)				
ANorden	10.8 cde	3.5 bcd	3.3 bcde	3657 fg
AP-3	5.8 ef	3.0 d	4.5 ab	5028 a
AT3081R	16.3 ab	4.1 ab	1.3 de	4438 abcde
Carver	13.3 bcd	4.1 ab	1.8 cde	4165 bcdf
C 12-3-114-58	5.8 ef	3.8 abc	3.8 abcd	4519 abc
C 724-19-RB	3.8 f	3.8 abc	3.0 bcde	4692 abc
CRSP 8	16.8 ab	4.1 ab	4.5 ab	3521 fg
CRSP 14	10.8 cde	3.3 cd	3.8 abcd	3748 ef
EXP3085A	6.5 ef	4.4 a	1.8 cde	4837 ab
GA 02C	9.8 de	3.3 cd	2.8 bcde	3830 defg
GA 03L	6.5 ef	4.1 ab	1.0 e	4783 ab
Georgia Green	18.3 ab	3.8 abc	2.8 bcde	3322 g
Georgia HI-O/L	9.0 de	4.4 a	1.0 e	4165 bcdef
Maturity Group 5 (mature 140-165 DAP)				
Florida C-99R	10.8 cde	3.4 cd	6.0 a	4556 abcd
DP-1	9.0 de	4.1 ab	4.3 abc	3994 cdef
GA 01R	15.8 bc	3.3 cd	4.0 abc	3630 fg

[1] Means followed by the same letter in each column are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

YIELD OF COMMERCIAL AND EXPERIMENTAL PEANUT LINES AND THEIR SUSCEPTIBILITY TO DISEASE IN AN IRRIGATED PRODUCTION SYSTEM, WREC

A. K. Hagan, H. L. Campbell, K. L. Bowen, B. E. Gamble, and J. Bostick

Objective: To assess the yield potential and the susceptibility of commercial and experimental runner peanut cultivars to tomato spotted wilt, early leaf spot, late leaf spot, and white mold in a well-rotated, irrigated production system in sotheast Alabama.

Methods: On May 10, 21 commercial and experimental runner-type peanut lines and three Virginia-type peanut lines were planted at at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama, in a field that was cropped to peanut after two years of cotton. Seed were sown at a rate of approximately six seed per foot of row using conventional tillage practices. The soil type was a Dothan fine sandy loam (OM < 1 percent). Plots were two 20-foot rows spaced 3 feet apart.

Prior to planting, 1000 pounds per acre of lime was broadcast and lightly incorporated with a disk harrow. Gypsum at a rate of 600 pounds per treated acre was applied on a 14-inch band over the row middle on July 5. The plot area was irrigated with 0.35, 1.0, 0.4, and 0.4 acre inches of water on May 26, July 27, August 23, and September 13, respectively. On April 25, 1.0 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm was broadcast and lightly incorporated with a disk harrow. Select at 8 ounces per acre + 1 quart per acre of crop oil concentrate was broadcast on July 26 for escape grass control. Escape weeds were controlled with flat sweeps or were pulled by hand. A randomized complete block design with four replications per peanut line was used.

Full canopy sprays of 1.0 pint per acre of Chloronil + 2 fluid ounces per acre of Tilt 3.6F were made on June 8 and followed by applications of 1.5 pints per acre of Chloronil on June 21, 1.2 pints per acre of Abound 2SC on July 6, 1.5 pints per acre of Chloronil on July 18, 1.2 pints per acre of Abound 2SC on August 1, and 1.5 pints per acre of Chloronil on August 17 and August 26. An application of 1.5 pints per acre of Chloronil was made on September 21 to the maturity group 5 cultivars. Fungicides were applied with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons of spray volume per acre.

Incidence of tomato spotted wilt virus (TSWV) was determined on September 7, September 15, September 22, and September 28 for the maturity group 3, 4, 4.5 (AP-3, Florida C-99R, C724-19-RB, CRSP 8, CRSP 14, and GA02C), and 5 peanut lines, respectively, by counting the number of TSWV hits (one hit was defined as ≤ 1 foot of consecutive TSWV-infected plants per row) in each row.

Early and late leaf spot (LS) were rated together using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions in lower and upper leaf canopy, 4 = some lesions in lower and upper canopy with light defoliation (≤ 10 percent), 5 = lesions noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = lesions numerous with significant defoliation (≤ 50 percent), 7 = lesions numerous with heavy defoliation (≤ 75 percent), 8 = numerous lesions on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Ratings for leaf spot were taken on September 15 for Andru II, EXP 215, and NCVII; on September 22 for ANorden, AT3081R, Carver, EXP3085A, GA03L, Georgia Green, GA HI O/L, and Gregory; on September 28 for AP-3, Florida C-99R, C724-19-RB, CRSP 8, CRSP 14, and GA02C; and on October 12 for C12-3-114-58, DP-1, and GA01R.

Counts of white mold [Southern stem rot (SSR)] hits (one hit was defined as ≤ 1 foot of consecutive white mold-damaged plants per row) in each row were made immediately after plot inversion on September 15 for Andru II and EXP 215; on September 22 for ANorden, AT3081R, Carver, EXP3085A, GA 03L, Georgia Green, and GA Hi O/L; on October 3 for AP-3, Florida C-99R, C724-19-RB, CRSP 8, CRSP 14, and GA 02C; and on October 15 for C12-3-114-58, DP-1, and GA 01R.

Plots were harvested with a field combine. Yields were reported at 7 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference test (P=0.05).

Results: Monthly rainfall totals in 2005 were equal to or higher than the historical average for the months of June, July, and August but below to well-below average in May, September, and October, which may have slowed late season leaf spot and white mold development. Also, temperatures were below average for April and early May, but seasonal for the remainder of the production season.

Significant differences in TSWV, early and late leaf spot, white mold damage levels, and yield were noted between peanut lines. Incidence of TSWV was highest for Georgia Green, EXP 215, Gregory, AT3081R, NCVII, and Carver and lowest for C 12-3-114-58, C 724-19-RB, and AP-3. Despite above average rainfall for much of the summer, leaf spot levels were relatively low. Leaf spot ratings were lower for Andru II, ANorden, Carver, Florida C-99R, GA 01R, GA 03L, Georgia HI O/L, Gregory, NCVII, and Tifrunner than for the current industry standard Georgia Green. In contrast, Georgia Green, as well as AP-3, AT3081R, C 12-3-114-58, EXP3085A, GA02C, and DP-1 had similar leaf spot ratings. While overall white mold pressure was very low, ANorden had significantly higher hit counts than Andru II, AT3081R, Florida C-99R, GA 01R, GA 02C, GA 03L, Gregory, and NCVII. Generally, the commercial and experimental peanut lines with the lowest TSWV incidence ratings—AP-3, C 12-3-114-58, C 724-19-RB, EXP3085A, Florida C-99R, and DP-1—had the highest pod yields. In comparison, the runner type Georgia Green, Carver, and AT3081R peanuts, which suffered heavy TSWV damage, yielded less than many of the virus-resistant experimental and commercial cultivars. The Virginia peanuts Gregory and NCVII, which were also heavily damaged by TSWV, had the lowest yields of all the cultivars screened.

Summary: Overall, TSWV had much more impact on peanut yield than either leaf spot diseases or white mold. When virus incidence was similar, Virginia peanut cultivars are usually much more sensitive to TSWV than most of the runner peanuts. Among the runner peanuts, yield of the current industry standard Georgia Green, as well as the widely planted Carver, was greatly reduced by TSWV. Replacement of Georgia Green and possibly Carver with more TSWV-resistant peanuts should be a high priority in those areas where this disease is most common and damaging. Peanuts displaying a combination of superior yields with some TSWV resistance included AP-3, Florida C-99R, the now discontinued DP-1, and experimental lines C 12-3-114-58 and C 724-19-RB.

