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PEANUT DISEASE CONTROL FIELD TRIALS, 2003

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Peanut Disease Control Field Trials, 2003

A.K. Hagan, K.L. Bowen, and H.L. Campbell[1]

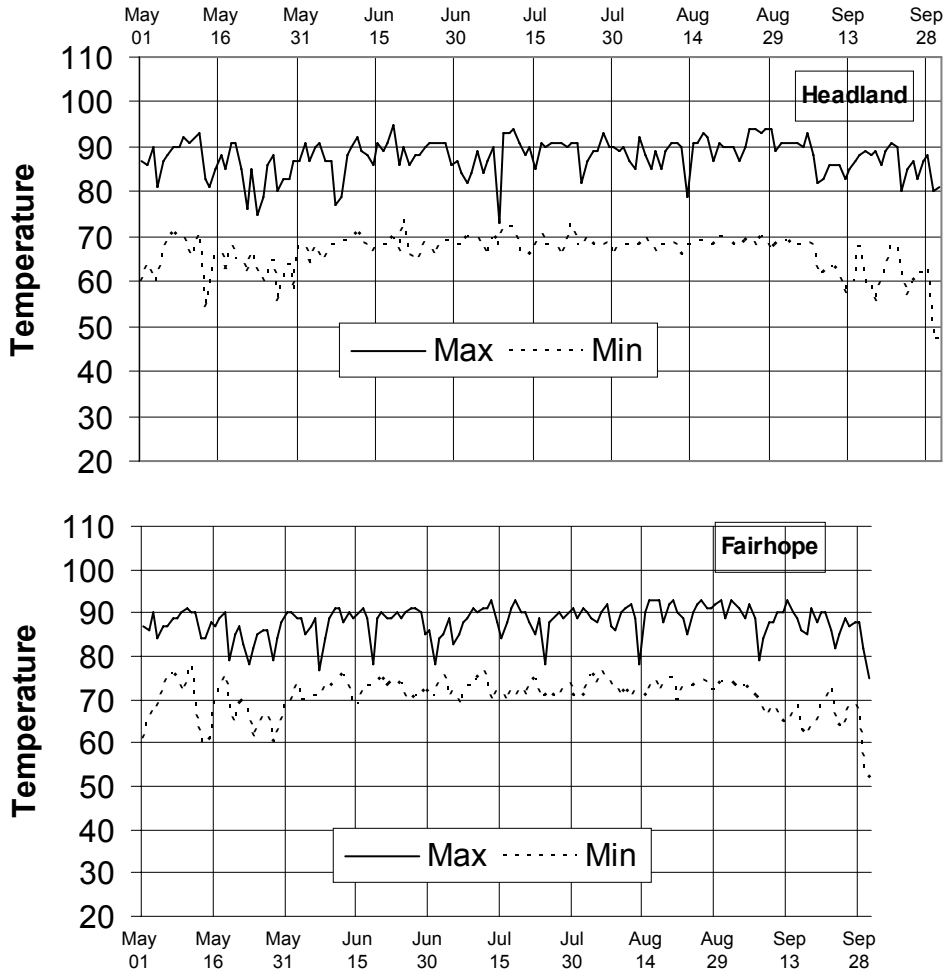
INTRODUCTION

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 2003 production season, temperatures were at or near normal at the WREC and GCREC (Figure 1). At the WREC, monthly rainfall totals for the entire growing season (May-October) were at or above historical averages (Figure 2). As a result, increases in leaf spot severity was observed in all trials whereas soil-borne disease incidence was reduced.

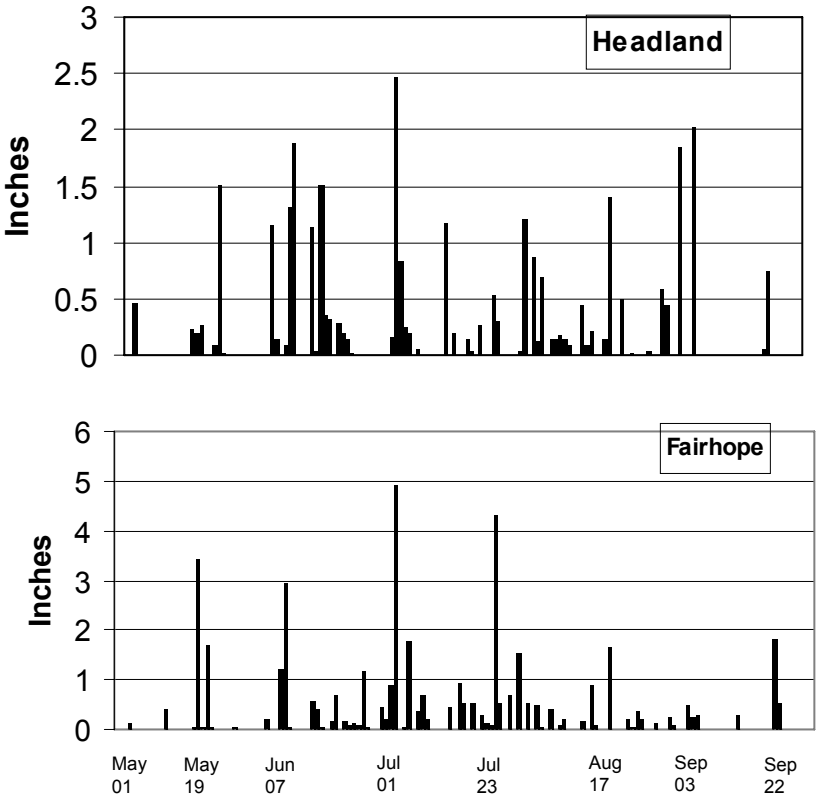
Figure 1. Daily minimum and maximum temperature (°F) May to October 2003.



[1]*Hagan and Bowen are Professors and Campbell is a Research Associate in the Auburn University Department of Entomology and Plant Pathology.*

At the GCREC, temperatures were near normal and rainfall was at or above historical averages. As a result, late leaf spot and peanut rust pressure was exceptionally high. Heavy rains did not impact yield in some of the early harvested tests; however, a late season drought resulted in yield being reduced in some late-harvested plots.

Figure 2. Daily precipitation (inches) May to September 2003.



COMPARISON OF MONCUT 70DF WITH ABOUND 2SC AND FOLICUR 3.6F FOR CONTROL OF FOLIAR AND SOIL-BORNE DISEASES OF PEANUT, WREC

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

Objective: To compare Moncut 70DF at various application rates and treatment intervals and for control of leaf spot diseases and southern stem rot of peanut, as well as yield response in an irrigated production system.

Methods: Peanut cultivar Georgia Green was planted at the Wiregrass Research and Extension Center in Headland, Alabama, on May 18 in a field with a history of peanut production. The soil type was a Dothan sandy loam (OM< 1 percent). Seed were sown at a rate of approximately five seeds per foot of row. On March 28, the test area was sub-soiled and turned and on May 7, 1 quart per acre of Sonalan plus 0.45 ounces per acre of Strongarm was made for postemergent weed control. On July 9, 1 pint per acre of 2,4 DB was applied to the test area for weed control. Thrips were controlled with an in-furrow application of 6.5 pounds per acre of Temik 15G.

Plots consisted of six 30-foot rows spaced 3 feet apart that were arranged in a randomized complete block with six replications. The plots were placed under a central pivot irrigation system and irrigated as needed. Fungicides were applied using a six-row, tractor-mounted boom sprayer with TX-8 nozzles calibrated to deliver 15 gallons per acre. Fungicides were applied on a 14-day schedule on June 23, July 8, July 22, August 5, August 19, September 9, and September 16. Excessive rainfall resulted in a three-week interval between applications 5 and 6.

Early and late leaf spot were visually rated on September 4 using the Florida leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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 (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants completely defoliated or dead].

Counts of southern stem rot (SSR) loci (one locus was defined as ≤ 1 foot of consecutive symptoms and signs of the disease) were made on September 22 immediately after plot inversion. Plots were harvested on September 26 and yields were reported at 10.8 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2003 peanut production season, temperatures were near normal and monthly rainfall totals were above normal levels in June, July, and August. Generally, the level of leaf control obtained with most fungicide programs was similar to that provided by the season-long Bravo Ultrex standard except for the Bravo Ultrex/Folicur/Bravo Ultrex plus Moncut program (see table). With one exception, all of the treatments that included applications of Moncut 70DF gave better SSR control than the season-long Bravo Ultrex program. When applications of Bravo and Moncut were scheduled, the two fungicides were applied as a tank mix. Programs that included two applications of the 1.1 pound per acre rate of Moncut 70DF had yields significantly higher than those obtained with the season-long Bravo Ultrex standard. Significant yield gains were also obtained with the Tilt plus Bravo/Abound 2SC/Bravo Ultrex program. Yield response with the recommended Folicur 3.6F and Abound 2SC programs, as well as those including the 0.54 pound per acre rate of Moncut 70DF were similar to that obtained with the standard Bravo Ultrex program.

COMPARISON OF MONCUT 70DF WITH ABOUND 2SC AND FOLICUR 3.6F FOR CONTROL OF FOLIAR AND SOIL-BORNE DISEASES OF PEANUT, WREC

Treatment and Rate/A	Application Timing (14 day schedule)[1]	—Disease Ratings— Leaf Spot[2]	SSR[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb	1-7	4.3[4]	7.8	3287
Bravo Ultrex 1.4 lb	1,2,4,6,7	4.0	6.5	4098
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	3,5			
Headline 2.09EC 6.0 fl oz	1,2	3.7	4.2	4767
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	3,5			
Headline 2.09EC 9.0 fl oz	4			
Bravo Ultrex 1.4 lb	6,7			
Headline 2.09EC 9.0 fl oz	1.5	4.2	5.8	4317
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	3,5			
Headline 2.09EC 6.0 fl oz	4			
Bravo Ultrex 1.4 lb	6,7			
Bravo Ultrex 1.4 lb	1,2,4,6,7	4.2	4.3	3791
Abound 2SC 18.5 fl oz	3,5			
Tilt 3.6EC 2.0 fl oz + Bravo Ultrex 1.4 lb	1,2,4	3.7	6.7	4231
Abound 2.08SC 18.5 fl oz	3,5			
Bravo Ultrex 1.4 lb	6,7			
Bravo Ultrex 1.4 lb	1,2,7	4.5	5.3	3227
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Bravo Ultrex 1.4 lb	1,2,7	4.8	5.0	3594
Bravo Ultrex 1.4 lb + Moncut 70DF 0.54 lb	3,4,5,6			
Bravo Ultrex 1.4 lb	1,3,5,6,7	4.2	5.8	4227
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	2,4			
Bravo Ultrex 1.4 lb	1,2,7	5.3	9.0	3495
Folicur 3.6F 7.2 fl oz	3,5			
Bravo Ultrex 1.4 lb + Moncut 70DF 0.54 lb	4,6			
LSD ($P \leq 0.05$)		0.6	3.1	633

[1]Fungicide applications were made on 1 = June 23, 2 = July 8, 3 = July 22, 4 = August 8, 5 = August 19, 6 = September 9, and 7 =September 16.

[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[3]Southern stem rot lesions that were recorded at plot inversion are expressed as the number of disease loci per 60 feet of row.

[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

IMPACT OF SELECTED FUNGICIDE PROGRAMS ON THE OCCURRENCE OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT IN PEANUT, WREC

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

Objective: To compare currently registered fungicides at various rates and treatment intervals with Tilt 3.6EC plus Bravo 720 (pre-mix) for control of leaf spot diseases and southern stem rot of peanut in an irrigated production system.

Methods: Peanut cultivar Georgia Green was planted at the Wiregrass Research and Extension Center in Headland, Alabama, in a field with a history of peanut production on May 15. The soil type was a Dothan sandy loam (OM < 1 percent). Recommendations of the Alabama Cooperative Extension System for tillage and soil fertility were followed. On March 28, the test area was sub-soiled and turned and on May 7, 1 quart per acre of Sonalan plus 0.45 ounces per acre of Strongarm was made for pre-emergent weed control. On July 9, 1 pint per acre of 2,4 DB was applied to the test area for weed control. Thrips were controlled with an in-furrow application of 6.5 pounds per acre of Temik 15G.

Plots, which consisted of six 30-foot rows spaced 3 feet apart, were arranged in a randomized complete block with six replications under a central pivot irrigation system and were irrigated as needed. Fungicides were applied as a full canopy spray at a calibrated volume of 15 gallons per acre using a six-row, tractor-mounted boom sprayer with TX-8 nozzles on June 23, July 7, July 21, August 4, August 18, September 1, and September 15. Headline (application timing 1.5) was applied on June 30.

Early and late leaf spot were visually rated on September 4 using the Florida leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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 (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants completely defoliated or dead].

Counts of southern stem rot (SSR) loci were made on September 22 immediately after plot inversion (one locus was defined as ≤ 1 foot of consecutive symptoms and signs of the disease). Plots were harvested on September 26 and yields were reported at 10.2 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: Temperatures were near normal and monthly rainfall totals were above or near normal for much of the 2003 peanut production season. The Headline programs had significantly lower leaf spot ratings than all programs except for the Tilt plus Bravo/Bravo regime (see table). All the Abound 2SC, Folicur 3.6F, and Bravo 720 plus Moncut 70DF regimes gave significantly better control of SSR than the season-long Bravo 720 standard. The best SSR control was obtained with the programs that included Tilt plus Bravo with applications of Abound 2SC or Bravo 720 plus Moncut 70DF. Yields in the plots treated with Bravo Ultrex alone were significantly lower than those programs that included two to four applications of Abound 2SC and/or Folicur 3.6F, and Headline 2.09EC.