YIELDS AND DISEASE SENSITIVITY OF COMMERCIAL, EXPERIMENTAL RUNNER, AND VIRGINIA-TYPE PEANUT CULTIVARS, WREC

Peanut cultivars	Disease rating			Yield
	TSWV hits/60 ft	Leaf spot rating	White mold hits/60 ft	*lb/ac*
Maturity Group 3 (mature 126-140 DAP)				
Andru II	15.3 b[1]	2.5 cde	0.0 d	3648 abcde
EXP 215	22.0 a	2.5 cde	1.8 abcd	3494 bcdef
NCVII**	21.5 a	2.4 de	1.0 bcd	2251 gh
Maturity Group 4 (mature 130-145 DAP)				
ANorden	14.5 bc	2.9 bcde	3.8 a	3385 cdef
AP-3	9.0 de	3.3 abcd	2.3 abcd	4338 a
AT3081R	21.0 a	3.1 abcde	0.3 cd	3294 def
Carver	21.8 a	2.6 cde	2.3 abcd	3231 def
C 12-3-114-58	7.3 e	3.6 ab	2.5 abc	4147 abc
C 724-19-RB	7.3 e	2.9 bcde	1.3 bcd	4247 ab
CRSP 8	14.5 bc	2.6 cde	2.0 abcd	2968 efg
CRSP 14	15.3 b	2.8 bcde	2.3 abcd	2777 fgh
EXP3085A	9.5 cde	3.6 ab	1.0 bcd	3911 abcd
GA 02C	11.8 bcde	3.4 abc	0.8 bcd	3603 abcde
GA 03L	11.5 bcde	2.8 bcde	0.0 d	3512 bcdef
Georgia Green	22.5 a	3.9 a	2.8 ab	3076 ef
Georgia HI-O/L[2]	14.0 bcd	2.5 cde	0.0 d	3312 def
Gregory [2]	22.0 a	2.9 bcde	0.8 bcd	2105 h
Maturity Group 5 (mature 140-165 DAP)				
Florida C-99R	12.5 bcd	2.7 bcde	1.3 bcd	4320 a
DP-1	10.5 bcde	3.1 abcde	3.0 ab	4338 a
GA 01R	12.8 bcd	2.4 de	0.0 d	3621 abcde
Tifrunner	12.0 bcde	2.3 e	3.0 ab	3648 abcde

[1] Mean separation in each column that are followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

[2] Virginia peanut line.

EVALUATION OF PEANUT CULTIVARS FOR SUITABILITY IN A PEST MANAGEMENT SYSTEM IN SOUTHEAST ALABAMA, WREC

H. L. Campbell, J. R. Weeks, A. K. Hagan, and L. W. Wells

Objective: To evaluate eight peanut cultivars with varying maturity intervals for insect resistance and disease control in a pest management system in southeast Alabama and to compare yields.

Methods: On May 17, eight peanut cultivars were planted at the Wiregrass Research and Extension Center (WREC) in Headland, Alabama, in a field with a prior history of peanut production. Seed were sown at a rate of approximately five seed per foot of row. The soil was a Dothan sandy loam (OM < 1 percent). Plots consisted of four 40-foot rows spaced 36 inches apart arranged in a randomized complete block design with six replications. Plots were arranged under a central pivot irrigation system and were irrigated as needed.

On March 7, the soil was para-tilled and turned. On May 1, 1 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm were incorporated into the soil for weed control. On June 8, 1 ounce per acre of Cadre + NIS 0.25 percent v/v was applied for weed control. Treatments included Temik 15G and Thimet 20G applied in-furrow at planting on all cultivars. An untreated plot was also maintained for comparison. Fungicides were applied to all plots on June 10 (Bravo 720 1.5 pints per acre), June 24 (Bravo 720 1.5 pints per acre), July 7 (Bravo 720 1 pint per acre + Folicur 3.6F 7.0 fluid ounces per acre), July 19 (Abound 2.08SC 20.0 fluid ounces per acre), August 4 (Bravo 720 1 pint per acre + Folicur 3.6F 7.0 fluid ounces per acre), August 18 (Abound 2.08SC 20.0 fluid ounces per acre), and September 2 (Bravo 720 1.5 pints per acre) using a tractor-mounted boom sprayer with TX8 nozzles calibrated to deliver 15 gallons per acre.

Stand counts were made on May 14 and thrips damage ratings (TDR) were made on June 22 from all plots. Three cornered alfalfa hopper (TCAH) samples were taken from all treatments on September 12 (mid-maturing varieties) and September 19 (late-maturing varieties). Ten terminal samples were taken from each plot. Damage was assessed based on the number of girdled stems per ten terminal samples. Tomato spotted wilt virus (TSWV) ratings were made on July 6, August 10, and September 15 (mid-maturing varieties) and September 30 (late maturing varieties) by counting the number of row feet of peanut plants that were severely affected.

Early leaf spot was visually rated on September 21 from the mid-maturing varieties and on October 13 from the late-maturing varieties using the Florida 1-10 leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions in lower and upper leaf canopy, 4 = some lesions in lower and upper canopy with light defoliation (≤ 10 percent), 5 = lesions noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = lesions numerous with significant defoliation (≤ 50 percent), 7 = lesions numerous with heavy defoliation (≤ 75 percent), 8 = numerous lesions on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliation or dead. Counts of southern stem rot (SSR) hits (one hit was defined as ≤ 1 foot of consecutive SSR-damaged plants) were made on September 30 (mid maturing varieites) and October 20 (late maturing varieites) immediately after plot inversion.

Plots were harvested on October 4 and October 24, and yields were reported at 10.2 percent moisture. Results were pooled and analyzed across treatment and cultivars. 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 2005 peanut production season, temperatures were near normal and monthly rainfall totals were at or above normal through August. Drought conditions occurred in September and October.

When cultivars were evaluated, Tifrunner had the highest emergent rate and GA-03L the lowest (Table 1). All others were similar. When in-furrow treatments were compared, neither Temik nor Thimet increased stand over the untreated control (Table 2). The worst thrips damage was observed on the cultivars GA-03L and Tifrunner while Georgia Green had the lowest thrips damage, which was significantly lower than all others except AP3. Among the treatments, Temik had the best thrips control, and both Temik and Thimet gave significantly better control than did the untreated control. Highest incidence of TSWV was observed in Georgia Green and this was consistent throughout the season at all three rating dates. The highest TCAH damage was observed in the cultivars Georgia Green, GA-01R, and ANorden. Lowest was in GA-02C, which was significantly lower than the three highest. All

others had similar damage. The in-furrow treatments had very little impact on the incidence of TCAH. Lowest TSWV incidence was consistently observed in AP-3. While early leaf spot was the most common leaf spot disease observed, some late leaf spot appeared late in the season. Among the treatments, the peanuts treated with Temik had the lowest incidence of TSWV throughout the season. The worst leaf spot severity occurred in GA-02C, and AP-3 had the lowest severity among the cultivars tested. There was no treatment effect for control of leaf spot. The lowest incidence of SSR was observed in the cultivar GA-03L and the highest was observed in the cultivar AN-orden which had significantly higher hits than did all other cultivars. Peanuts treated with Temik had significantly higher incidence of SSR than did those treated with Thimet and the UTC. The best yield response was obtained with the cultivar AP-3 and it was significantly higher than all others except GA-01R. Lowest yield was in Georgia Green, and it was significantly lower than all other cultivars. There was little difference in yield among the two treatments; however, the untreated control was significantly lower than both treatments.

TABLE 1. COMPARISON OF SELECTED PEANUT LINES FOR INSECT AND DISEASE CONTROL IN AN IRRIGATED PEANUT PRODUCTION SYSTEM IN SOUTHEAST ALABAMA, WREC

				Disease ratings					
Cultivar	Stand	Thrips damage rating	TCAH damage[1]	TSWV[2] race 1	TSWV race 2	TSWV race 3	LS[3]	SSR[4]	Yield *lb/ac*
Ga. Green	91.7[5]	4.2	3.5	10.1	22.5	44.0	5.2	8.2	3229
Carver	90.2	4.8	3.0	10.4	18.8	29.6	4.3	6.7	4378
GA 02C	93.6	4.6	2.0	7.2	9.7	20.0	5.7	4.8	4066
ANorden	92.2	4.6	3.1	7.3	15.0	26.1	4.4	10.9	3600
AP-3	93.9	4.5	2.6	4.4	8.4	12.6	3.6	5.1	4846
GA 03L	87.5	4.9	2.7	6.2	10.8	20.0	4.1	4.3	4152
GA 01R	92.5	4.4	3.4	5.6	10.3	16.7	4.6	6.2	4604
Tifrunner	94.8	4.9	2.6	4.6	7.0	15.1	4.9	6.0	4249
LSD (P = 0.05)	**4.2**	**0.4**	**1.0**	**1.9**	**2.9**	**5.2**	**0.3**	**1.8**	**405**

[1] TCAH (three-corner alfalfa hopper) damage based on the number of girdled stems per 10 terminal samples.
[2] TSWV (tomato spotted wilt virus) assessed as the number of row feet of infected plants.
[3] LS (leaf spot) rated using the Florida 1-10 leaf spot scoring system.
[4] SSR (southern stem rot) incidence was expressed as the number of hits per 80 feet.
[5] Means followed by the same letter do not differ significantly according to analysis of variance and Fisher's protected least significant (LSD) test (P = 0.05).

TABLE 2. EVALUATION OF IN-FURROW TREATMENTS FOR THEIR EFFECT ON STAND, THRIPS, TOMATO SPOTTED WILT, DISEASES, AND YIELD OF PEANUT IN SOUTHEAST ALABAMA, WREC

				Disease ratings					
Treatment	Stand	Thrips damage rating	TCAH damage[1]	TSWV[2] race 1	TSWV race 2	TSWV race 3	LS[3]	SSR[4]	Yield *lb/ac*
Temik 15G	92.6[5]	2.5	2.7	5.1	9.9	19.5	4.6	7.4	4380
Thimet 20G	90.8	4.0	3.1	6.7	12.4	21.9	4.5	6.1	4192
UTC	92.7	7.2	2.8	9.1	16.1	27.6	4.6	6.1	3849
LSD (P = 0.05)	**2.6**	**0.2**	**0.6**	**1.2**	**1.9**	**3.2**	**0.2**	**1.1**	**248**

[1] TCAH (three-corner alfalfa hopper) damage based on the number of girdled stems per 10 terminal samples.
[2] TSWV (tomato spotted wilt virus) assessed as the number of row feet of infected plants.
[3] LS (leaf spot) rated using the Florida 1-10 leaf spot scoring system.
[4] SSR (southern stem rot) incidence was expressed as the number of hits per 80 feet.
[5] Means followed by the same letter do not differ significantly according to analysis of variance and Fisher's protected least significant (LSD) test (P = 0.05).

EVALUATION OF PEANUT CULTIVARS FOR SUITABILITY IN A PEST MANAGEMENT SYSTEM IN SOUTHWEST ALABAMA, GCREC

H. L. Campbell, J. R. Weeks, A. K. Hagan, and M. D. Pegues

Objective: To evaluate eight peanut cultivars with varying maturity intervals for insect resistance and disease control in a pest management system in southwest Alabama and to compare yields.

Methods: On May 11, eight peanut cultivars were planted at the Gulf Coast Research and Extension Center (GCREC) near Fairhope, Alabama, in a field with no prior history of peanut production. The soil was a Malbis fine sandy loam (OM < 1 percent). Seed were sown at a rate of approximately five seed per feet of row. Plots consisted of four 30-foot rows spaced 38 inches apart arranged in a randomized complete block design with six replications. Plots were not irrigated.

On April 19, 169 pounds per acre of 0-23-23 fertilizer + 10 pounds per acre of Sulfur + 0.5 pound per acre Born were added and the soil was disked, ripped, and bedded. On June 15, 6 ounces per acre of Gramoxone + 1 pint per acre of Storm + 1 pint per acre of Butyrac 1.75 + 1 pint per 25 gallons of Induce were applied for weed control. On June 23, 1.1 ounces per acre of Cadre + 0.3 ounce per acre of Strongarm + 1 pint per 25 gallons of Induce were applied for weed control. On August 2, 1.5 ounces per acre of Karate + 1 pint per 50 gallons of Induce were applied for leaf hopper control. Treatments included Temik 15G and Thimet 20G applied in-furrow at planting on all cultivars. An untreated plot was also maintained for comparison.

Fungicides were applied to all plots on June 22 (Stratego 7.0 fluid ounces per acre), July 5 (Stratego 7.0 fluid ounces per acre), July 20 (Folicur 3.6F 7.0 fluid ounces per acre), August 3 (Bravo 720 1.5 pints per acre), August 17 (Folicur 3.6F 7.0 fluid ounces per acre), September 1 (Bravo 720 1.5 pints per acre), and September 12 (Bravo 720 1.5 pints per acre) using a four-row, ATV-mounted CO_2 sprayer with TX8 nozzles calibrated to deliver 15 gallons per acre.

Stand counts were made on May 24 and thrips damage ratings (TDR) were made on June 10 from all plots. Tomato spotted wilt virus (TSWV) ratings were made on June 28, August 15, and September 7 (mid-maturing varieties) and October 5 (late maturing varieties) by counting the number of row feet of peanut plants that were severely affected. Late leaf spot was visually rated on September 22 from the mid-maturing varieties and October 10 from the late-maturing varieties using the Florida 1-10 leaf spot scoring system where 1 = no disease, 2 = very few lesions in canopy, 3 = few lesions in lower and upper leaf canopy, 4 = some lesions in lower and upper canopy with light defoliation (≤ 10 percent), 5 = lesions noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = lesions numerous with significant defoliation (≤ 50 percent), 7 = lesions numerous with heavy defoliation (≤ 75 percent), 8 = numerous lesions on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliation or dead.

Peanut rust was visually rated on September 22 (mid-maturing varieties) and October 10 (late maturing varieties) using the ICRISAT rust rating scale (1 = no disease, 2 = 10 percent leaves affected, 3 = 20 percent leaves affected, 4 = 30 percent leaves affected, 5 = 40 percent leaves affected, 6 = 50 percent leaves affected, 7 = 60 percent leaves affected, 8 = 70 percent leaves affected, 9 = plants severely affected, 80-100 percent leaves withering).

Counts of southern stem rot (SSR) hits (one hit was defined as ≤ 1 foot of consecutive SSR-damaged plants) were made on October 4 (mid-maturing varieties) and October 11 (late maturing varieties) immediately after plot inversion. Inversion was delayed due to drought that hardened the soil.

Plots were harvested on October 10 and October 14, and yields were reported at 10.0 percent moisture. Results were pooled and analyzed across treatment and cultivars. 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 2005 peanut production season, temperatures were near normal and monthly rainfall totals were at or above normal through August. A late season drought in September and October had little impact on disease severity or yield.