IMPACT OF SELECTED FUNGICIDE PROGRAMS ON LEAF SPOT DISEASES AND SOUTHERN STEM ROT, WREC

Treatment and Rate/A	Application Timing (14 day schedule)[1]	—Disease Ratings— Leaf Spot[2]	SSR[3]	Yield (lb/A)
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4,6,7	3.7[4]	3.8	4292
Abound 2SC 18.5 fl oz	3,5			
Tilt 3.6EC + Bravo 720 24.0 fl oz(pre-mix)	1,2,4,6,7	4.0	8.2	4255
Abound 18.5 fl oz	3,5			
Headline 2.09EC 6.0 fl oz	1,2	3.3	5.2	4066
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Bravo 720 1.5 pt	7			
Headline 2.09EC 6.0 fl oz	1,2	3.2	7.2	4868
Folicur 3.6F 7.2 fl oz	3,5			
Headline 2.09EC 9.0 fl oz	4			
Bravo 720 1.5 pt	6,7			
Headline 2.09EC 9 fl oz	1.5	3.2	7.3	4271
Folicur 3.6F 7.2 fl oz	3,5			
Headline 12. 0 fl oz	4			
Bravo 720 1.5 pt	6,7			
Tilt 3.6EC + Bravo 720 1.0 pt	1,2,4	4.0	4.0	4437
Abound 2.08SC 18.5 fl oz	3,5			
Bravo 720 1.5 pt	6,7			
Bravo 720 1.5 pt	1,2,4,6,7	4.7	5.2	3791
Abound 2.08SC 12.3 fl oz	3,5			
Bravo 720 1.5 pt	1,2,7	4.8	6.2	3699
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Bravo 720 1.5 pt	1,2,4,6,7	4.8	4.8	3146
Bravo 720 1.5 pt + Moncut 70DF 1.1 lb	3,5			
Tilt 3.6EC + Bravo 7201.5 pt	1,2,4	3.8	10.7	3916
Bravo 720 1.5 pt	3,5,6,7			
Bravo 720 1.5 pt	1-7	4.7	11.5	2928
LSD ($P \leq 0.05$)		0.5	2.9	464

[1]Fungicide application dates were 1 = June 23, 2 = July 7, 3 = July 21, 4 = August 4, 5 = August 18, 6 = September 1, and 7 = September 15; Headline at 1.5 applied on June 30.

[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[3]Southern stem rot counts which were recorded at plot inversion are expressed as the number of disease loci or hits per 60 feet of row.

[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P = 0.05$).

EVALUATION OF EXPERIMENTAL FUNGICIDES FOR CONTROL OF FOLIAR AND SOIL-BORNE DISEASES OF PEANUT, WREC

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

Objective: To compare the efficacy of new fungicides with currently registered fungicides for control of leaf spot diseases and southern stem rot of peanut in an irrigated peanut production system.

Methods: Peanut cultivar Georgia Green was planted on May 15 at a rate of approximately five seeds per foot of row in a field with a history of peanut production at the Wiregrass Research and Extension Center in Headland, Alabama. The soil type was a Dothan sandy loam (OM < 1 percent). Alabama Cooperative Extension System recommendations for tillage and fertility were followed. On March 28, the test area was sub-soiled and turned and on May 7, 1 quart per acre of Sonalan plus 0.45 ounces per acre of Strongarm was made for pre-emergent weed control. On July 9, 1 pint per acre of 2,4 DB was applied to the test area for postemergent weed control. Thrips were controlled with an in-furrow application of 6.5 pounds per acre of Temik 15G.

Plots which were arranged in a randomized complete block with six replications, consisted of six 30-foot rows spaced 3 feet apart. The plots were located under a central pivot irrigation system and were watered as needed. Fungicides were applied as a full canopy spray at a calibrated volume of 15 gallons per acre using a six-row, tractor-mounted boom sprayer with TX-8 nozzles. Applications were made on a 14-day schedule on June 23, July 8, July 22, August 5, August 19, September 9, and September 16. Excessive rainfall resulted in a three-week interval between applications 5 and 6.

Early and late leaf spot were visually rated on September 4 using the Florida leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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 (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants completely defoliated or dead].

Counts of southern stem rot (SSR) loci or hits (one locus was defined as ≤ 1 foot of consecutive symptoms and signs of the disease) were made on September 24 immediately after plot inversion. Plots were harvested on September 29 and yields are reported at 10.61 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: For the 2003 peanut production season, temperatures were near normal and monthly rainfall totals were at or above normal. Untreated control plots were completely defoliated by the time of harvest (data not shown). The program that included applications of JAU6476, as well as the Bravo 720/Headline (6 fluid ounces)/Headline (9 fluid ounces)/Folicur 3.6F program, gave significantly better control of leaf spot than the Bravo 720-only program (see table). SSR incidence in the plots treated with Bravo 720 alone was similar to the incidence of this disease noted for the other fungicide programs. Yields for the Bravo/Headline/Folicur and the USF2010/Folicur/Bravo 720 programs were significantly higher than those recorded for the standard, season-long Bravo 720 program.

Evaluation of new and experimental fungicides for the control of foliar and soil-borne diseases, WREC

Treatment and Rate/A	Application Timing[1]	—Disease Ratings— Leaf Spot[2]	SSR[3]	Yield (lb/A)
Bravo 720 1.5 pt	1,2,7	4.3[4]	14.3	3453
JAU6476 5.7 fl oz	3,4,5,6			
Bravo 720 1.5 pt	1,2,7	4.8	7.8	3219
Folicur 3.6F 7.2 fl oz	3,4,5,6			
USF2010 3.5 fl oz	1,2	5.0	8.3	3674
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Bravo 720 1.5 pt	7			
Stratego 7.0 fl oz	1,2	4.8	9.5	3291
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Bravo 720 1.5 pt	7			
Bravo 720 1.5 pt	1,2,4,6,7	4.8	8.0	3622
Abound 2SC 18.5 fl oz	3,5			
Bravo 720 1.5 pt	1,3,7	4.5	15.2	3384
Headline 2.09EC 9.0 fl oz	2			
Headline 2.09EC 6.0 fl oz	4			
Folicur 3.6F 7.2 fl oz	5,6			
Bravo 720 1.5 pt	1,7	4.2	10.0	3223
Headline 2.09EC 6.0 fl oz	2			
Headline 2.09EC 9.0 fl oz	4			
Folicur 3.6F 7.2 fl oz	3,5,6			
Bravo 720 1.5 pt	1-7	5.2	12.8	3017
Bravo 720 1.5 pt	1,2,4,6,7	5.0	7.2	2783
Bravo 720 1.5 pt + Moncut 70DF 1.1 lb	3,5			
Stratego 7.0 fl oz	1-7	5.2	10.5	3356
Bravo 720 1.5 pt	1,2,7	5.0	12.2	2852
Stratego 7.0 fl oz	3,4,5,6			
Bravo 720 1.5 pt	1,7	4.8	8.7	3703
Headline 2.09EC 9.0 fl oz	2			
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Headline 2.09EC 9.0 fl oz	1.5	5.0	8.2	3015
Folicur 3.6F 7.2 fl oz	3,5			
Headline 2.09EC 12.0 fl oz	4			
Bravo 720 1.5 pt	7			
LSD ($P \leq 0.05$)		0.7	6.2	624

[1]Fungicides applied on 14-day schedule unless specified otherwise.

[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[3]Southern stem rot incidence which was recorded at plot inversion is expressed as the number of disease loci or hits per 60 feet of row.

[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF EXPERIMENTAL AND REGISTERED FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT WHEN APPLIED ACCORDING TO THE AU-PNUT SPRAY ADVISORY PROGRAM, WREC

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

Objective: To assess the activity of experimental and registered fungicides when applied according to the AU-Pnut leaf spot spray advisory for control of foliar and soil-borne diseases of peanut, as well as crop yield, in an irrigated production system.

Methods: Peanut cultivar Georgia Green was planted at the Wiregrass Research and Extension Center in Headland, Alabama, on May 15 at a rate of approximately five seed per foot of row in a field with a history of peanut production. The soil type was a Dothan sandy loam (OM < 1%). Recommendations of the Alabama Cooperative Extension System for soil fertility, weed, and nematode control were followed. On March 26, the test area was sub-soiled and turned. On April 17, 1 quart per acre of Sonalan + 0.45 ounce per acre of Strongarm was broadcast pre-plant for weed control. Thrips were controlled with an in-furrow application of 6.5 pounds per acre of Temik 15G.

Plots, which were arranged in a randomized complete block with six replications, consisted of six 30-foot rows spaced 3 feet apart. Plots were located under a central pivot irrigation system and were watered as needed. Fungicides were applied as a full canopy spray at a calibrated volume of 15 gallons per acre using a six-row tractor mounted boom sprayer with TX8 nozzles using the AU-Pnut spray advisory schedule and were applied on June 23, July 7, July 21, August 4, August 18, and September 2. A late summer dry weather pattern resulted in only six spray applications being applied. Early and late leaf spot were visually rated on September 4, using the Florida 1-10 leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10%), 5 = leaf spots noticeable in upper canopy with some defoliation (≤ 25%), 6 = leaf spots numerous with significant defoliation (≤ 50%), 7 = leaf spots numerous with heavy defoliation (≤ 75%), 8 = numerous leaf spots on few remaining leaves (≤ 90%), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95%), and 10 = plants completely defoliated or dead]. Counts of southern stem rot (SSR) loci or hits (1 locus was defined as ≤ 1 ft of consecutive symptoms and signs of the disease) were made on September 29 immediately after plot inversion. Plots were harvested on October 2 and yields are reported at 10.03% moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: For the 2003, production system, temperatures were near normal and monthly rainfall totals were at or above normal. By harvest, untreated control plots were completely defoliated (data not shown). With the exception of the program that included Moncut 70DF, all of the programs gave significantly better control of leaf spot diseases than did the season-long Bravo 720 program (see table). The program that included JAU6476 gave significantly better leaf spot control than all programs except for the one that included applications of Bravo 720/Headline 2.09EC (9.0 fluid ounces)/Headline 2.09EC (6.0 fluid ounces)/Folicur 3.6F. SSR incidence in the plots treated with Bravo 720 alone were similar to those observed for all treatment regimes with the exception of the Bravo 720/Headline 2.09EC (9.0 fluid ounces)/Headline 2.09EC (6.0 fluid ounces)/Folicur 3.6F program.Yield for the Bravo 720/JAU6476, Stratego/Folicur 3.6F/Bravo 720, Bravo 720/Abound 2SC, and Bravo 720/Headline 2.09EC(9 fluid ounces)/Headline 2.09EC(6 fluid ounces)/Folicur 3.6F program were significantly better than that recorded for the season-long Bravo only program.

EVALUATION OF EXPERIMENTAL AND REGISTERED FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT APPLIED ACCORDING TO THE AU-PNUT SPRAY ADVISORY PROGRAM, WREC

		—Disease Ratings—		
Treatment and Rate/A	Application Timing	Leaf Spot[1]	SSR[2]	Yield (lb/A)
Bravo 720 1.5 pt JAU6476 5.7 fl oz	AU-Pnut	3.4[3]	5.8	3470
Bravo 720 1.5 pt Folicur 3.6F 7.2 fl oz	AU-Pnut	4.3	8.8	2791
USF2010 3.5 fl oz Folicur 3.6F 7.2 fl oz Bravo 720 1.5 pt	AU-Pnut	4.5	13.0	3201
Stratego 7.0 fl oz Folicur 3.6F 7.2 fl oz Bravo 720 1.5 pt	AU-Pnut	4.5	6.0	3238
Bravo 720 1.5 pt Abound 2SC 18.5 fl oz	AU-Pnut	4.7	7.2	3503
Bravo 720 1.5 pt Headline 2.09EC 9.0 fl oz Headline 2.09EC 6.0 fl oz Folicur 3.6F 7.2 fl oz	AU-Pnut	3.8	4.6	3830
Bravo 720 1.5 pt Headline 2.09EC 6.0 fl oz Headline 2.09EC 9.0 fl oz Folicur 3.6F 7.2 fl oz	AU-Pnut	4.0	7.2	3061
Bravo 720 1.5 pt	AU-Pnut	5.0	9.0	2541
Bravo 720 1.5 pt Bravo 720 1.5 pt + Moncut 70DF 1.1 lb	AU-Pnut	4.8	7.8	2991
Stratego 7.0 fl oz	AU-Pnut	4.0	9.6	3150
LSD ($P < 0.05$)		0.5	4.0	673

[1]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[2]Southern stem rot incidence, which was recorded at plot inversion is expressed as the number of disease loci or hits per 60 feet of row.

[3]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

COMPARISON OF EXPERIMENTAL FUNGICIDES WITH CURRENTLY REGISTERED FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT, WREC

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

Objective: To compare the efficacy of the new fungicides V-10116 and V-10114 applied on a 14-day calendar schedule for the control of leaf spot diseases and southern stem rot of peanut, as well as pod yield with that of registered fungicides in an irrigated production system.

Methods: Peanut cultivar Georgia Green was planted on May 15 at the Wiregrass Research and Extension Center in Headland, Alabama, in a field with a history of peanut production and was sown at a rate of approximately five seeds per foot of row. The soil type was a Dothan sandy loam (OM < 1 percent) and recommendations of the Alabama Cooperative Extension system for soil fertility, weed, and nematode control were followed. On March 28, the test area was sub-soiled and turned. On May 7, 1 quart per acre of Sonalan plus 0.45 ounces per acre of Strongarm was applied pre-plant for pre-emergent broad leaf weed and grass control. On July 9, 1 pint per acre of 2,4 DB was applied to the test area for postemergent weed control. Thrips were controlled with an in-furrow application of 6.5 pounds per acre of Temik 15G.

Plots, which consisted of six 30-foot rows spaced 3 feet apart, were arranged in a randomized complete block with six replications. Plots were placed under a central pivot irrigation system and were watered as needed. Fungicides were applied as a full canopy spray at a calibrated volume of 15 gallons per acre using a six-row, tractor-mounted boom sprayer with TX-8 nozzles on a 14-day schedule on June 23, July 8, July 22, August 5, August 19, September 9, and September 16. Due to excessive rainfall, there was a three-week interval between applications five and six.

Early and late leaf spot were visually rated on September 4 using the Florida 1-10 leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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 (≤ 90 percent), 9 = very few remaining leaves covered with leaf spots and severe defoliation (≤ 95 percent), and 10 = plants completely defoliated or dead].

Counts of southern stem rot (SSR) loci or hits (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease) were made on September 24 immediately after plot inversion. Plots were harvested on September 29 and yields reported at 10.6 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: During the 2003 peanut production season, temperatures were near normal and monthly rainfall totals were at or above normal. The program with two applications of Headline 2.09EC and Folicur 3.6F gave significantly better leaf spot control than the season-long Bravo 720 standard and many of the other fungicide regimes (see table). The treatment regimes with V-10116 were as effective in controlling leaf spot as Bravo 720 alone. No significant differences in the incidence of SSR were noted among the fungicide programs. Yield in the plots treated with V-10116 was similar to those obtained with the standard Bravo 720 program. In addition, plots treated with Folicur 3.6F, Headline 2.09EC, or Moncut 70DF had yields similar to those treated with the Bravo 720 standard.

COMPARISON OF EXPERIMENTAL FUNGICIDES WITH CURRENTLY REGISTERED FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, WREC

Treatment and Rate/A	ApplicationTiming (14 day schedule)[1]	—Disease Ratings— Leaf Spot[2]	SSR[3]	Yield (lb/A)
V-10116 6.1 fl oz	1-7	4.3[4]	7.0	2690
Bravo 720 1.5 pt	1-7	4.7	7.5	3057
Bravo 720 1.5 pt V-10116 6.1 fl oz	1,2,7 3,4,5,6	4.3	8.2	3170
V-10116 8.2 fl oz	1-7	4.2	8.0	2773
Bravo 720 1.5 pt V-10116 8.2 fl oz	1,2,7 3,4,5,6	4.3	5.7	2654
V-10116 6.1 fl oz V-10116 6.1 fl oz + V-10114 7.6 fl oz	1,2,7 3,4,5,6	4.7	5.5	3320
Folicur 3.6 F 4.0 fl oz Bravo 720 1.5 pt	1,2,7 3,4,5,6	4.5	5.7	2835
Headline 2.09EC 9.0 fl oz Folicur 3.6F 7.2 fl oz Headline 2.09EC 12.0 fl oz Bravo 720 1.5 pt	1.5 3,5,6 4 7	4.5	5.2	3424
Bravo 720 1.5 pt Headline 6.0 fl oz	1,2,4,6,7 3,5	4.3	5.0	2715
Headline 2.09EC 12.0 fl oz Folicur 3.6F	3,5 4,6	3.8	5.8	3440
Bravo 720 1.5 pt Abound 2SC 18.5 fl oz	1,2,4,6,7 3,5	4.7	5.5	3299
Bravo 720 1.5 pt Bravo 720 1.5 pt + Moncut 70DF 1.1 lb	1,2,4,6,7 3,5	5.0	9.0	3151
LSD ($P < 0.05$)		0.6	4.3	647

[1]Fungicide applications were made 1 = June 23, 2 = July 8, 3 = July 22, 4 = August 5, 5 = August 19, 6 = September 9, and 7 = September 16.
[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.
[3]Southern stem rot incidence is expressed as the number of disease loci or hits per 60 feet of row.
[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

COMPARISON OF NEW FUNGICIDES WITH ARTISAN 3.6SE, HEADLINE 2.09EC, FOLICUR 3.6F, ABOUND 2SC, AND ECHO 720 TO CONTROL LEAF SPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT, WREC

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

Objective: To assess the activity of experimental fungicides for the control of early leaf spot and southern stem rot and to compare their activity with that of registered fungicides on the Georgia Green peanut.

Methods: Peanut cultivar Georgia Green was sown at a rate of approximately five seeds per foot of row on May 27 in a field with a history of peanut production at the Wiregrass Research and Extension Center in Headland, Alabama. The soil type was a Dothan sandy loam (OM < 1 percent) and recommendations of the Alabama Cooperative Extension system for tillage, fertility, weed, and nematode control were followed.

Plots, which consisted of four 30-foot rows spaced 3 feet apart, were arranged in a randomized complete block with six replications. The study was placed under a side-roll irrigation system and was watered as needed. Fungicides were applied as a full canopy spray at a calibrated volume of 15 gallons per acre using a four-row, tractor-mounted boom sprayer with three TX-8 nozzles per row on June 30, July 14, July 28, August 11, August 25, September 8, and September 22.

Early and late leaf spot were visually rated on September 16 using the Florida 1-10 leaf spot scoring system (1= no disease; 2 = very few leaf spots in lower canopy; 3 = few leaf spots in lower and upper canopy; 4 = some leaf spots with slight 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 = very numerous leaf spots on few remaining leaves with heavy defoliation (≤ 90 percent); 9 = very few remaining leaves covered with leaf spots (≤ 95 percent); 10 = plants completely dead or defoliated).

Counts of southern stem rot (SSR) loci or hits were made on October 6 immediately after plot inversion (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease). Plots were harvested on October 9 and yields reported at 10.2 percent moisture.

Results: For much of the 2003 peanut production season, temperatures were near normal and monthly rainfall totals at or above normal. The treatment regime that included Headline 2.09EC gave significantly better leaf spot control than all of the other treatment regimes (see table). All of the Echo 720 programs provided a similar level of leaf spot control. SSR incidence in the plots treated with Artisan 3.6SE, NAI-301 3.6SE, NAI-008, Moncut 70DF, Headline 2.09EC, and Folciur 3.6F was lower compared with disease levels seen in those treated with Echo 720 alone or Echo 720 plus Kocide 4.5LF. The Moncut 70DF, NAI-008, or NAI-301 treated plots yielded significantly higher than those treated season-long with Echo 720 or Echo 720 plus Kocide 4.5LF alone.

Comparison of new fungicides with Artisan 3.6SE, Headline 2.09EC, Folicur 3.6F, Abound 2SC, and Echo 720 for the control of leaf spot diseases and southern stem rot, WREC

Treatment and Rate/A	ApplicationTiming (14 day schedule)[1]	—Disease Ratings— Leaf Spot[2]	SSR[3]	Yield (lb/A)
Echo 720 1.5 pt	1-7	4.3[4]	13.5	2190
Echo 720 1.5 pt	1,2,4,6,7	4.7	5.7	2678
Echo 720 1.5 pt + Mocut 1.1 lb	3,5			
Echo 720 1.5 pt	1,2,4,6,7	4.7	5.8	2239
Artisan 3.6SE 32.0 fl oz	3,5			
Echo 720 1.5 pt	1,2,4,6,7	4.3	5.5	2854
NAI-008 3.6SE 32.0 fl oz	3,5			
Echo 720 1.5 pt	1,2,6,7	4.0	3.7	2468
NAI-301 45.0 fl oz	3,4,5			
Echo 720 1.5 pt	1,2,4,6,7	4.2	9.2	2516
Abound 18.5 fl oz	3,5			
Equus 720 1.5 pt	1,2,7	4.8	7.7	2230
Folicur 3.6F 7.2 fl oz	3,4,5,6			
Headline 2.09EC 9.0fl oz	1.5	3.2	3.3	3170
Echo 720 1.5 pt + Moncut 70DF 1.1 lb	3,5			
Headline 2.09EC 12.0 fl oz	4			
Echo 720 1.5 pt	6,7			
Equus 720 1.0 pt + Kocide 4.5LF 1.0 pt	1-7	4.3	11.8	2005
LSD ($P \leq 0.05$)		0.6	3.1	448

[1]Fungicide applications were made 1 = June 30, 2 = July 14, 3 = July 28, 4 = August 11, 5 = August 25, 6 = September 8, and 7 = September 22.

[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[3]Southern stem rot lesions taken at plot inversion are expressed as the number of disease loci or hits per 60 feet of row.

[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF FUNGICIDE SEED TREATMENTS AND ABOUND 2SC APPLIED IN-FURROW AT PLANTING FOR EFFECTS ON STAND AND SOIL-BORNE DISEASE CONTROL ON PEANUT, WREC

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

Objective: To evaluate new seed treatments with currently registered seed treatments and to compare the effect of Abound 2SC in-furrow at planting on germination, stand, and southern stem rot of peanuts.

Methods: On May 5, peanut cultivar Georgia Green was planted at the Wiregrass Research and Extension Center in a field with a prior history of peanut production. The soil type was a Dothan sandy loam (OM < 1 percent). Seed were sown at a rate of 5.5 seeds per foot of row and recommendations of the Alabama Cooperative Extension System for soil fertility, weed, and nematode control were followed.

Plots, which consisted of four 30-foot rows spaced 3 feet apart, were arranged in a randomized complete block design with six replications. On April 15, Sonalan at 1 quart per acre and Strongarm at 0.45 ounces per acre were broadcast pre-plant for weed control. Temik 15G was applied at a rate of 6.5 pounds per acre at planting for Thrips control. Abound 2SC applied in-furrow at planting were made using a tractor-mounted CO_2 sprayer with 8001 nozzles calibrated to deliver 5 gallons per acre with a nozzle placed over the open seed furrow. Stand counts were made at 7 DAP, 14 DAP, and 28 DAP. Vigor ratings were made at 28 DAP in which 1 = least vigorous plants…5 = most vigorous plants. Foliar fungicide applications were made over both tests following the recommended Bravo 720/Abound 2SC program [Tilt 3.6EC plus Bravo 720 (1,2,4), Abound 2SC (3,5), and Bravo 720 (6,7)] and were applied at two-week intervals beginning June 10. The plots were non-irrigated.

Counts of southern stem rot loci or hits were made on September 9 immediately after plot inversion (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease). Plots were harvested on September 11 and yields were reported at 10.61 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference ($P \leq 0.05$).

Results: Temperature was near normal and rainfall was at or above normal levels for most of the 2003-growing season. Leaf spot severity was higher than what had been observed in previous years. In test 1, all seed treatments gave similar stand results (Table 1). The poorest stand results were recorded with the seed treated with A13648 and Abound 2SC (4.5 fluid ounces per acre) at planting. The best stand results were observed with the treatment that included Vitavax and Abound 2SC (3.0 fluid ounces per acre) at planting. However, this treatment was only significantly better than the one that included A13648 and Abound (4.5 fluid ounces). Vigor ratings indicated that the most vigorous plants were found in the treatments that included Vitavax seed treatment and Abound 2SC (3.0 and 4.5 fluid ounces). White mold levels were minimal in all plots with only slight differences observed with any of the different seed treatments. Yields with all programs were similar; however, the ones that included Abound 2SC at the 4.5 and 6.0 fluid ounces per acre rates were higher than the other treatments. In test 2, all seed treatments alone gave better stand count numbers than the untreated control seeds (Table 2). There was no significant difference between any of the treatment regimes with or without Abound 2SC in-furrow. Vigor ratings among all treatments were better than the untreated control. Southern stem rot was minimal with all treatment programs giving similar results. All programs yielded better than the untreated control; however, there were no significant differences between any of the seed treatments.

TABLE 1. PEANUT SEED TREATMENT TEST 1

Treatment and Rate/A	Application Timing	——Stand Counts—— 7 DAP	14 DAP	28 DAP	Vigor[1]	SSR[2]	Plot Yield (lb/A)[3]
Vitavax PC	At planting	43.0[4]	78.0	83.0	3.8	1.8	3166
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
A13648	At planting	43.5	74.7	82.7	3.8	1.5	2973
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
A13648	At planting	38.7	74.5	79.2	3.8	2.3	2880
Abound 2SC 3.0 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
A13648	At planting	40.2	72.3	75.2	3.5	2.0	3275
Abound 2SC 4.5 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
A13648	At planting	41.3	76.5	80.5	3.7	1.3	3654
Abound 2SC 6.0 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
Vitavax PC	At planting	43.5	78.3	85.8	4.0	1.2	2928
Abound 2SC 3.0 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
Vitavax PC	At planting	42.8	73.8	81.5	4.5	1.7	3533
Abound 2SC 4.5 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
Vitavax PC	At planting	34.5	69.5	78.8	3.7	1.3	3340
Abound 2SC 6.0 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
LSD ($P \leq 0.05$)		8.3	7.6	7.9	0.8	1.1	477

[1]Vigor ratings based on 1 = least vigorous…5 = most vigorous.

[2]SSR hits assessed at inversion as the number of disease loci or hits per 60 feet of row.

[3]Yield calculated from area 6.33 x 30 feet.

[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

TABLE 2. PEANUT SEED TREATMENT TEST 2

Treatment and Rate/A	Application Timing	——Stand Counts—— 9 DAP	16 DAP	30 DAP	Vigor[1]	SSR[2]	Pod Yield (lb/A)[3]
Untreated Control		26.2[4]	43.3	44.3	2.3	1.0	2634
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
Dynasty PD	Seed Treatment	42.7	71.2	77.3	3.8	1.2	3529
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
Dynasty PD	Seed Treatment	43.8	69.8	73.8	4.2	1.7	3295
Abound 2SC 3.0 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
Vitavax PC	Seed Treatment	47.7	76.0	81.8	4.5	1.5	3211
Abound 2SC 4.5 fl oz	In-furrow						
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4						
Abound 2SC 18.5 fl oz	3,5						
Bravo 720 1.5 pt	6,7						
LSD ($P \leq 0.05$)		8.6	6.8	8.6	0.8	1.2	385

[1]Vigor ratings based on 1 = least vigorous…5 = most vigorous.

[2]SSR hits assessed at inversion as the number of disease loci or hits per 60 feet of row.

[3]Yield calculated from area 6.33 x 30 feet.

[4]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

BRAVO ULTREX, FOLICUR 3.6F, AND ABOUND 2SC CALENDAR AND AU-PNUT ADVISORY PROGRAMS COMPARED FOR CONTROL OF EARLY LEAF SPOT AND SOUTHERN STEM ROT ON PEANUT, WREC

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

Objective: To compare the efficacy of recommended fungicides for the control of early leaf spot and southern stem rot when applied on a calendar schedule and according to the AU-Pnut advisory.

Methods: On May 19, the peanut cultivar DP-1 [maturity group 5], which is partially resistant to late leaf spot and southern stem rot (SSR), was planted at a rate of 6 seeds per foot of row using conventional tillage practices in a Dothan fine sandy loam (OM< 1 percent) soil. Soil fertility and pH was adjusted according to the results of a soil fertility assay. Pre-emergent weed control was provided by a pre-plant application of 1 quart per acre of Sonolan and 0.45 ounces per acre of Strongarm. Escape weeds controlled by cultivating the middles with flat sweeps and hand removal. The test area was not irrigated. A randomized complete block design with four replications per fungicide treatment regime was used.

Plots consisted of four 30-foot rows spaced 3 feet apart. Full canopy sprays of fungicide treatment were made on a 14-, 21-, and 28-day calendar schedule, was 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 per acre of spray volume. Application dates for the 14-day schedule were June 16, June 30, July 14, July 29, August 11, August 25, and September 8; June 16, July 7, July 29, August 18, and September 8 for the 21-day schedule; and June 16, July 14, August 11, and September 8 for the 28-day calendar schedule. Fungicides were applied according to the AU-Pnut advisory on June 16, June 30, July 14, July 31, August 14, and August 28. On July 31, August 14, August 28, September 8, and September 25, early and late leaf spot (LS) were rated simultaneously 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.