Stand varied by cultivar with the highest stand occurring with the cultivar GA-02C and the lowest occurring with the cultivar GA-01R. The stand in GA-02C was significantly higher than all cultivars except ANorden. In-furrow treatments had little impact on stand. Thrips damage varied little among the cultivars; however, the lowest

damage occurred in Georgia Green and the highest in Tifrunner. Among the treatments, both Temik and Thimet had significantly less thrips damage than did the untreated control. The highest incidence of TSWV was observed with the cultivar GA-03L and the lowest was observed with Georgia Green. This was consistent throughout the growing season and was observed at all three rating periods. Treatment effect was noted across all cultivars with the highest incidence of TSWV being observed in the untreated control plots. Both the Temik- and Thimet-treated seed showed significantly lower TSWV incidence than did the untreated control. When the cultivars were rated for rust and late leaf spot, Tifrunner showed a higher resistance to these diseases than did all other cultivars. When rated for resistance to SSR, GA-02C had significantly lower hits than did all other cultivars. Very little differences were observed among the treatments and neither had any effect on the severity of leaf spot, rust, or SSR. Yield response varied among the cultivars. The highest yield was obtained with the cultivar GA-01R and this was significantly higher than all other cultivars. The lowest yield was obtained with ANorden. The impact of in-furrow treatments on yield was minimal.

TABLE 1. COMPARISON OF SELECTED PEANUT LINES FOR INSECT AND DISEASE CONTROL IN AN IRRIGATED PEANUT PRODUCTION SYSTEM IN SOUTHWEST ALABAMA, GCREC

			Disease ratings						
Cultivar	Stand	Thrips damage rating	TSWV[2] race 1	TSWV race 2	TSWV race 3	Rust[2]	LS[3]	SSR[4]	Yield *lb/ac*
Ga. Green	79.3[5]	4.0	4.0	13.0	18.9	5.7	3.9	3.1	4211
GA-03L	80.6	4.2	1.8	2.9	3.7	4.7	3.6	1.7	4540
GA 02C	84.9	4.2	1.9	4.8	8.7	4.9	3.4	0.6	5220
ANorden	82.1	4.1	2.1	8.6	11.3	5.2	3.8	5.1	3224
AP-3	78.7	4.2	2.4	3.2	4.7	4.9	3.9	2.9	3918
C-99R	79.9	4.3	3.8	9.8	11.6	4.7	3.7	2.8	5220
GA 01R	73.4	4.2	3.2	6.7	10.5	4.6	3.1	2.4	6033
Tifrunner	74.2	4.3	1.9	4.2	6.7	3.9	2.6	3.6	4301
LSD (P = 0.05)	**4.7**	**0.2**	**1.0**	**1.7**	**2.4**	**0.6**	**0.3**	**0.8**	**327**

[1] TSWV (tomato spotted wilt virus) assessed as the number of row feet of infected plants.
[2] Rust rated using the ICRISAT rust 1-9 rating scale.
[3] LS (leaf spot) rated using the Florida 1-10 leaf spot scoring system.
[4] SSR (southern stem rot) incidence was expressed as the number of hits per 80 feet.
[5] Means followed by the same letter do not differ significantly according to analysis of variance and Fisher's protected least significant (LSD) test (P = 0.05).

TABLE 2. EVALUATION OF IN-FURROW TREATMENTS FOR THEIR EFFECT ON STAND, THRIPS, TOMATO SPOTTED WILT, DISEASES, AND YIELD OF PEANUT IN SOUTHWEST ALABAMA, GCREC

			Disease ratings						
Treatment	Stand	Thrips damage rating	TSWV[1] race 1	TSWV race 2	TSWV race 3	Rust[2]	LS[3]	SSR[4]	Yield *lb/ac*
Temik 15G	76.9[5]	1.4	2.2	5.5	8.0	4.8	3.8	2.8	4497
Thimet 20G	79.6	2.2	1.5	3.8	5.9	4.3	3.6	2.6	4873
UTC	80.9	8.9	4.2	10.6	14.6	5.4	3.6	2.8	4394
LSD (P = 0.05)	**2.9**	**0.1**	**0.6**	**1.0**	**1.4**	**0.4**	**0.2**	**0.5**	**200**

[1] TSWV (tomato spotted wilt virus) assessed as the number of row feet of infected plants.
[2] Rust rated using the ICRISAT rust 1-9 rating scale.
[3] LS (leaf spot) rated using the Florida 1-10 leaf spot scoring system.
[4] SSR (southern stem rot) incidence was expressed as the number of hits per 80 feet.
[5] Means followed by the same letter do not differ significantly according to analysis of variance and Fisher's protected least significant (LSD) test (P = 0.05).

YIELD RESPONSE AND REACTION OF SELECTED COMMERCIAL PEANUT LINES TO LEAF SPOT DISEASES AND SOUTHERN STEM ROT, PBU

A. K. Hagan, H. L. Campbell, and S. P. Nightengale

Objective: To determine the susceptibility of commercial runner and Virginia peanut lines to early leaf spot and southern stem rot as well as their yield potential at a site in central Alabama.

Methods: On May 9, selected commercial peanut varieties were planted at the Plant Breeding Unit (PBU) in Tallassee, Alabama, in a field with no history of peanut production. Peanuts were planted at a rate of approximately six seed per foot of row. The soil type was a Cahaba loamy fine sand. Individual plots were 30 feet long on 3-foot centers arranged in a randomized complete block with six replications.

The wheat/rye cover crop was treated with Roundup on April 15, mowed on April 21, and then disked on May 3. Lime at the rate of 1.0 ton per acre was broadcast on May 4. The plot area was chiseled, disked, and then leveled on May 5. Thrips were controled with an in-furrow application of 5.0 pounds per acre of Temik 15G. Ammonium nitrate at 88 pounds per acre was broadcast on June 27. Pre-emergent weed control was provided by an at-plant application of Prowl at 1 quart per acre and a post-plant application of Dual Magnum at 20 fluid ounces per acre on May 11. Plots were hoed on June 10 and July 8. Karate at 1.5 fluid ounces per acre was applied for thrips control on June 2 and 30. Leaf spot control was maintained with Bravo Weather Stik at 1.5 pints per acre, which was applied on June 17, July 1, July 18, July 28, August 12, and August 26. On June 27, 1.8 inch acres of water was applied.

Incidence of tomato spotted wilt virus (TSWV) was determined on September 6 by counting the number of TSWV hits (one hit was defined as ≤ 1 foot of consecutive symptomatic plants). Early leaf spot was rated using the Florida 1 to 10 leaf spot scoring system on September 6 and 20. Counts of Southern stem rot (SSR) and Rhizoctonia limb rot (LR) hits (one hit was ≤ 1 foot of consecutive damaged plants per row) were made when the peanuts were inverted on September 16 for the maturity group 3 peanut cultivars and on September 20 for the maturity group 4 cultivars.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Monthly rainfall totals in 2005, which were below normal for May, September, and October, were at or above the historical average for this location in June, July, and August.

Since this site had not previously been cropped to peanut, incidence of diseases, particularly early leaf spot was relatively low. Of the eleven peanut lines, the highest leaf spot rating was recorded for Perry while VA98R, NCVII, and AP-3 had the lowest ratings. Incidence of SSR was higher on ANorden and Georgia Green than on the remaining nine peanut lines, which were statistically similar. Limb rot damage was higher on VA98R and NC-12C compared with most of the other peanut lines. The least limb rot damage was noted on Andru II, ANorden, and Georgia Green. Considerable differences in yield were noted between cultivars. The Virginia market type peanuts consistently had higher yield than the runner type peanuts. Highest yields were recorded for Andru II, Gregory, and VA98R. Yields for Carver and AP-3, which were unusually low, did not appear to be linked to increased susceptibility to disease. Yield of VC-2 was low due to a poor stand that was traced to low seed quality.