The LS data recorded on September 25 is presented in the table. Southern stem rot (SSR) loci counts, where one locus is defined as ≤ 1 ft of consecutive SSR damaged plants per row, were made immediately after plot inversion on October 9. Windrows were picked on October 15 with a field combine and yields reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: Monthly rainfall totals were well above the historical average for June and July, average for May and August, but below average for September and October. For all fungicide programs, the level of leaf spotting and premature leaf loss significantly increased as the application interval was lengthened from 14 to 28 days (see table). Leaf spot ratings that were recorded for the Bravo Ultrex alone and the Folicur 3.6F programs were significantly different between the 14-, 21-, and 28-day treatment intervals. For the Abound 2SC programs, disease ratings for the peanuts treated at 14-day intervals were lower than those noted at the longer schedules. When applied according to the AU-Pnut advisory, the Bravo Ultrex alone, Folicur 3.6F, and Abound 2SC programs were as effective in controlling leaf spot as were the same fungicides applied at 14-day intervals.

Since peanuts were cropped behind two years of cotton, SSR pressure was relatively low. Incidence of SSR on peanuts treated on a 14-day schedule with Bravo Ultrex alone did not significantly differ from disease levels in the plots receiving Folicur 3.6F or Abound 2SC on the same treatment schedule. When application intervals were increased from 14 to 28 days, SSR damage was significantly higher for the Folicur 3.6F but not for the Bravo Ultrex alone and Abound 2SC programs. For all fungicide programs, the level of SSR control obtained with the 14-day calendar schedule and the AU-Pnut advisory was similar. Surprisingly, application interval had little impact on the yield response obtained with the calendar and AU-Pnut programs for Bravo Ultrex alone or Abound 2SC. For the Folicur 3.6F calendar programs, a significant decline in yield was noted between the peanuts treated at 21- and 28-day intervals. Yields for the 14- and 21-day Folicur 3.6F calendar schedule, as well as the AU-Pnut advisory for this same fungicide program were statistically similar.

IMPACT OF APPLICATION SCHEDULE ON THE CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, AS WELL AS PEANUT YIELD RESPONSE[1], WREC

Fungicide Regime and Rate/A	Schedule	Application Timing (DAP[2])	LS Rating	SSR[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb	14-day	28, 42, 56, 70, 84, 98, 110	3.5[4] ef	3.5 abcde	3186 abcd
Bravo Ultrex 1.4 lb	21-day	28, 49, 70, 91, 110	4.3 bc	4.5 ab	3154 abcd
Bravo Ultrex 1.4 lb	28-day	28, 56, 84, 110	5.2 a	5.0 a	2936 cd
Bravo Ultrex 1.4 lb	AU-Pnut[5]	28, 42, 56, 73, 87, 102	3.2 f	4.2 abc	3461 ab
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	14-day	28, 42, 110 56, 70, 84, 98	3.7 def	2.0 e	3440 ab
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	21-day	28, 110 49, 70, 91	4.3 bc	2.3 de	3598 a
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	28-day	28, 110 56, 84	5.3 a	4.0 abcd	2840 d
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	AU-Pnut	28, 42 56, 73, 87, 102	3.8 cde	2.5 cde	3380 abc
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	14-day	28, 42, 70, 98, 110 56, 84	3.3 ef	2.8 bcde	3404 ab
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	21-day	28, 49, 110 70, 91	4.2 bcd	3.2 bcde	3106 bcd
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	28-day	28, 110 56, 84	4.5 b	2.7 cde	3061 bcd
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut	28, 42, 73, 102 56, 87	3.7 def	3.3 abcde	3408 abc

[1]Peanut variety was DP-1.

[2]DAP = days after planting when fungicide applications were made.

[3]SSR incidence is expressed as the number of disease loci or hits per 60 feet of row.

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

[5]AU-Pnut disease advisory rules specify that the first fungicide application be made immediately after six or more rain events ($\geq$ 0.1 inch) and the second and subsequent applications immediately after no more than three rain events.

COMPARISON OF RECOMMENDED FUNGICIDE PROGRAMS FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT IN A DRYLAND PRODUCTION SYSTEM, WREC

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

Objective: To evaluate the effectiveness of recommend Bravo Ultrex, Folicur 3.6F, Moncut 70DF, Abound 2SC, and Headline 2.09EC for the control of leaf spot diseases and southern stem rot along with the yield of Andru II, Carver, and DP-1 in a dryland peanut production system.

Methods: On June 2, Andru II [maturity group 3], Carver [maturity group 4], and DP-1 [maturity group 5] peanut lines were planted at a rate of approximately 6 seeds per foot of row using conventional tillage practices in a Dothan fine sandy loam (< 1 percent OM). 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, which consisted of four 30-foot rows spaced 3 feet apart, were randomized within each whole plot. On May 7, Sonolan at 1 quart per acre plus Strongarm at 0.45 ounces per acre were broadcast for pre-emergence weed control and lightly incorporated. Select herbicide at 8 ounces per acre and 1 quart per acre of Crop Oil were applied for postemergence weed control. Escape weeds were pulled by hand and controlled on July 11 by cultivating the middles with flat sweeps. Temik 15G was placed in-furrow for thrips control. Although the test area was not irrigated, rainfall was adequate for most of the production year. Full canopy sprays were made on 1 = June 30, 2 = July 14, 3 = July 28, 4 = August 11, 5 = August 25, 6 = September 8, and 7 = September 22 with a tractor-mounted boom sprayer with three TX-8 nozzles per row in 15 gallons per acre spray volume.

Early and late leaf spot (LS) were rated simultaneously 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. The AUDPC for leaf spot diseases was calculated from the disease ratings recorded on July 31, August 14, August 28, September 8, September 25, October 6, October 14, and October 27. Southern stem rot (SSR) loci or hit counts, where one locus is defined as ≤ 1 foot of consecutive SSR-damaged plants per row, were made immediately after plot inversion on October 6 for Andru II, October 14 for Carver, and October 27 for DP-1. Plots were picked 2 to 8 days later with a field combine and yields were reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$). Since the cultivar x treatment interaction for leaf spot, SSR, and yield were not significant, data presented in the table was pooled or averaged for each variable across peanut lines.

Results: Monthly rainfall totals were equal to or higher than the historical average in June and July, average for May and August, but below average for September and October. Due to the cotton-cotton-peanut rotation pattern in the test area, leaf spot and SSR pressure was reduced.

At the October 6 rating, leaf spot severity was significantly lower on the cultivar DP-1 compared with Andru II and Carver (Table 1). On that same date, Carver also had lower disease ratings than Andru II. Immediately before peanuts were dug on October 14, the leaf spot rating for Carver of 5.2 was significantly higher than the 3.7 recorded for DP-1. On October 27, the leaf spot rating for DP-1 at digging averaged 4.7 across all fungicide treatment programs. With a significantly higher AUDPC for leaf spot, Andru II clearly was more susceptible to these diseases than either Carver or DP-1, which had similar AUDPC values. Since weather patterns were not conductive to the development of SSR, damage that was attributed to this disease was low. Of the three cultivars, incidence of SSR was higher on DP-1 compared with Andru II and Carver. Despite similar leaf spot ratings, Carver significantly outyielded DP-1. Yield for DP-1 was similar to that recorded for Andru II.

Season-long leaf spot severity was significantly lower for the Abound 2SC, Headline 1.09EC, and Abound 2SC/Folicur 3.6F programs compared to the level of control provided by the standard Bravo Ultrex and particularly the Folicur 3.6F program (Table 2). Both of the Bravo Ultrex plus Moncut 70DF programs were as effective in controlling leaf spot diseases as was Bravo Ultrex alone. The level of leaf spot control given by the Abound 2SC,

Headline 1.09EC, and Abound 2SC/Folicur 3.6F programs was similar. Although SSR pressure was low, significant reduction in the incidence of this disease was obtained with Bravo Ultrex plus Moncut 70DF, as well as the Abound 2SC, Headline 1.09EC, and Abound 2SC/Folicur 3.6F programs compared with Bravo Ultrex applied season-long. The significantly lower yield response obtained with the Folicur 3.6F program was a reflection of poor leaf spot control. When compared to Bravo Ultrex alone, yields were significantly higher for the Abound 2SC and Abound 2SC/Folicur 3.6F programs. Yields were similar for the season-long Bravo Ultrex, both Bravo Ultrex plus Moncut 70DF, and the Headline 2.09EC programs.

Ratings for early leaf spot and southern stem rot, as well as pod yields are broken down by fungicide treatment and peanut cultivar in Table 3.

TABLE 1. YIELD RESPONSE AND REACTION OF SELECTED PEANUT CULTIVARS TO LEAF SPOT DISEASES AND SOUTHERN STEM ROT ACROSS ALL FUNGICIDE TREATMENTS

	Maturity	—Leaf Spot—		SSR	Yield
Peanut Cultivar	Group[1]	Rating[2]	AUDPC[3]	Incidence[4]	(lb/A)
Andru II	3	4.9 a[5]	189.8 a	0.9 b	3734 b
Carver	4	4.5 b	182.4 b	1.3 ab	4368 a
DP-1	5	3.2 c	180.0 b	1.8 a	3820 b

[1]Pod maturity occurs approximately 126-140 DAP, 130 to 145 DAP, and 140 to 165 DAP for peanut cultivars in maturity group 3, 4, and 5, respectively.
[2]Leaf spot ratings were recorded on October 6.
[3]AUDPC refers to the area under the disease progress curve.
[4]Southern stem rot [white mold] incidence is expressed as the number of disease loci or hits per 60 feet of row.
[5]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 (LSD) test ($P \leq 0.05$).

TABLE 2. COMPARISON OF RECOMMENDED FUNGICIDE PROGRAMS FOR THE CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT AND THEIR IMPACT ON POD YIELDS AVERAGED ACROSS THREE PEANUT CULTIVARS IN A DRYLAND PRODUCTION SYSTEM, WREC

		LS	SSR	Yield
Program and Rate/A	Application Timing	AUDPC[1]	Incidence[2]	(lb/A)
Bravo Ultrex 1.4 lb	1-7[3]	187.1 b[4]	2.7 a	3767 bc
Bravo Ultrex 1.4 lb	1,2,7	208.8 a	1.3 b	3596 c
Folicur 3.6F 0.45 pt	3,4,5,6			
Bravo Ultrex 1.4 lb	1,2,4,5,6,7	184.8 b	0.8 b	3953 abc
Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	3			
Bravo Ultrex 1.4 lb	1,2,7	181.5 bc	0.8 b	3882 abc
Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	3,4,5,6			
Bravo Ultrex 1.4 lb	1,2,4,6,7	175.5 c	1.4 b	4206 a
Abound 2SC 1.15 pt	3,5			
Bravo Ultrex 1.4 lb	1,2,4,6,7	175.9 c	1.4 b	4146 ab
Headline 2.09EC 9.0 fl oz	3,5			
Bravo Ultrex 1.4 lb	1,2,6,7	174.7 c	0.6 b	4253 a
Abound 2SC 1.15 pt	3,5			
Folicur 3.6F	4			

[1]LS AUDPC refers to area under the disease progress curve for early and late leaf spot.
[2]Southern stem rot (SSR) incidence is expressed as the number of disease loci or hits per 60 feet of row.
[3]Fungicide applications were made on 1 = June 30, 2 = July 14, 3 = July 28, 4 = August 11, 5 = August 25, 6 = September 8, and 7 = September 22.
[4]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 (LSD) test ($P \leq 0.05$).

Table 3. Leaf spot severity, southern stem rot incidence. and yield for each fungicide program by peanut cultivar, WREC

Fungicide Program and Peanut Cultivar	——Leaf Spot—— Final Rating[1]	AUDPC[2]	SSR Incidence[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb/A Program				
Andru II	4.9	192.5 cd[4]	1.8 bc	3491 fg
Carver	4.9	187.1 cde	2.3 abc	4308 abcd
DP-1	4.5	181.7 cdefg	4.0 a	3503 fg
Folicur 3.6F 0.45 pt/A Program				
Andru II	6.0	229.5 a	0.5 bc	3104 g
Carver	6.6	211.0 b	1.8 bc	3830 cdef
DP-1	6.0	185.9 cdef	1.8 bc	3854 cdef
Bravo Ultrex 1.4 lb/A + Moncut 70DF 1.4 lb/A Program				
Andru II	5.1	193.6 c	1.0 bc	3751 defg
Carver	5.0	186.3 cdef	0.8 bc	4253 abcde
DP-1	3.9	174.6 efg	0.8 bc	3854 cdef
Bravo Ultrex 1.4 lb/A + Moncut 70DF 0.4 lb/A Program				
Andru II	4.6	191.1 cd	0.3 c	3576 efg
Carver	5.1	178.2 defg	0.8 bc	4187 bcdef
DP-1	4.4	175.3 efg	1.5 bc	3884 cdef
Abound 2SC 1.15 pt/A Program				
Andru II	4.5	179.9 cdefg	0.3 c	4096 bcdef
Carver	4.9	170.7 g	1.5 bc	4630 ab
DP-1	4.4	175.8 efg	2.5 ab	3999 bcdef
Headline 2.09EC 9 fl oz/A Program				
Andru II	4.1	170.7 g	1.5 bc	3987 bcdef
Carver	4.4	173.4 efg	1.3 bc	4489 abc
DP-1	4.1	183.8 cdefg	1.5 bc	3963 bcdef
Abound 2SC 0.75 pt/A/Folicur 3.6F 0.45 pt/A Program				
Andru II	5.0	171.4 fg	0.8 bc	4132 bcdef
Carver	5.6	170.0 g	0.8 bc	4943 a
DP-1	5.5	182.8 cdefg	0.3 c	3685 defg

[1]The final leaf spot rating for Andru II, Carver, and DP-1 were taken on October 6, October 14, and October 27, respectively and the ANOVA and LSD for the LS rating for each cultivar were calculated separately.

[2]LS AUDPC refers to area under the disease progress curve for early and late leaf spot.

[3]Southern stem rot (SSR) incidence is expressed as the number of disease loci per 60 feet of row.

[4]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 (LSD) test ($P \leq 0.05$).

RECOMMENDED CALENDAR AND AU-PNUT ADVISORY FUNGICIDE PROGRAMS FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT IN AN IRRIGATED PRODUCTION SYSTEM, WREC

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

Objective: To determine whether application interval has a significant impact on the control of early leaf spot and southern stem rot on a disease-resistant peanut cultivar with recommended fungicides and to compare their efficacy in a recommended calendar program with that obtained by scheduling applications with the AU-Pnut leaf spot advisory in an irrigated production system.

Methods: On May 14, the peanut cultivar DP-1 [maturity group 5], which is partially resistant to late leaf spot and southern stem rot (SSR), was planted at a rate of 5 to 6 seeds per foot of row using conventional tillage practices in a Dothan fine sandy loam (OM < 1 percent) soil. The site was subsoiled and turned on March 26. The test area was not irrigated. A randomized complete block design with four replications per fungicide treatment regime was used.

Plots consisted of four 30-foot rows spaced 3 feet apart. On April 17, a tank mix of Sonolan at 1 quart per acre plus Strongarm at 0.45 ounces per acre were broadcast for pre-emergence weed control and lightly incorporated. Select herbicide at 8 ounces per acre and 1 quart per acre of crop oil were applied for postemergent weed control. Escape weeds were pulled by hand and controlled by cultivating the row middles on July 11 with flat sweeps. Temik 15G at 6.7 pounds per acre was placed in furrow for thrips control. 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 gallons per acre of spray volume.

Applications were made on June 16, June 30, July 14, July 28, August 11, August 25, and September 8 on the 14-day calendar schedule; June 16, July 7, July 28, August 18, and September 8 on the 21-day schedule; and on July 16, July 14, August 11, and September 8. Fungicides were applied according to the AU-Pnut leaf spot advisory on June 16, June 30, July 14, August 4, August 14, and August 28. On July 31, August 14, August 28, September 8, and September 25, early and late leaf spot (LS) were rated simultaneously 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.

The LS data recorded on September 25 is presented in the table. Southern stem rot (SSR) loci counts, where one locus is defined as ≤ 1 foot of consecutive SSR damaged plants per row, were made immediately after plot inversion on October 13. The windrows were picked on October 15 with a field combine and yields reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: Monthly rainfall totals were well above the historical average for June and July, average for May and August, and below average for September and October.

With all fungicide regimes, significant increases in leaf spot severity were seen when the application interval was lengthened from 14- to 21-days and the number of fungicide applications reduced from seven to five (see table). The leaf spot ratings for the 21- and 28-day Bravo Ultrex and the same Folicur 3.6F programs did not significantly differ. However, better leaf spot control was obtained with the 28-day than with the 21-day Abound 2SC program. With one fewer fungicide application, the AU-Pnut advisory program for Bravo Ultrex alone, Abound 2SC, and Folicur 3.6F did not control leaf spot as well as recommended the seven-application, 14-day schedule with these same fungicide programs. When applied on a 14-day schedule, the Folicur 3.6F and Abound 2SC programs gave better leaf spot control than Bravo Ultrex alone. The incidence of SSR was similar across all application intervals for the season-long Bravo Ultrex and Folicur 3.6F programs. For the Abound 2SC program, peanuts treated at 14- and 28 day intervals suffered less SSR damage than those treated on a 21-day schedule and according to the AU-Pnut advisory. Despite significant differences in leaf spot severity, application interval and the AU-Pnut advisory had no impact on

the yield response obtained with the season-long Bravo Ultrex and Folicur 3.6F regimes. In contrast, the superior disease control given by the 14- and 28-day schedules for the Abound 2SC regime resulted in significant yield gains compared to the 21-day schedule for the same fungicide program.

CALENDAR AND AU-PNUT ADVISORY SCHEDULES WITH RECOMMENDED FUNGICIDE PROGRAMS COMPARED FOR LEAF SPOT AND SOUTHERN STEM ROT CONTROL AS WELL AS PEANUT YIELD[1]

Fungicide Regime and Rate/A	Schedule	Application Timing (DAP[2])	LS Rating	SSR[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb	14-day	33, 47, 61, 75 , 89, 103, 116	3.8 f [4]	7.5 a	3703 b
Bravo Ultrex 1.4 lb	21-day	33, 54, 75, 96, 116	5.5 a	5.8 abc	3666 b
Bravo Ultrex 1.4 lb	28-day	33, 61, 89, 116	5.0 abc	4.5 cde	3709 b
Bravo Ultrex 1.4 lb	AU-Pnut[5]	33, 47, 61, 92, 103, 117	4.8 bcd	5.8 abc	3588 b
Bravo Ultrex 1.4 lb	14-day	33, 47, 116	3.0 g	4.3 cde	3745 b
Folicur 3.6F 0.45 pt		61, 75, 89, 103			
Bravo Ultrex 1.4 lb	21-day	33, 116	5.0 abc	5.8 abc	3703 b
Folicur 3.6F 0.45 pt		54, 75, 96			
Bravo Ultrex 1.4 lb	28-day	33, 116	4.3 def	5.3 bcd	3908 b
Folicur 3.6F 0.45 pt		61, 89			
Bravo Ultrex 1.4 lb	AU-Pnut	33, 47, 117	4.5 cde	5.0 bcd	3678 b
Folicur 3.6F 0.45 pt		61, 92, 103			
Bravo Ultrex 1.4 lb	14-day	33, 47, 75 , 103, 116	3.0 g	3.5 de	4459 a
Abound 2SC 1.2 pt		61, 89			
Bravo Ultrex 1.4 lb	21-day	33, 75, 116	5.3 ab	6.5 ab	3745 b
Abound 2SC 1.2 pt		54, 96			
Bravo Ultrex 1.4 lb	28-day	33, 116	4.0 ef	2.8 e	4538 a
Abound 2SC 1.2 pt		61, 89			
Bravo Ultrex 1.4 lb	AU-Pnut	33, 47, 103, 117	4.0 ef	5.8 abc	4078 ab
Abound 2SC 1.2 pt		61, 92			

[1]Peanut cultivar was DP-1.

[2]DAP = days after planting when fungicide applications were made.

[3]Southern stem rot [white mold] incidence was expressed as the number of SSR loci or hits per 60 feet of row.

[4]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 ($P \leq 0.05$)

[5]AU-Pnut disease advisory rules specify that the first fungicide application be made immediately after six or more rain events (≥ 0.1 inch) and the second and subsequent applications immediately after no more than three rain events.

IMPACT OF FUNGICIDE INPUTS ON DEVELOPMENT OF TSWV, EARLY LEAF SPOT, AND SOUTHERN STEM ROT AND ON YIELD OF SELECTED COMMERCIAL PEANUT LINES, WREC

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

Objective: To assess the impact of fungicide inputs on the development of early leaf spot, and southern stem rot, as well as the incidence of tomato spotted wilt on commercial runner-type peanut lines.

Methods: On May 28, commercial runner-type peanut lines were planted at a rate of approximately 6 seeds per foot of row in a field maintained in a peanut-cotton-peanut rotation pattern using conventional tillage practices in a Dothan fine sandy loam (OM < 1 percent). A split plot design with peanut lines as whole plots and fungicide treatment 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 plot. The test site was sub-soiled and turned on March 26. On April 17, 1 quart per acre Sonolan plus 0.45 ounces per acre Strongarm was broadcast for pre-emergent weed control and lightly incorporated with a disk harrow. Postemergent grass control was provided by a full canopy broadcast application of 8 ounces per acre Select herbicide plus 1 quart per acre crop oil concentrate. Escape weeds were pulled by hand and controlled on July 11 by cultivating the row middles with flat sweeps. Temik 15G at 13.3 pounds per acre was banded over the open seed furrow AP for the control of thrips and nematodes. Due to adequate rainfall, the plot area was not irrigated. Full canopy applications of each fungicide were made on 1 = June 30, 2 = July 14, 3 = July 28, 4 = August 11, 5 = August 25, 6 = September 8, and 7 = September 22 with a tractor-mounted boom sprayer with three TX-8 nozzles per row in 15 gallons per acre spray volume. Incidence of tomato spotted wilt (TSWV) was rated on September 14, September 22, and October 7 on the early, mid-season, and late maturing peanut lines, respectively, by counting the number of TSWV loci (one locus was defined as ≤ 1 foot of consecutive symptomatic plant(s)).

Early and late leaf spot were rated simultaneously using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots noticeable in lower and upper leaf canopy, 4 = some leaf spots in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spotting noticeable with some defoliation (≤ 25 percent), 6 = leaf spots numerous with significant defoliation (≤ 50 percent), 7 = leaf spots numerous with heavy defoliation (≤ 75 percent), 8 = heavy leaf spotting with severe defoliation (≤ 90 percent), 9 = very few remaining leaves heavily spotted, and 10 = plants defoliated or dead. Leaf spot (LS) ratings were recorded on the early, mid-season, and late maturing peanut lines on September 22, October 9, and October 14, respectively. Southern stem rot (SSR) loci counts (one locus was defined as ≤ 1 foot of consecutive symptomatic plant(s)) were recorded for the early, mid-season, and late maturing peanut lines on September 22, October 9, and October 14, respectively. Plots were harvested with a field combine several days after plot inversion. Yields are reported at 7 percent moisture. Significance of treatment effects were tested by ANOVA and Fisher's protected least significant difference test ($P \leq 0.05$). Since the cultivar x fungicide treatment interaction for leaf spot, SSR, TSWV, and yield were not significant; data presented in the table was pooled or averaged for each variable across peanut lines (Table 1) and fungicide treatments (Table 2). Due to flooding, the plots in one replication were abandoned.

TABLE 1. YIELD RESPONSE AND DISEASE CONTROL GIVEN BY RECOMMENDED FUNGICIDE PROGRAMS ON SELECTED RUNNER PEANUT CULTIVARS

Fungicide Program	TSWV[1]	LS Rating[2]	SSR[3]	Yield (lb/A)
Bravo Ultrex	11.6 a[4]	5.9 a	5.1 a	2636 b
Bravo Ultrex/Folicur 3.6F	12.8 a	6.2 a	4.2 a	2573 b
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	10.9 a	4.3 b	4.3 a	2934 a

[1]TSWV incidence is expressed as the number of disease loci or hits per 60 feet of row.
[2]Leaf spot diseases were rated using the Florida leaf spot 1-10 scoring system.
[3]Southern stem rot (white mold) incidence is expressed as the number of SSR loci or hits per 60 feet row.
[4]Means in each column that are followed by the same letter are not significantly different according to ANOVA and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Table 2. Reaction of selected runner peanut cultivars to TSWV, leaf spot diseases, and southern stem rot and the impact of these diseases on pod yield

Peanut Line	Maturity Group	TSWV[1]	LS Rating[2]	SSR[3]	Yield (lb/A)
AP-3	Mid-season	7.6 c[4]	5.2 cd	1.4 d	2401 d
Andru II	Early	7.6 c	5.7 bc	5.2 bc	3756 a
Carver	Mid-season	12.9 b	6.3 a	9.3 a	2576 d
DP-1	Late	12.9 b	4.8 de	--[5]	--
Florida C-99R	Late	17.1 a	5.3 cd	2.8 cd	3055 b
GA 01R	Late	10.6 c	4.3 e	2.6 cd	3041 bc
GA 02C	Mid-season	7.6 c	5.9 ab	1.4 d	2584 d
Georgia Green	Mid-season	18.3 a	6.2 ab	7.5 ab	1667 e
Hull	Late	17.0 a	4.9 d	--	--
Norden	Mid-season	8.9 c	6.1 a	6.9 ab	2635 cd

[1]TSWV incidence is expressed as the number of disease loci or hits per 60 feet of row.
[2]Leaf spot diseases were rated using the Florida leaf spot 1-10 scoring system.
[3]Southern stem rot (white mold) incidence is expressed as the number of SSR loci or hits per 60 feet row.
[4]Means in each column that are followed by the same letter are not significantly different according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).
[5]-- = no data on SSR incidence or yield for DP-1 and Hull due to poor stand.

Results: Monthly rainfall totals were equal to or higher than the historical average in June and July, average for May and August, but below average for September and October.

Across all peanut lines, fungicide program inputs did not have a significant impact on the incidence of TSWV and surprisingly SSR (Table 1). In contrast, the best leaf spot control was provided by the Bravo Ultrex/Folicur 3.6F/Headline 2.09EC program. Leaf spot damage levels on the peanuts treated with Bravo Ultrex alone or Bravo Ultrex/Folicur 3.6F program was similar. As indicated by leaf spot ratings of approximately 6.0, both of these fungicide programs failed to prevent considerable leaf spot development and subsequent premature defoliation. In contrast, light to moderate leaf spotting with limited defoliation was seen on the BravoUltrex/Folicur 3.6F/Headline 2.09EC-treated peanuts. Overall, yields obtained with the three fungicide programs reflect the level of leaf spot control provided by those programs. Peanuts protected from leaf spot diseases with the BravoUltrex/Folicur 3.6F/Headline 2.09EC significantly outyielded those receiving Bravo Ultrex alone or Bravo Ultrex/Folicur 3.6F treatments. Yield response to the Bravo Ultrex and the Bravo Ultrex/Folicur 3.6F programs was similar.

Significant differences in the incidence of TSWV and SSR, as well as the severity of leaf spot diseases were noted between the 10 peanut cultivars (Table 2). Incidence of TSWV was significantly lower on AP-3, Andru II, GA 01R, GA 02C, and Norden compared with the other peanut lines, particularly the current standard Georgia Green. Florida C-99R, Georgia Green, and Hull suffered the highest incidence of this disease. Early leaf spot was much more common on all peanut lines than late leaf spot. The heaviest leaf spotting and premature defoliation was seen on Carver, GA 02C, Georgia Green, and Norden. With early leaf spot ratings of 5.9 or higher, considerable leaf spotting, as well as defoliation levels of nearly 25 percent or higher were observed on these four peanut lines. The least early leaf spot development was seen on GA 01R. The poor stands for Florida C-99R and Hull may be largely responsible for their low leaf spot ratings. The mid-season peanuts Carver, Georgia Green, and Norden had higher SSR damage ratings than nearly all of the other peanut lines. Very low SSR hit counts were recorded for AP-3, Florida C-99R, GA02C, and GA 01R. Despite moderate early leaf spot and SSR damage ratings, Andru II had the highest yield of the 10 peanut lines. High ratings for at least two diseases contributed to the low yields for Carver, Norden, and particularly the current industry standard Georgia Green peanut. Other peanut lines with yields similar to those for Carver and Norden included AP-3 and GA 02C. Wet soil conditions for much of July and August may have contributed to the relatively low yields for some cultivars.