Summary: Fresh, well-rotated land and timely fungicide treatments greatly restricted leaf spot development. While leaf spotting was largely limited to the lower plant canopy, Perry proved sensitive to early leaf spot. The high levels of SSR damage noted here on ANorden have been seen in previous trials. The current industry standard Georgia Green also proved sensitive to SSR. Limb rot damage on the much more commonly planted runner type peanut lines was minimal. The poor yields recorded for the maturity group 4 runner lines are probably related to dry soil conditions at digging. The earlier maturing runner line Andru II as well as most of the Virginia lines had considerably higher yield compared with the later maturing peanuts.

YIELD RESPONSE AND SUSCEPTIBILITY OF SELECTED COMMERCIAL RUNNER AND VIRGINIA PEANUT LINES TO DISEASES, PBU

Peanut cultivars	Market type[1]	Maturity group[2]	Disease rating: Early leaf spot	Disease rating: Southern stem rot	Disease rating: Limb rot	Yield *lb/ac*
Andru II	R	3	1.8 bc[3]	0.2 b	0.8 c	4707 a
ANorden	R	4	1.8 bc	6.2 a	0.8 c	3238 cde
AP-3	R	4	1.6 c	2.3 b	3.0 bc	2778 de
Carver	R	4	1.7 bc	1.3 b	0.5 c	2654 e
Georgia Green	R	4	1.9 abc	5.5 a	2.0 c	3413 cd
Gregory	V	4	2.0 ab	2.4 b	2.8 bc	4831 a
NC-12C	V	3	2.0 ab	1.8 b	5.8 ab	3891 bc
NCVII	V	3	1.6 c	1.0 b	3.0 bc	4515 ab
Perry	V	3	2.2 a	1.0 b	2.2 c	4455 ab
VA98R	V	3	1.6 c	1.8 b	7.7 a	4599 a
VC-2	V	3	2.0 ab	0.4 b	1.0 c	2688 e

[1] Market type: R = runner and V = Virginia.

[2] Maturity Group 3 peanuts mature 126-140 days after planting (DAP), while the maturity group 4 peanuts mature 130-145 DAP.

[3] Means in each column followed by the same letter were not significantly different according to ANOVA and Fisher's protected least significant difference (LSD) test (P=0.05).

CONTROL OF LEAF SPOT AND SOUTHERN STEM ROT ON PEANUT WITH RECOMMENDED FUNGICIDE PROGRAMS, PBU

A. K. Hagan, H. L. Campbell, and S. P. Nightengale

Objective: To assess the efficacy of recommended fungicide programs for the control of early leaf spot and southern stem rot on peanut and their impact on crop yield in central Alabama.

Methods: On May 9, the peanut variety Georgia Green was planted at the Plant Breeding Unit (PBU) in Tallassee, Alabama, in a field with no history of peanut production. Seed were sown at a rate of approximately six seed per foot of row. The soil type was a Cahaba loamy fine sand. Individual plots were 30 feet long on 3-foot centers arranged in a randomized complete block with four replications.

The wheat/rye cover crop was treated with Roundup on April 15, mowed on April 21, and then disked on May 3. Lime at the rate of 1.0 ton per acre was broadcast on May 4. The plot area was chiseled, disked, and then leveled on May 5. Temik 15G at a rate of 5.0 pounds per acre was applied in-furrow at planting. Ammonium nitrate at 88 pounds per acre was broadcast on June 27. Pre-emergent weed control was provided by an at-plant application of Prowl at 1 quart per acre and a post-plant application of Dual Magnum at 20 fluid ounces per acre on May 11. Plots were hoed on June 10 and July 8. Karate at 1.5 fluid ounces per acre was applied for thrips control on June 2 and 30. Fungicide treatments were applied on June 17, July 1, July 15, July 27, August 10, August 24, and September 9. On June 27, 1.8 inch acres of water was applied.

Early leaf spot was rated using the Florida 1 to 10 leaf spot scoring system on September 20. Counts of Southern stem rot (SSR) hits (one hit was ≤1 foot of consecutive damaged plants per row) were made when the peanuts were inverted on September 20.

Yields were reported at 10 percent moisture. Significance of treatment effects was tested by analysis of variance and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Monthly rainfall totals in 2005, which were below normal for May, September, and October, were at or above the historical average for this location in June, July, and August.

Since this site had not previously been cropped to peanut, incidence of diseases was low. For all fungicide programs, symptoms of early leaf spot were restricted to scattered leaf spot in the lower canopy (see table). Differences in leaf spot ratings between fungicides programs were very minor. While some numerical differences in SSR hit counts were seen, no significant differences in the incidence of this disease were seen between fungicide programs. Yield response to all fungicide programs was statistically similar.

Summary: Study results clearly demonstrate the value of cropping peanuts on well-rotated land. Regardless of the fungicide program, near maximum yields were produced with little or no interference from diseases.

CONTROL OF LEAF SPOT AND SOUTHERN STEM ROT ON PEANUT WITH RECOMMENDED FUNGICIDE PROGRAMS, PBU

Fungicide and rate/ac	Application timing	Leaf spot rating	SSR[1] hits/ 60 row ft	Yield *lb/ac*
Bravo Ultrex 1.4 lb	1-7	2.0 a [2]	3.3 a	4976 a
Bravo Ultrex 1.4 lb Folicur 3.6F	1,2,7 3,4,5,6	1.8 a	1.3 a	5374 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	1.9 a	1.5 a	5014 a
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,7 3,4,5,6	2.1 a	0.8 a	5069 a
Bravo Ultrex 1.4 lb Abound 2SC 1.15 pt	1,2,4,6,7 3,5	2.1 a	1.0 a	5294 a
Bravo Ultrex 1.4 lb Headline 2.09E 9 fl oz	1,2,4,6,7 3,5	1.8 a	4.5 a	4832 a
Headline 2.09E 9 fl oz Headline 2.09E 12 fl oz Bravo Ultrex 1.4 lb	1 3 2,4,5,6,7	1.9 a	2.3 a	5400 a

[1] SSR = southern stem rot.

[2] Means followed by the same letter are not significantly different according to Fisher's least significant difference (LSD) test (P=0.05).

YIELD AND REACTION OF COMMERCIAL RUNNER AND VIRGINIA PEANUT CULTIVARS TO THREE DISEASES IN NORTHEAST ALABAMA, SMREC

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

Objective: To determine the yield response and disease susceptibility of commercial runner and Virginia peanut cultivars at a site in northeast Alabama.

Methods: On May 9, peanuts were planted on the Sand Mountain Research and Extension Center (SMREC) in Crossville, Alabama, in a field that had been cropped to peanut two of the previous three years. The soil type was a Hartselle/Wynville soil. Seed were sown at a rate of six seed per foot of row using conventional tillage practices. A randomized complete block design with six replications was used. Individual plots consisted of four 30-foot rows spaced 3 feet apart.

On May 10, Dual at 1.8 pints per acre + Sonalan HFP at 2.0 pints per acre were broadcast. Post-plant applications of Gramoxone at 5.5 fluid ounces per acre on June 6 were followed by a tank mix of 2 pints per acre of Basagran and 1.0 pint per acre of 2,4 DB on June 10. Poast at 1.5 pints per acre was applied on July 21 for grass control. Full canopy sprays of Bravo Weather Stik at 1 quart per acre were made on June 20, June 29, July 8, July 18, and July 25.

Incidence of tomato spotted wilt virus (TSWV) was determined on September 14 by counting the number of hits (one hit was defined as ≤ 1 foot of consecutive symptomatic plants per row). Early and late leaf spot were rated using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots on leaves in lower and upper canopy, 4 = some leaf spotting in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable on leaves in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves cover with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot was rated on the September 14 for the maturity group 3 and September 21 for the maturity group 4 peanut lines. Counts of white mold [southern stem rot (SSR)] hits (one hit was defined as ≤ 1 foot of consecutive symptomatic plants) were made immediately after the plot inversion for the maturity group 3 and group 4 lines on September 14 and 21, respectively.

Plots were picked with a field combine and yields were reported at 10 percent moisture. Significance of treatment effects were tested by ANOVA and Fisher's protected least significant difference (LSD) test (P=0.05).

Results: Very few plants displayed symptoms of TSWV. While late leaf spot was noted on several peanut lines, early leaf spot was the more common of the two diseases. Incidence of late leaf spot was higher on the maturity group 4 than on the maturity group 3 peanuts. Significant differences in leaf spot severity were noted between peanut lines. Disease severity was lower on NC VII compared to the other peanut lines except for Andru II, Gregory, and Perry. Highest leaf spot ratings were recorded for NC-12C. Incidence of white mold was higher on Carver than all of the other lines except for VA 98R. Yield for ANorden was significantly higher than those for all of the other peanut lines. Similar yields were recorded for Andru II, Carver, Georgia Green, Gregory, AP-3, Perry, NC VII, and Wilson. Lowest yields were noted for the peanut line that suffered the highest level of leaf spot damage, NC-12C.

Summary: The limited fungicide program was partially responsible for the relatively high leaf spot ratings for many of the cultivars screened. However, study results show how quickly damaging levels of leaf spot diseases can build up in a new production area where peanut are cropped behind peanuts. Yields of most of the runner and Virginia-type peanuts were similar.

YIELD RESPONSE AND DISEASE RATINGS FOR COMMERCIAL RUNNER AND VIRGINIA MARKET-TYPE PEANUT CULTIVARS, SMREC

Peanut cultivar	Maturity group	Peanut type[1]	Leaf spot rating	SSR [2] loci/plot	Yield *lb/ac*
Andru II	3	R	5.0 cd [3]	2.0 bcd	3838 b
Carver	4	R	5.8 abc	5.7 a	3858 b
Georgia Green	4	R	5.8 abc	1.3 cd	3901 b
Gregory	4	V	5.6 bcd	2.8 bc	3774 b
ANorden	4	R	6.4 ab	2.5 bcd	4688 a
AP-3	4	R	5.7 bc	1.5 cd	4016 b
Perry	3	V	5.6 bcd	0.8 cd	3578 b
NC-12C	3	V	6.7 a	0.5 d	2816 c
NC VII	3	V	4.8 d	2.0 bcd	3948 b
VA 98R	3	V	5.8 abc	4.0 ab	3695 b
Wilson	3	V	6.3 ab	1.8 bcd	3419 bc

[1] Peanut market type: V = Virginia, R = Runner.

[2] SSR = southern stem rot.

[3] Means in each column followed by the same letter do not significantly differ, Fisher's least significant difference (LSD) test (P=0.05

IMPACT OF CROP ROTATION ON THE OCCURRENCE OF DISEASES AND NEMATODES IN CORN, COTTON, AND PEANUT IN SOUTHWEST ALABAMA, GCREC

A. K. Hagan, H. L. Campbell, J. R. Weeks, and M. D. Pegues

Objective: To evaluate the impact of cropping frequency of corn, cotton, and peanut on the yield of those crops as well as the occurrence of diseases and root-knot nematode on those crops as influenced by crop rotation in southwest Alabama.

Methods: The corn variety DKC 69-72 was planted on March 25 at the Gulf Coast Research and Extension Center (GCREC) near Fairhope, Alabama. On March 7, 280 pounds per acre of 7-21-21 + 0.5 pound per acre of boron + 10 pounds per acre of sulfur were broadcast and incorporated into the plots that were planted to corn. Due to heavy rains, the corn was replanted on April 11. A post-plant application of ammonium nitrate at 382 pounds per acre was made to the corn on May 10.

The peanut variety Carver and cotton variety Fibermax 960 BR were planted on May 12. A rotary hoe was used to control emerging weeds in the peanuts and cotton. Temik 15G was applied in-furrow to the peanut at 6.7 pounds per acre and to the cotton at 4.0 pounds per acre. Postemergent weed control in cotton included an application of Roundup Optimax at 24 fluid ounces on May 26, Evoke at 0.15 ounce per acre on June 21, and Promethryne at 1.5 pints per acre + MSMA at 2.5 pints per acre + Include at 1 quart per 100 gallons spray mixture on July 27. Bravo Weather Stik at 1.5 pints per acre was applied with an ATV-mounted sprayer for the control of leaf spot diseases and rust on peanut on June 22, July 5, July 20, August 3, August 17, September 1, and September 13. The experimental design was a randomized compete block with four replications. Individual plots consisted of eight rows that were 30 feet long on 38-inch centers. Corn, cotton, and peanut were harvested on August 18, September 30, and October 11, respectively. The plots were not irrigated.

Counts of tomato spotted wilt virus (TSWV) hits (one hit equals ≤ 1 foot of consecutive TSWV-damaged plants per row) were made the week before digging. On September 22 early leaf spot severity was rated using the Florida 1 to 10 peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = numerous leaf spots on few remaining leaves with severe defoliation (≤ 90 percent), 9 = very few remaining leaves covered with spots and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead.

Counts of white mold [southern stem rot (SSR)] hits (one hit equals ≤ 1 foot of consecutive diseased plants per row) were made immediately after the plots were dug. Soil samples for a nematode assay were taken periodically through the growing season from all plots and were processed using the standard nematode flotation method.

Results: In 2005, rainfall totals for May, June, July, August, and September reached or exceeded the historical average for the test location but were below average for April and October. Temperatures were also below average in April and early May.

While the incidence of TSWV was low, significant differences occurred among peanut rotation sequences (Table 1). Incidence of this disease was lower when peanuts followed one year of corn than when they followed two years of corn. Otherwise, virus levels for the peanut in all rotation patterns were similar. Peanut cropping frequency also had a significant impact on the severity of leaf spot diseases. Leaf spot ratings for the peanut following two years of cotton but not corn were lower that the rating recorded for the continuous peanuts. Similar leaf spot ratings were noted for the peanuts grown behind one or two years of cotton or corn. Peanut cropping frequency had no impact on the severity of rust, incidence of white mold, or pod yield.

Appreciable numbers of root-knot nematodes were noted for several corn rotation patterns in 2005 (Table 2). Significantly higher numbers of root-knot larvae were found in the plots where corn was grown for three consecutive years compared to the number of larvae found in either corn following one or two years of peanut or after cotton in 2003 and corn in 2004. Nematode numbers for corn following two years of cotton were intermediate

between the peanut/corn rotation and continuous corn plots. Low numbers of root-knot larvae on peanut and cotton suggest that the southern root-knot nematode *(Meloidogyne incognita)* race 1 or 2 is present. Cropping sequence had no impact on the yield of corn or cotton.

Summary: Weather patterns had a detrimental impact on the yield response of corn. Winds and rains from two early summer tropical storms heavily damaged corn leaves and may have interfered with ear formation. Yields were half what would normally be expected at this site. Unlike previous years, no yield boost was noted for corn or cotton cropped after peanut. Considerable plot-to-plot variation in yield obscured any impact that cropping sequence might have had on the yield of cotton or peanut.