Data for TSWV, leaf spot, SSR, and yield are broken down by fungicide program and peanut line in Table 3. As previously indicated, fungicide program had little if any influence on the incidence of TSWV and SSR on any of the 10 peanut lines (Table 3). With the exception of AP-3, the program that included Headline 2.09EC gave considerably better control of early leaf spot than the other two fungicide programs. Most notable was the reduction in the level of defoliation obtained with the Headline 2.09EC program on the more leaf spot susceptible lines such as Andru II, Carver, GA 02C, Georgia Green, and Norden. While the Headline-treated plots for nearly all peanut lines had numerically higher yields than those receiving Bravo Ultrex alone or Bravo Ultrex/Folicur, those differences on most peanut lines often were not significant.

TABLE 3. DISEASE RATINGS FOR SELECTED RUNNER PEANUT CULTIVARS, BROKEN DOWN BY FUNGICIDE PROGRAM, WREC

	Disease Ratings			Yield
Peanut Line	TSWV[1]	Leaf Spot[2]	SSR[3]	(lb/A)
AP-3				
Bravo Ultrex	7.7 hij[4]	5.3 defg	1.0 h	2275 fgh
Bravo Ultrex/Folicur 3.6F	7.7 hij	5.7 cdef	1.0 h	2130 gh
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	7.3 hij	4.7 fghi	2.3 gh	2799 bcdefg
Andru II				
Bravo Ultrex	8.7 hij	6.3 abcd	6.7 abcdefg	3509 ab
Bravo Ultrex/Folicur 3.6F	7.3 hij	6.3 abcd	4.3 defgh	3799 a
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	6.7 ij	4.3 ghi	4.7 defgh	3961 a
Carver				
Bravo Ultrex	12.3 cdefghi	6.8 ab	10.0 ab	2428 defg
Bravo Ultrex/Folicur 3.6F	10.0 ghij	7.0 a	8.3 abcd	2243 fgh
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	16.3 abcdefg	5.2 efg	9.7 abc	3057 bcd
DP-1				
Bravo Ultrex	10.7 fghi	5.0 efgh	--[5]	--
Bravo Ultrex/Folicur 3.6F	11.7 defghi	5.7 cdef	--	--
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	16.3 abcdefg	3.7 ij	--	--
Florida C-99R				
Bravo Ultrex	18.7 abc	5.8 bcde	3.0 fgh	2888 bcdef
Bravo Ultrex/Folicur 3.6F	20.3 a	6.3 abcd	1.7 h	2751 cdefg
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	12.3 cdefghi	3.7 ij	3.7 defgh	3525 ab
GA 01R				
Bravo Ultrex	8.5 hij	4.8 efgh	1.7 h	3025 bcde
Bravo Ultrex/Folicur 3.6F	13.0 bcdefghi	5.0 efg	3.3 efgh	2872 bcdef
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	9.7 ghij	3.0 j	2.7 gh	3227 abc
GA 02C				
Bravo Ultrex	8.0 hij	6.5 abc	2.0 gh	2630 cdefg
Bravo Ultrex/Folicur 3.6F	10.3 fghij	6.5 abc	1.0 h	2235 fgh
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	4.3 j	4.8 efgh	1.3 h	2888 cdef
Georgia Green				
Bravo Ultrex	17.7 abcde	6.8 ab	10.5 a	1565 hi
Bravo Ultrex/Folicur 3.6F	19.7 ab	6.7 abc	6.5 abcdefg	2258 fgh
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	17.7 abcde	5.2 efg	5.5 bcdefgh	1178 i
Hull				
Bravo Ultrex	17.0 abcdef	5.2 efg	--	--
Bravo Ultrex/Folicur 3.6F	18.5 abcd	5.7 cdef	--	--
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	14.0 abcdefgh	4.0 hij	--	--
Norden				
Bravo Ultrex	9.0 hij	6.7 abc	7.7 abcdef	2797 cdefg
Bravo Ultrex/Folicur 3.6F	11.0 efghij	6.8 ab	8.0 abcde	2299 efgh
Bravo Ultrex/Folicur 3.6F/Headline 2.09EC	6.7 ij	4.8 efgh	5.0 cdefgh	2840 cdefg

[1]TSWV incidence is expressed as the number of disease loci or hits per 60 feet of row.

[2]Leaf spot diseases were rated using the Florida leaf spot 1-10 scoring system.

[3]Southern stem rot (white mold) incidence is expressed as the number of SSR loci or hits per 60 feet of row.

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

[5]-- = no data on SSR incidence or yield for DP-1 and Hull due to poor stand.

EFFICACY OF ABOUND 2SC FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT ON PEANUT WHEN APPLIED ON A CALENDAR SCHEDULE AND ACCORDING TO THE AU-PNUT ADVISORY, WREC

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

Objective: To assess whether fungicide inputs can be reduced by lengthening application intervals or adopting the standard or modified AU-Pnut disease advisory without sacrificing the efficacy of a Bravo Ultrex/Abound 2SC program for the control of leaf spot diseases or southern stem rot, as well as jeopardizing the yield of the partially disease resistant peanut line DP-1.

Methods: On May 14, the late maturing (group 5) peanut line DP-1, which has partial resistance to late leaf spot and southern stem rot (SSR) was planted at a rate of 5 to 6 seeds per foot of row in a field maintained in a peanut-cotton-peanut rotation using conventional tillage practices in a Dothan fine sandy loam (< 1 percent OM). A randomized complete block design with four replications per treatment schedule was used. Plots consisted of four 30-foot rows spaced 3 feet apart. In late March, the plot area was sub-soiled and turned. Approximately one month before planting, a pre-emergent application of 1quart per acre Sonolan plus 0.45 ounces per acre Strongarm was broadcast and lightly incorporated. Postemergent grass control was provided by a broadcast application of 8 ounces per acre Select plus 1 quart per acre of a crop oil concentrate. Thrips control was obtained with an in-furrow AP treatment of 6.5 pounds per acre Temik 15G. Escape weeds were pulled by hand or killed by cultivating the row middles with flat sweeps in July. Due to frequent rainfall, irrigation was not needed.

Fungicides were applied on a 14-, 21-, and 28-day calendar schedule, as well as according to the standard 6/3 (number of rain events [≥ 0.10 inch] triggering the first fungicide application/number of rain events triggering subsequent applications) and modified 8/4 and 10/5 AU-Pnut leaf spot advisory. Applications were made on the 14-day calendar schedule on June 30, July 14, July 28, August 11, August 25, and on September 8; while the treatment dates for the 21-day calendar schedule were June 16, July 7, July 28, August 18, and September 8; and June 16, July 14, August 11, and September 8 for the 28-day calendar program. Fungicide applications were triggered by the 6/3 and 8/4 AU-Pnut advisory on July 3, July 31, August 14, and August 28and on July 3, August 4, August 14, and August 28 for the 10/5 advisory. In all of the calendar programs, applications of Abound 2SC at 18.2 fluid ounces per acre were made approximately 60 and 90 days after planting. A tractor-mounted boom sprayer with three TX-3 hollow cone nozzles per row that was calibrated to deliver 15 gallons per acre of spray volume was used to apply all fungicide treatments.

Early and late leaf spot were rated together using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few lesion in lower canopy, 3 = few lesions in lower and upper 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 leaves with severe defoliation (≤ 90 percent), 9 = few remaining leaves covered with lesions and severe defoliation (≤ 95 percent), and 10 = plants defoliated or dead. Leaf spot (LS) ratings were recorded on July 31, August 14, August 28, September 9, and September 25 and the AUDPC for each treatment schedule was calculated. Southern stem rot (SSR) loci or hit counts, where one locus is defined as ≤ 1 foot of consecutive SSR-damaged plants per row, were made immediately after plot inversion on October 13. Windrows were combined on October 16. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference test ($P \leq 0.05$).

Results: Monthly rainfall totals were well above the historical average for June and July, average for May and August, and below average for September and October.

When compared to the recommended 14-day calendar schedule, the level of leaf spotting that was noted on September 25 was similar to that obtained with the 6/3, 8/4, and 10/5 AU-Pnut leaf spot advisory, as well as the 21- and 28-day calendar schedules (see table). Scheduling applications according to the 6/3 and 8/4 advisories resulted in a significant improvement in disease control than was provided by 21- and 28-day treatment schedules along with the 10/5 AU-Pnut advisory. In contrast to the final leaf spot ratings, the AUDPC for leaf spot diseases for all of the calendar schedules, as well as the 6/3 and 8/4 AU-Pnut advisory programs were significantly below those recorded

for the 10/5 advisory. Highest SSR incidence was noted in the plots treated according to the 10/5 AU-Pnut. In addition, better SSR control was obtained with the 6/3 AU-Pnut advisory than the 14-day calendar schedule. Yield in the plots treated according to the 6/3 and 8/4 AU-Pnut advisories were similar to those noted for the 14- and 21- day calendar schedules and significant above those reported for the 28-day calendar schedule. Despite significant differences in leaf spot and SSR control, the yield response to the modified 6/3 and 10/5 AU-Pnut advisories was similar.

COMPARISON OF CALENDAR TREATMENT SCHEDULES WITH THE STANDARD AND MODIFIED AU-PNUT LEAF SPOT ADVISORY PROGRAMS ON THE CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT[1]

Program and Rate/A	——Application—— Schedule	DAP[2]	——Leaf Spot—— Rating	AUDPC[3]	SSR[4]	Yield (lb/A)
Bravo Ultrex 1.4 lb Abound 2SC 18.2 fl oz	14-day	33, 47, 61, 89 103, 116	3.5 ab[5]	154.8 b	6.0 b	4495 ab
Bravo Ultrex 1.4 lb Abound 2SC 18.2 fl oz	21-day	33, 54, 75, 96 116	3.8 a	163.5 b	4.0 bc	4792 ab
Bravo Ultrex 1.4 lb Abound 2SC 18.2 fl oz	28-day	33, 61, 89, 116	4.0 a	165.5 b	8.8 a	4084 b
Bravo Ultrex 1.4 lb Abound 2SC 18.2 fl oz	6/3[6]	50, 81, 95, 109	3.0 b	161.0 b	3.3 c	4895 a
Bravo Ultrex 1.4 lb Abound 2SC 18.2 fl oz	8/4	50, 81, 95, 109	3.0 b	162.8 b	5.0 bc	4998 a
Bravo Ultrex 1.4 lb Abound 2SC 18.2 fl oz	10/5	50, 85, 95, 109	3.8 a	185.8 a	5.5 bc	4404 ab

[1]Peanut variety was DP-1.
[2]DAP = days after May 14 planting date when fungicide applications were made.
[3]AUDPC = area under the disease progress curve for leaf spot diseases.
[4]Southern stem rot (SSR incidence) is expressed as the number of disease loci or hits per 60 feet of row in each plot.
[5]Means in each column that are followed by the same letter is according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).
[6]Number of rain events ($\geq$ 0.10 inch) in a standard and modified AU-Pnut advisory required to trigger first fungicide application/number of rain events need to trigger the second and all subsequent fungicide applications.

EFFICACY OF RECOMMENDED FUNGICIDE PROGRAMS FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT IN A DRYLAND PRODUCTION SYSTEM WHEN APPLIED ON A CALENDAR SCHEDULE AND ACCORDING TO AU-PNUT ADVISORY, WREC

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

Objective: To compare the efficacy of recommended fungicides applied according to the calendar and the AU-Pnut advisory for the control of leaf spot diseases and southern stem rot, as well as on the yield of selected peanut cultivars in a dryland production system.

Methods: On May 16, Virugard [maturity group 3], Georgia Green [maturity group 4], and Florida C-99R [maturity group 5] peanut lines were planted at a rate of approximately 6 seeds per foot of row using conventional tillage practices in a Dothan fine sandy loam (< 1 percent OM). 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, which consisted of four 30-foot rows spaced 3 feet apart, were randomized within each whole plot. In late March, the test area was sub-soiled and turned. Sonolan at 1.0 quart per acre and Strongarm at 0.45 ounces per acre were broadcast for pre-emergence weed control and then lightly incorporated. Post-plant applications of 8 ounces per acre of Select herbicide and 1 quart per acre of Crop Oil were made on June 23 and July 10. Escape weeds were pulled by hand and controlled by cultivating the row middles with flat sweeps. Temik 15G at 6.7 pounds per acre was applied in-furrow for thrips control. Karate Z at 2.0 ounces per acre was broadcast on June 2 and July 28 for control of thrips and leafhopper control. The test area was not irrigated.

On each peanut line, fungicides were applied on a 14-day calendar schedule as well as according to the 6/3 (number of rain events triggering first fungicide application per number of rain events triggering subsequent applications) AU-Pnut leaf spot advisory with a tractor-mounted boom sprayer with three TX-8 nozzles per row in 15 gallons per acre spray volume. Fungicides were applied on a 14-day schedule on June 16, June 30, July 14, July 28, August 11, August 25, and September 8. Applications scheduled according to the AU-Pnut leaf spot advisory were made on July 3, July 14, July 31, August 14, and August 28. A total of 7 and 6 fungicide applications were made to the plots treated at 14-day intervals and according to the AU-Pnut advisory, respectively.

Early and late leaf spot (LS) were rated simultaneously 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. The AUDPC was calculated from the leaf spot ratings taken on July 31, August 14, August 28, and September 9.

Counts of southern stem rot (SSR) loci, where one locus is defined as ≤ 1 foot of consecutive SSR-damaged plants per row, were made immediately after plot inversion on September 17 for Virugard, September 25 for Georgia Green, and October 9 for Florida C-99R. Plots were picked 2 to 8 days later with a field combine and yields were reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$). Since the peanut cultivar x treatment interaction for leaf spot, SSR, and yield were not significant, data for peanut cultivars and fungicide programs presented in Table 1 and 2, respectively, was pooled. However, the ratings for leaf spot and southern stem rot along with yields are broken down by fungicide program and peanut cultivar in Table 3.

Results: Monthly rainfall totals were higher than the historical average in June and July, at or just below average for May and August, and well below average in September and October.

The reaction of Virugard, Georgia Green, and Florida C-99R to leaf spot diseases and SSR significantly differed (Table 1). The leaf spot rating recorded on September 9, as well as the AUDPC for Florida C-99R was significantly lower than those noted for the other two peanut cultivars. While the final leaf spot rating for Georgia Green was below that of Virugard, the susceptibility of both cultivars to leaf spot, as indicated by similar AUDPC values, did not significantly differ. In addition less susceptibility to leaf spot diseases, Florida C-99R suffered significantly less SSR damage than did Virugard or Georgia Green. The incidence of SSR on the latter two peanut cultivars was similar. Yield of Georgia Green was significantly lower than those recorded for Virugard and Florida C-99R.

When applied on a 14-day calendar schedule, the Abound 2SC, Folicur 3.6F, Bravo Ultrex, and Headline 2.09EC programs gave significantly better control of leaf spot diseases than when the same fungicides were applied according to the AU-Pnut leaf spot advisory (Table 2). Among the four 14-day calendar regimes, the Folicur 3.6F program was less effective in providing season-long leaf spot control compared with those that included applications of Headline 2.09EC and Abound 2SC, but similar to efficacy of Bravo Ultrex alone. Of the AU-Pnut regimes, the Headline 2.09EC advisory program gave the best control of leaf spot diseases. The Folicur 3.6F, Headline 2.09EC, and Bravo Ultrex calendar and advisory programs gave similar control of SSR. Surprisingly, the Abound 2SC AU-Pnut advisory program proved more effective in controlling SSR than the calendar program with the same fungicide. Among the four calendar treatment regimes, the best SSR control was obtained with the Folicur 3.6F program, while the level of disease control obtained with the Abound 2SC, Headline 2.09EC, and Bravo Ultrex programs was similar. Differences in yield noted between the calendar and AU-Pnut regimes for the Folicur 3.6F, Headline 2.09EC, and Bravo Ultrex programs were not significant. In contrast, the Abound 2SC calendar program had significantly higher yields compared with the AU-Pnut advisory program with the same fungicide. Yield for the Abound 2SC calendar program was significantly higher than those for the Bravo Ultrex program and similar to those obtained with the Folicur 3.6F and Headline 2.09EC programs.

Ratings for leaf spot and southern stem rot along with yields are summarized by fungicide program and peanut cultivar in Table 3.

TABLE 1. YIELD RESPONSE AND REACTION OF SELECTED PEANUT CULTIVARS TO LEAF SPOT DISEASES AND SOUTHERN STEM ROT AVERAGED ACROSS ALL FUNGICIDE TREATMENTS

Cultivar	Maturity Group[1]	——Leaf Spot——		SSR Incidence[4]	Yield (lb/A)[5]
		Rating[2]	AUDPC[3]		
Virugard	3	4.5 a	137.4 a	5.0 a	4048 a
Georgia Green	4	4.1 b	134.7 a	5.2 a	3516 b
Florida C-99R	5	3.5 c	121.5 b	3.7 b	4001 a

[1]Pod maturity occurs in 126-140 DAP, 130 to 145 DAP, and 140 to 165 DAP for maturity group 3, 4, and 5 peanut lines, respectively. [2]Leaf spot was rated using the Florida 1-10 leaf spot scoring system.
[3]AUDPC refers to area under the disease progress curve for leaf spot diseases.
[4]Southern stem rot (SSR) incidence is expressed as the number of disease loci or hits per 60 feet of row.
[5]Means followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant (LSD) test ($P \leq 0.05$).

TABLE 2. COMPARISON OF CALENDAR AND AU-PNUT APPLICATION SCHEDULES WITH RECOMMENDED FUNGICIDE PROGRAMS FOR THE CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, AS WELL AS POD YIELDS AVERAGED ACROSS THREE PEANUT CULTIVARS

Program and Rate/A	——Application——		——Leaf Spot——		SSR[4]	Yield
	Schedule	Date (DAP)[1]	Rating[2]	AUDPC[3]		(lb/A)
Bravo Ultrex 1.4 lb Abound 2SC 1.15 pt	14-day	31,45,73,101,115 59,87	3.5 d[5]	119.3 de	5.0 b	4169 a
Bravo Ultrex 1.4 lb Abound 2SC 1.15 pt	AU-Pnut	49,77,105 60,91	4.0 bc	135.3 b	3.3 c	3685 cd
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	14-day	31,45,115 59,73,87,101	4.3 b	129.9 bc	2.9 c	4118 ab
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	AU-Pnut	49 60,77,91,105	4.8 a	146.3 a	3.1 c	3695 bcd
Bravo Ultrex 1.4 lb	14 day	31,45,59,73,87,101,115	3.7 cd	122.5 cde	5.5 ab	3705 bcd
Bravo Ultrex 1.4 lb	AU-Pnut	49,60,77,91,105	5.0 a	154.0 a	6.9 a	3364 d
Bravo Ultrex 1.4 lb Headline 2.09EC 6.4 fl oz	14 day	31,45,73,101,115 59,87	3.4 d	115.8 e	4.9 b	4070 abc
Bravo Ultrex 1.4 lb Headline 2.09EC 6.4 fl oz	AU-Pnut	49,77,105 60,91	3.6 cd	126 cd	5.3 b	4092 abc

[1]DAP = days after planting. [2]Leaf spot was rated using the Florida 1-10 leaf spot scoring system.
[3]AUDPC refers to the area under the disease progress curve. [4]Southern stem rot (SSR) incidence is expressed as the number of disease loci or hits per 60 feet of row. [5]Means in each column followed by the same letter were not significantly different according to analysis of variance and Fisher's protected least significant (LSD) test ($P \leq 0.05$).

Table 3. Disease ratings for leaf spot and southern stem rot along with yield data for each fungicide program and peanut cultivar, WREC

	——Leaf Spot——		SSR	Yield
Fungicide Regime	Rating[1]	AUDPC[2]	Incidence[3]	(lb/A)
Abound 2SC Calendar Program				
Virugard	4.3 cdef[4]	127.3 defgh	5.3 abcd	4453 ab
Georgia Green	3.3 gh	117.8 fgh	5.3 abcd	3816 bcdefg
Florida C-99R	3.0 h	113.0 h	4.5 bcde	4090 bcdef
Abound 2SC AU-Pnut Program				
Virugard	4.8 abc	145.5 bc	4.0 cde	3987 bcdef
Georgia Green	3.8 efgh	134.3 cde	3.0 de	3364 fgh
Florida C-99R	3.5 fgh	127.8 defgh	2.8 de	3703 cdefg
Folicur 3.6F Calendar Program				
Virugard	4.3 cdef	132.3 cdef	2.8 de	4108 abcdef
Georgia Green	4.5 bcde	135.3 cde	4.0 cde	3812 bcdefg
Florida C-99R	4.0 defg	122.3 defg	2.0 e	4435 abc
Folicur 3.6F AU-Pnut Program				
Virugard	5.5 a	159.5 ab	4.3 bcde	3727 bcdefg
Georgia Green	5.0 abc	156.5 ab	2.8 de	3176 gh
Florida C-99R	3.8 efgh	122.8 defgh	2.3 e	4181 abcd
Bravo Ultrex Calendar Program				
Virugard	4.0 defg	130.5 defgh	5.5 abcd	3430 efgh
Georgia Green	3.8 efgh	122.5 defgh	6.8 abc	3545 defg
Florida C-99R	3.3 gh	114.5 gh	4.3 bcde	4138 abcde
Bravo Ultrex AU-Pnut Program				
Virugard	5.5 a	161.5 ab	8.0 a	3739 bcdefg
Georgia Green	5.3 ab	163.3 a	8.0 a	2789 h
Florida C-99R	4.3 cdef	137.3 cd	4.8 bcde	3564 defg
Headline 2.09EC Calendar Program				
Virugard	3.8 efgh	113.8 h	5.5 abcd	4852 a
Georgia Green	3.5 fgh	120.8 efgh	4.5 bcde	3787 bcdefg
Florida C-99R	3.0 h	113.0 h	4.8 bcde	3570 defg
Headline 2.09EC AU-Pnut Program				
Virugard	3.8 efgh	129.3 cdefgh	4.8 bcde	4090 bcdef
Georgia Green	3.8 efgh	127.5 defgh	7.0 ab	3914 bcdefg
Florida C-99R	3.3 gh	121.3 defgh	4.0 cde	4271 abcd

[1]Leaf spot was rated using the Florida 1-10 leaf spot scoring system.

[2]AUDPC refers to the area under the disease progress curve for leaf spot diseases.

[3]Southern stem rot (SSR) incidence is expressed as the number of disease loci or hits per 60 feet of row.

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

IMPACT OF APPLICATION RATE AND TREATMENT INTERVAL ON CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT ON PEANUT WITH HEADLINE 2.09EC, WREC

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

Objective: To assess the efficacy of Headline 2.09EC over a range of application rates and treatment intervals for the control of leaf spot diseases and southern stem rot on several peanut cultivars in an irrigated production system.

Methods: On May 16, Andru II [maturity group 3], Carver [maturity group 4], and DP-1 [maturity group 5] peanut lines were planted at a rate of approximately 6 seeds per foot of row using conventional tillage practices in a Dothan fine sandy loam (< 1 percent OM). The test site was maintained in a long-term cotton-cotton-peanut rotation. 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, which consisted of four 30-foot rows spaced 3 feet apart, were randomized within each whole plot. The site was sub-soiled and turned on March 26. On April 17, Sonolan at 1.0 quart per acre and Strongarm at 0.45 ounces per acre were broadcast for pre-emergence broadleaf weed and grass control and then lightly incorporated. Postemergence weed control was provided by applications of Select at 8 ounces per acre and 1 quart per acre Crop Oil on June 23 and July 10. Escape weeds were pulled by hand and controlled by cultivating the row middles with a flat sweep on July 11. Temik 15G at 6.7 pounds per acre was applied in-furrow for thrips control. Due to adequate rainfall throughout much of the production season, the test area was not irrigated.

On each peanut line, Headline 2.09EC was applied twice at either 9 or 15 fluid ounces per acre as part of a 14-, 21-, or 28-day calendar program with a tractor-mounted boom sprayer with three TX-8 nozzles per row in 15 gallons per acre spray volume. At total of 7, 5, and 4 fungicide applications were made to the plots treated at 14-, 21-, and 28-day intervals, respectively. Specific application dates for the 14-, 21-, and 28-day calendar schedules are listed in the footnotes for Table 2. Bravo Ultrex at 1.4 pounds per acre filled in the remaining treatment slots in each Headline 2.09EC program. A season-long Bravo Ultrex program was included as a control.

Early and late leaf spot were rated simultaneously using the Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots in the canopy, 3 = few leaf spots noticeable in lower and upper leaf canopy, 4 = some leaf spotting in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spotting noticeable 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 plants defoliated or dead. Leaf spot was assessed on Andru II, Carver, and DP-1 on September 17, September 25, and October 6, respectively.

Counts of southern stem rot (SSR) loci, where one locus is defined as ≤ 1 foot of consecutive SSR-damaged plants per row, were made immediately after plot inversion on September 17 for Andru II, September 25 for Carver, and October 9 for DP-1. Plots were picked 2 to 8 days later with a field combine and yields were reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$). Since the cultivar x treatment interaction for leaf spot, SSR, and yield were not significant, data presented in Tables 1 and 2 was pooled. However, Data for leaf spot, southern stem rot, and yield for each Headline program is broken down by peanut cultivar in Table 3.

Results: Monthly rainfall totals were similar and in some cases higher than the historical average for May, June, July, August, and September. Since the test site historically has been maintained in a cotton-cotton-peanut rotation, overall disease pressure was rated as moderate.

Of the three peanut cultivars, the least leaf spot damage was seen on Andru II (Table 1). As indicated by a disease rating of 4.2, light to moderate leaf spotting and some premature defoliation was seen on this cultivar. The leaf spot rating for DP-1 was significantly higher than that recorded for Andru II, while that for Carver was similar to both DP-1 and Andru II. Incidence of SSR was significantly higher on DP-1 compared with Andru II and Carver. Carver yielded significantly higher than Andru II and DP-1. Andru II not only suffered less disease damage than DP-1 but also had higher pod yields.

As expected, leaf spot severity intensified when the application interval was lengthened from 14 to 28 days (Table 2). When applied on a 14-day schedule, the 9- and 15-fluid ounces per acre Headline 2.09EC programs gave better leaf spot control than the same rates of this fungicide applied at either a 21- or 28-day schedule. Also, Headline 2.09EC at 9 and 15 ounces per acre provided better leaf spot control when applied on a 21-day rather than on a 28-

day schedule. Both of the 14-day Headline programs provided proved more effective in controlling leaf spot diseases than the 14-day Bravo Ultrex program. Incidence of SSR was not related to application interval or to Headline 2.09EC application rate. For both the 9 and 15 fluid ounces per acre Headline programs, similar levels of SSR damage were noted across all treatment schedules. Surprisingly, the incidence of this disease in the 14-day Bravo Ultrex calendar program plots was similar to that recorded for most of the Headline programs. At both rates of Headline 2.09EC, significant reductions in the yield were seen when the application interval was increased from 21 to 28 days. For the 15-fluid ounces per acre Headline program, yield of the peanuts treated on a 21-day schedule was higher than for those of the shorter 14-day program. Yield response obtained with both 14-day Headline programs was similar to that obtained with Bravo Ultrex alone. Despite significant differences in leaf spot control, pod yields for the 21-day Headline 2.09EC programs were similar to those recorded for both rates of this same fungicide applied on a 14-day schedule.

TABLE 1. YIELD RESPONSE AND REACTION OF SELECTED PEANUT CULTIVARS TO LEAF SPOT DISEASES AND SOUTHERN STEM ROT

Cultivar	Maturity[1]	LS Rating[2]	SSR[3]	Yield (lb/A)
Andru II	3 (early)	4.2 b[4]	5.6 b	3627 b
Carver	4 (mid-season)	4.4 ab	6.5 b	3934 a
DP-1	5 (late season)	4.6 a	8.6 a	3258 c

[1]Pod maturity for Andru II occurs approximately 126 to 140 DAP, 130 to 140 DAP for Carver, and 140 to 165 DAP for DP-1 peanut.
[2]Leaf spot severity was rated using the Florida 1-10 scoring system.
[3]SSR (white mold) incidence is expressed as the number of disease loci or hits per 60 row feet.
[4]Means followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant (LSD) test ($P \leq 0.05$).