Cropping frequency did influence the incidence of TSWV and leaf spot diseases in peanut. Incidence of this disease was actually higher for the recommended two-year-out than one-year-out rotation pattern. Previously, crop rotation was not linked with the incidence of TSWV in peanut. Not surprisingly, leaf spot ratings were higher for continuous peanuts compared with peanut behind two years of cotton. Similar results have been noted in rotation studies at the Wiregrass Research and Extension Center in Headland, Alabama. Previous studies have shown that even a one year break between peanut crops can significantly reduce the severity of early and late leaf spot in peanut.

Similar southern stem rot incidence across rotation patterns is unusual. Damage due to this disease and associated yield losses are closely linked to peanut cropping frequency. Heavy summer rains may have delayed disease development until September, which resulted in similar disease ratings for all rotation patterns.

Populations of root-knot nematodes, probably southern or cotton root *(M. incognita)* have begun to increase on corn. Highest numbers of larvae occurred in the continuous corn plots, while larval counts were lower when corn followed one or two peanut crops. So far, increasing root-knot populations have not had a detrimental impact on corn yield. However, yields were greatly reduced by damage attributed to several tropical storms. Numbers of root-knot nematode on peanut and cotton have remained very low.

Cropping frequency has not yet had an influence on cotton yields. Again, yield variability due to heavy rains associated with two late summer tropical storms may have been sufficient to disguise any rotation effects on the yield of cotton.

TABLE 1. IMPACT OF CROPPING SEQUENCE ON THE INCIDENCE OF DISEASES AND YIELD OF PEANUT IN 2005, GCREC

Rotation sequence			TSWV	Leaf spot	Rust	White mold	Yield
2003	2004	2005	hits/60 row ft	rating	rating	hits/60 row ft	*lb/ac*
Corn	Corn	Peanut	3.5 a[1]	3.9 ab	3.5 a	10.3 a	4347 a
Peanut	Peanut	Peanut	2.5 ab	4.5 a	4.3 a	8.0 a	3384 a
Peanut	Corn	Peanut	1.8 b	4.3 ab	4.0 a	8.5 a	3888 a
Peanut	Cotton	Peanut	2.0 ab	4.1 ab	3.8 a	8.3 a	4347 a
Cotton	Cotton	Peanut	2.8 ab	3.6 b	3.5 a	10.8 a	3934 a

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

TABLE 2. IMPACT OF CROPPING FREQUENCY OF CORN, COTTON, AND PEANUT ON POPULATIONS OF ROOT-KNOT NEMATODES AND CROP YIELD, GCREC

Rotation sequence			–Root-knot nematode counts[1]–			Yield		
						Corn	Lint cotton	Peanut
2003	2004	2005	Corn	Cotton	Peanut	*bu/ac*	*lb/ac*	*lb/ac*
Corn	Corn	Corn	110 a[2]	—	—	80.9 a	—	—
Corn	Peanut	Corn	5.5 b	—	—	75.5 a	—	—
Corn	Corn	Peanut	—	—	3.0 a	—	—	4347 a
Corn	Corn	Corn	35.5 ab	—	—	74.5 a	—	—
Peanut	Peanut	Peanut	—	—	1.0 a	—	—	3384 a
Peanut	Corn	Peanut	—	—	0.0 a	—	—	3888 a
Peanut	Peanut	Corn	6.5 b	—	—	84.7 a	—	—
Cotton	Cotton	Cotton	—	0.0 a	—	—	867 a	—
Peanut	Peanut	Cotton	—	0.0 a	—	—	752 a	—
Cotton	Peanut	Cotton	—	0.0 a	—	—	840 a	—
Peanut	Cotton	Peanut	—	—	0.0 a	—	—	4347 a
Peanut	Cotton	Cotton	—	0.0 a	—	—	872 a	—
Cotton	Cotton	Peanut	—	—	0.0 a	—	—	3934 a
Cotton	Cotton	Cotton	—	3.3 a	—	—	720 a	—
Cotton	Corn	Cotton	—	2.0 a	—	—	817 a	—
Cotton	Corn	Corn	—	—	—	—	—	—
Cotton	Corn	Corn	8.5 b	—	—	76.8 a	—	—
Cotton	Cotton	Corn	36.5 ab	—	—	83.8 a	—	—
Cotton	Cotton	Cotton	—	1.3 a	—	—	711 a	—

[1] Root knot nematode counts = the number of J2 free living larvae found in the soil.

[2] Means that are in each column that are followed by the same letter are not significantly different according to Fisher's least significant difference (LSD) test (P=0.05).

INFLUENCE OF CROPPING SEQUENCE ON DISEASES AND NEMATODES AND ON THE YIELD OF PEANUT, COTTON, AND CORN IN CENTRAL ALABAMA, PBU

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Objectives: To assess the impact of corn cropping frequency on the severity of diseases of peanut as well as on populations of the southern root-knot nematode on corn, cotton, and peanut and to define the agronomic benefits of corn as a rotation partner with peanut and cotton in central Alabama.

Methods: Prior to 2003, the cropping history of the study site at the Plant Breeding Unit (PBU) in Tallassee, Alabama, was cotton in 2002, sweet corn in 2001, and either lupine or vetch in 2000. A sizable population of the cotton root-knot nematode *(Meloidogyne incognita)*, the causal fungus of Fusarium wilt of cotton *(Fusarium oxysporum)*, and the causal fungus of southern stem rot (SSR or white mold) *(Sclerotium rolfsii)* were established.

The plot area at the PBU was worked with a disk harrow on March 21 and chiseled on April 4. On April 14, murate of potash and 176 pounds per acre of ammonium nitrate were broadcast and immediately incorporated with a field cultivator. On April 15, the plots were planted to Pioneer 31G66 corn on 3-foot rows with 1.8 seeds per foot of row. To control weeds in corn, Atrazine at 2 quarts per acre plus Lasso at 2 quarts per acre was broadcast on April 18. On May 20, 80 pounds per acre of 32-0-0 fertilizer was injected in the corn plots.

The cotton plots were split into four-row sub plots with Stoneville 4892BR planted in a randomly selected sub plots and DPL 555 in the others. Both cotton varieties were planted after 88 pounds per acre of ammonium nitrate was broadcast and incorporated on April 29. Thrips control on cotton was provided by an in-furrow application of Temik 15G at 8 pounds per acre. Weed control was provided by an early post application of Cotoran at 1.5 quarts per acre followed by applications of Roundup at 1 quart per acre on June 3 and June 27. Depending on cotton maturity, applications of Def 6 at 1 quart per acre + Dropp 50W at 0.1 pound per acre + Boll'd at 1 quart per acre were made on September 7 or September 15.

Peanut plots were prepared for planting with a disk harrow and field cultivator. Georgia Green peanut was planted on May 5. Karate at 1.5 fluid ounces per acre was applied on June 2 for thrips control. An application of Prowl at 1 quart per acre plus Dual at 20 fluid ounces per acre was made the next day. On July 21, Poast at 1.5 pints per acre was broadcast over the peanuts for grass control. Leaf spot control on peanut was maintained with applications of 1.5 quarts per acre of Bravo Weather Stik on June 17, July 1, July 15, July 28, August 12, and August 24. The insecticides Asana XL at 8 fluid ounces per acre and Sevin 80W at 1.25 pounds per acre were applied to all plots on June 9 and July 8, respectively.

Corn plots were combined on August 26, while the cotton plots were picked either on September 19 or September 22. The peanuts were inverted on September 28. Plots were hand weeded as needed during the growing season. Approximately 0.5 and 0.9 acre inches of water per acre were applied with a traveling gun irrigation system on May 18 and June 20, respectively.

Early leaf spot severity was rated using the Florida 1 to 10 peanut leaf spot scoring system on September 21. Counts of white mold [Southern stem rot (SSR)] hits (one hit was defined as $\leq$ 1 foot of consecutive white mold-damaged plants per row) were taken after plot inversion on September 29. Incidence of tomato spotted wilt virus (TSWV) in peanut was assessed on September 21 by counting the number of TSWV hits (one hit was defined as $\leq$ 1 foot of consecutive TSWV-damaged plants per row). Soil samples for a nematode assay were taken shortly after each crop was harvested.

Results: In 2005, peanut cropping frequency had no influence on the damage attributed to early leaf spot or on the incidence TSWV but did have a significant impact on the incidence of white mold (Table 1). Numbers of cotton root knot were uniformly very low in all peanut plots. Incidence of white mold was lower when peanut followed two years of corn than one year of cotton or corn. When peanut followed two years of cotton, white mold incidence was intermediate between the damage levels seen where peanut followed two years of corn and either one year of cotton or corn. Surprisingly, white mold incidence after three consecutive years of peanut was similar to the level of disease seen when peanut followed two years of cotton or corn.

The field corn Pioneer 31G66 supported considerable reproduction of the cotton root-knot nematode. Counts were numerically higher on corn than cotton. Lowest larval counts were found where corn was cropped behind one or particularly two years of peanut (Table 2). In contrast, larval populations where corn was grown for three consecutive years, as well as behind one or two years of cotton, were considerably higher compared to those for corn produced after two years of peanut.

Cropping sequence had a significant impact on the yield of cotton, corn, and peanut (Table 3). Highest corn yields were seen when peanut but not cotton was grown the previous year. In contrast, the lowest corn yields were typically seen when this crop followed one or two years of corn. Yield of cotton was higher when grown behind one or two years of peanut compared with one year of corn. Poorest yields were seen when cotton followed one or two years of cotton. Peanut cropped behind two years of corn had higher yields than same crop following two years of cotton. Yield for peanut cropped behind one year of corn or cotton as well as peanut after two years of cotton were similar to those recorded for continuous peanuts.

Summary: The impact of cropping frequency has been particularly noticeable on the yield of cotton, peanut, and corn. Peanut appears to be a better rotation partner for cotton than corn. For cotton, the yield benefit between peanut and corn as a rotation partner was well over 350 pounds of lint cotton per acre.

TABLE 1. IMPACT OF CROP ROTATION ON THE LEVEL OF DAMAGE ATTRIBUTED TO DISEASES AND NEMATODES OF PEANUT, PBU

Rotation sequence			Root knot larvae	Leaf spot	White mold
2003	2004	2005	no/100 cc soil	rating	hits/60 row ft
Corn	Corn	Peanut	2.5 a[1]	5.4 a	7.7 b
Peanut	Peanut	Peanut	1.0 a	5.4 a	14.8 ab
Peanut	Corn	Peanut	2.0 a	5.6 a	24.8 a
Peanut	Cotton	Peanut	1.5 a	5.3 a	19.5 a
Cotton	Cotton	Peanut	0.0 a	5.4 a	16.3 ab

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

TABLE 2. IMPACT OF CROP ROTATION ON THE POPULATIONS OF THE SOUTHERN ROOT KNOT NEMATODE ON CORN, COTTON, AND PEANUT, PBU

Rotation sequence			——Root knot larvae counts for 2005——		
2003	2004	2005	Cotton	Corn	Peanut
Corn	Corn	Corn	—	528 ab[1]	—
Corn	Peanut	Corn	—	167 bc	—
Corn	Corn	Peanut	—	—	2.5 a
Corn	Corn	Corn	—	533 ab	—
Peanut	Peanut	Peanut	—	—	1.0 a
Peanut	Corn	Peanut	—	—	2.0 a
Peanut	Peanut	Corn	—	17 c	—
Cotton	Cotton	Cotton	417 ab	—	—
Peanut	Peanut	Cotton	183 b	—	—
Cotton	Peanut	Cotton	462 a	—	—
Peanut	Cotton	Peanut	—	—	1.5 a
Peanut	Cotton	Cotton	544 a	—	—
Cotton	Cotton	Peanut	—	—	0.0 a
Cotton	Cotton	Cotton	632 a	—	—
Cotton	Corn	Cotton	455 a	—	—
Cotton	Corn	Corn	—	824 a	—
Cotton	Corn	Corn	—	658 ab	—
Cotton	Cotton	Corn	—	659 ab	—
Cotton	Cotton	Cotton	499 a	—	—

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

TABLE 3. IMPACT OF CROPPING SEQUENCE ON THE YIELD OF CORN, COTTON, AND PEANUT, PBU

Rotation sequence			——Root knot larvae counts for 2005——		
2003	2004	2005	Cotton	Corn	Peanut
Corn	Corn	Corn	—	107 ab[1]	—
Corn	Peanut	Corn	—	116 a	—
Corn	Corn	Peanut	—	—	6942 a
Corn	Corn	Corn	—	87 c	—
Peanut	Peanut	Peanut	—	—	3499 b
Peanut	Corn	Peanut	—	—	3192 b
Peanut	Peanut	Corn	—	114 a	—
Cotton	Cotton	Cotton	321 c	—	—
Peanut	Peanut	Cotton	983 a	—	—
Cotton	Peanut	Cotton	935 a	—	—
Peanut	Cotton	Peanut	—	—	3460 b
Peanut	Cotton	Cotton	368 c	—	—
Cotton	Cotton	Peanut	—	—	3975 b
Cotton	Cotton	Cotton	401 bc	—	—
Cotton	Corn	Cotton	600 b	—	—
Cotton	Corn	Corn	—	85 c	—
Cotton	Corn	Corn	—	76 c	—
Cotton	Cotton	Corn	—	91 bc	—
Cotton	Cotton	Cotton	226 c	—	—

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

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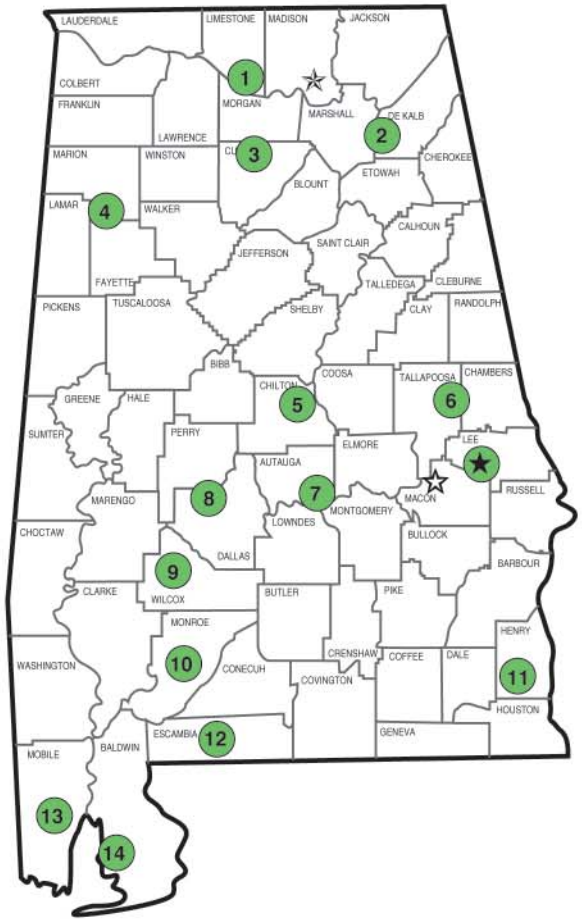

Research Unit Identification

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☆ Alabama A&M University.
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