TABLE 2. INFLUENCE OF APPLICATION RATE AND TREATMENT INTERVAL ON THE CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, AS WELL AS THE YIELD RESPONSE ACROSS ALL PEANUT CULTIVARS

Fungicide Program and Rate/A	Application Timing[1]	Application Interval	LS Rating[2]	SSR[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb	1-7	14 day	4.8 b[4]	6.0 b	3571 bc
Bravo Ultrex 1.4 lb Headline 2.09EC 9 fl oz	1,2,4,6,7 3,5	14 day	3.9 c	7.3 ab	3749 b
Bravo Ultrex 1.4 lb Headline 2.09EC 9 fl oz	1,3,5 2,4	21 day	4.6 b	8.4 a	3606 bc
Bravo Ultrex 1.4 lb Headline 2.09EC 9 fl oz	1,4 2,3	28 day	5.4 a	6.9 ab	3112 d
Bravo Ultrex 1.4 lb Headline 2.09EC 15 fl oz	1,2,4,6,7 3,5	14 day	3.3 d	6.3 ab	3775 b
Bravo Ultrex 1.4 lb Headline 2.09EC 15 fl oz	1,3,5 2,4	21 day	3.8 c	6.1 b	4134 a
Bravo Ultrex 1.4 lb Headline 2.09EC 15 fl oz	1,4 2,3	28 day	4.8 b	7.3 ab	3352 cd

[1]Fungicides were applied at 14-day intervals on 1 = June 16, 2 = June 30, 3 = July 14, 4 = July 28, 5 = August 11, 6 = August 25, and 7 = September 8; at a 21-day schedule on 1 = June 16, 2 = July 7, 3 = July 28, 4 = August 18, and 5 = September 8; and 1 = June 16, 2 = July 14, 3 = August 11, and 4 = September 8 on a 28-day schedule.
[2]Leaf spot was rated using the Florida 1-10 scoring system.
[3]SSR or southern stem rot (white mold) incidence is expressed as the number of disease loci or hits per 60 feet of row.
[4]Means followed by the same letter are not significantly different according to analysis of variance and Fisher's protected least significant (LSD) test ($P \leq 0.05$).

TABLE 3. DATA FOR LEAF SPOT, SOUTHERN STEM ROT, AND YIELD FOR EACH HEADLINE PROGRAM BROKEN DOWN BY PEANUT CULTIVAR, WREC

Fungicide Program and Peanut Cultivar	Leaf Spot Rating[1]	SSR Incidence[2]	Yield (lb/A)
Bravo Ultrex Program			
Andru II	4.5 cde[3]	6.8 cd	3370 efgh
Carver	5.5 ab	4.3 d	4084 abc
DP-1	4.5 cde	7.0 cde	3098 gh
Headline 2.09EC 9 fl. oz. 14-day Program			
Andru II	4.0 ef	5.8 d	3721 bcdef
Carver	4.0 ef	6.5 cd	4035 abcd
DP-1	3.8 fg	9.8 abc	3492 defg
Headline 2.09EC 9 fl. oz. 21-day Program			
Andru II	4.3 def	6.0 cd	3612 cdefg
Carver	4.0 ef	8.0 abcd	4054 abcd
DP-1	5.5 ab	11.3 a	3152 gh
Headline 2.09EC 9 fl. oz. 28-day Program			
Andru II	4.8 cd	6.0 cd	2892 h
Carver	6.0 a	7.5 abcd	3322 efgh
DP-1	5.5 ab	7.3 bcd	3122 gh
Headland 2.09EC 15 fl. oz. 14-day Program			
Andru II	3.8 fg	6.0 cd	3848 abcde
Carver	3.0 h	5.8 d	4241 ab
DP-1	3.3 gh	7.3 bcd	3237 fgh
Headland 2.09EC 15 fl oz 21-day			
Andru II	3.8 fg	4.8 d	4308 a
Carver	3.3 gh	6.8 cd	4253 ab
DP-1	4.5 cde	6.8 cd	3842 abcde
Headland 2.09EC 15 fl. oz. 28-day			
Andru II	4.5 cde	4.3 d	3642 cdefg
Carver	5.0 bc	7.0 bcd	3551 cdefg
DP-1	5.0 bc	10.8 ab	2862 h

[1]Leaf spot was rated using the Florida 1-10 scoring system.

[2]SSR (white mold) incidence is expressed as the number of disease loci or hits per 60 feet of row.

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

REACTION OF RUNNER PEANUT LINES TO LEAF SPOT DISEASES, SOUTHERN STEM ROT, AND TSWV IN A WELL-ROTATED DRYLAND PRODUCTION SYSTEM, WREC

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

Objective: To assess the sensitivity of runner peanut lines to leaf spot diseases, southern stem rot, tomato spotted wilt and determine their yield response in a well-rotated dryland production system.

Methods: On May 6, commercial and experimental runner peanut lines was planted at a rate of approximately 6 seeds per foot of row in a field that was cropped to peanut after two years of cotton using conventional tillage practices in a Dothan fine sandy loam (OM < 1 percent). Gypsum at a rate of 600-pounds per treated acre was applied on a 14-inch band over the row middle. Prior to planting, Sonalan at 1 quart per acre plus Strongarm at 0.45 ounces per acre were broadcast for pre-emergent weed control and lightly incorporated. Postemergent weed control was obtained with a tank application of 8 ounces per acre of Select plus 1 quart per acre of Crop Oil on June 23 and July 10. Escape weeds controlled with light tillage with flat sweeps or were pulled by hand. The plot area was not irrigated but rainfall distribution was adequate for peanut production. A randomized complete block design with four replications per peanut line was used.

Plots consisted of four 20-foot rows spaced 3 feet apart. Full canopy sprays of Bravo Ultrex at 1.4 pounds per acre, which were made in June, were followed by four applications of Folicur 3.6F at 0.45 pint per acre, and then an application of Bravo Ultrex at 1.4 pounds per acre and Bravo WeatherStik at 1.5 pint per acre. 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 (TSWV) was determined on September 8, and September 14 on the maturity group 4 and 5 peanut lines, respectively, by counting the number of TSWV loci (one locus was defined as < 1 foot of consecutive symptomatic plant(s) 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 in lower and upper leaf canopy, 4 = some leaf spotting in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spotting 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. Ratings for leaf spot diseases were taken on September 8 for the maturity group 3 and 4 lines and on October 7 maturity group 5 lines. Southern stem rot (SSR) loci or hit counts, where one locus is defined as < 1 foot of consecutive SSR damaged plants per row, were made immediately after plot inversion on September 9 (maturity group 3), September 15 (maturity group 4), and on October 6 (maturity group 5). Plots were harvested with a field combine. Yields reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: Rainfall totals exceeded the historical average for June, July, and August, were average in May and September and below average for October. Among the 18 runner peanut lines, significant differences in the level of TSWV, leaf spot diseases, and SSR were seen. With the exception of C 34-24, all of the late maturing (group 5) lines had relatively high TSWV ratings. Other lines that had similar levels of this disease were AT 201, C 156-47, Carver, Georgia HI-OIL, Norden, and the current industry standard Georgia Green. Peanut lines with the lowest TSWV ratings were AP-3 and experimental line EXP3085A.

On nearly all peanut lines, late leaf spot was far more common and damaging than early leaf spot. Leaf spot ratings for four of the six late maturing (group 5) lines were considerably higher than those recorded for the earlier maturing lines. Although DP-1 and GA 01R had lighter symptoms, leaf spot ratings for both late peanuts were higher than those recorded for all but three of the group 4 lines. Noticeable leaf spotting and some defoliation were also recorded on the early-maturing Andru II and Virugard peanuts. Light leaf spotting with little leaf shed was seen on nearly all of the group 4 peanut lines except for AT 201. A combination of a suppressive rotation pattern and unfavorable soil conditions, SSR pressure was low. Incidence of this disease was generally higher on the late maturing (group 5) peanut lines. Little or no SSR was seen on many of the maturity group 3 and 4 peanut lines. Yield for EXP3079A, which had low ratings for TSWV, leaf spot, and SSR, was higher than those recorded for many of the other peanut lines, including the commercial standard Georgia Green. Of the commercial peanut lines, Carver, C-99R, DP-1, and GA 01R had higher yields than did Georgia Green.

DISEASE RATINGS AND YIELD RESPONSE OF SELECTED RUNNER PEANUT LINES IN A DRYLAND PRODUCTION SYSTEM

	Disease Rating			
Peanut Line	TSWV #loci/60 ft	LS Rating[1]	SSR[2]	Yield (lb/A)
Maturity Group 3 [Early] (mature 126-140 DAP)[3]				
Andru II	--[4]	5.0 bc	0.3 cd	3167 efg
Virugard	--	5.0 bc	0.0 d	3340 defg
Maturity Group 4 [Mid-season] (mature 130-145 DAP)				
AP-3	7.5 d[5]	3.5 f	0.8 bcd	3739 bcdef
AT 201	16.5 a	4.9 bc	1.0 bcd	3430 cdefg
C 156-47	13.3 a	5.3 b	1.0 bcd	3240 efg
Carver	14.8 a	4.1 def	0.5 bcd	3948 abcde
EXP3079A	8.5 bcd	3.5 f	0.5 bcd	4810 a
EXP3081B	8.3 cd	3.5 f	0.0 d	4256 abc
EXP3085A	5.0 d	3.6 ef	0.3 cd	4646 ab
GA 02C	7.8 cd	3.8 ef	0.5 bcd	4229 abcd
Georgia Green	14.5 a	3.6 ef	0.0 d	2949 fg
Georgia HI-O/L	14.0 a	4.3 cde	0.3 cd	2650 g
Norden	13.0 ab	3.9 ef	0.8 bcd	3721 cdef
Maturity Group 5 [Late] (mature 140-165 days)				
C 34-24	7.3 d	6.3 a	1.7 ab	3553 cdefg
C-99R	13.8 a	6.1 a	1.5 abc	4029 abcde
DP-1	12.3 abc	5.0 bc	0.7 bcd	4259 abc
GA 01R	13.3 a	4.7 bcd	1.3 bc	3920 abcde
Hull	16.3 a	6.0 a	1.8 ab	3204 efg
Southern Runner	15.8 a	6.0 a	2.8 a	3557 cdefg

[1]Leaf spot diseases were rated using the Florida 1 to 10 leaf spot scoring system.

[2]SSR (white mold) incidence is expressed as the number of disease loci or hits per 60 feet of row.

[3]Pod maturity for peanut lines in maturity group 3 occurred 126-140 days after planting (DAP), 130-140 DAP for maturity group 4 lines, and 140-165 DAP for lines in maturity group 5.

[4]Data not available = --.

[5]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 ($P \leq 0.05$).

YIELD RESPONSE AND REACTION OF COMMERCIAL AND EXPERIMENTAL PEANUT LINES TO LEAF SPOT DISEASES, SOUTHERN STEM ROT, AND TSWV, WREC

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

Objective: To assess the reaction of commercial and experimental peanut lines to leaf spot diseases and southern stem rot, as well as their yield response in a irrigated production system.

Methods: On May 7, commercial and experimental runner and Virginia-type peanut lines was planted at a rate of approximately 6 seeds per foot of row in a field that was cropped to peanut after two years of cotton using conventional tillage practices in a Dothan fine sandy loam (OM < 1 percent). On June 25, gypsum at a rate of 600-pounds per treated acre was applied on a 14-inch band over the row middle. For pre-emergent weed control, Sonalan at 1.0 quart per acre plus Strongarm at 0.45 ounces per acre were broadcast and then lightly incorporated. Postemergent weed control was provided by applications of Select at 8 ounces per acre plus 1 quart per acre of Crop Oil. Escape weeds controlled with field cultivation using flat sweeps or were pulled by hand. Temik 15G at 7 pounds per acre was applied in-furrow AP for thrips control. Karate Z at 2 ounces per acre was broadcast on June 2 and July 28 for control of thrips and leaf hoppers, respectively. The plot area was irrigated with 0.4, 0.5, and 1.1 inches of water on May 13, July 10, and September 19, respectively. A randomized complete block design with four replications per peanut line was used.

Plots consisted of four 20-foot rows spaced 3 feet apart. Two full canopy sprays of Bravo Ultrex at 1.4 pounds per acre, were followed by four applications of Folicur 3.6F at 0.45 pints per acre, an application of Bravo Ultrex at 1.4 pounds per acre, and finally Bravo WeatherStik at 1.5 pints per acre. Fungicides were applied at approximately two-week intervals with a tractor-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 15 gallons per acre of spray volume. Due to frequent showers throughout much of the growing season, the plots were not irrigated. Incidence of tomato spotted wilt (TSWV) was determined on August 28, September 8, and September 14 on the maturity group 3, 4, and 5 peanut lines, respectively, by counting the number of TSWV loci (one locus was defined as < 1 foot of consecutive symptomatic plant(s) per row).

Early and late leaf spot were rated using the 1 to 10 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 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. Ratings for leaf spot diseases were taken on September 5 (group 3 lines), September 9 (group 4 lines), and on October 7 (group 5 lines). Southern stem rot (SSR) loci counts, where one locus is defined as ≤ 1 foot of consecutive SSR damaged plants per row, were made immediately after plot inversion on September 9 (group 3 lines), September 15 (group 4 lines), and on October 7 (group 5 lines). Plots were harvested with a field combine. Yields reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

Results: Rainfall totals exceeded the historical average for June, July, and August, were average in May and September, and below average for October. Incidence of TSWV was higher on C 34-24 than on all other peanuts evaluated except for the runner peanuts Southern Runner, Georgia Green, C-99R and the Virginia peanut VA98R (see table). Virus ratings for all remaining Virginia and runner peanut lines were similar. On nearly all peanut lines, late leaf spot was the most common and damaging of the two leaf spot diseases. Among the Virginia peanut lines, Gregory had significantly higher leaf spot ratings than did VA98R, NC-VII and Wilson. Symptoms on Gregory included defoliation in excess of 25 percent, as well as considerable spotting of the remaining leaves. Many of the late maturing (group 5) runner peanut lines suffered heavier leaf spotting and leaf loss than many of the other runner lines. Of the late maturing lines, significantly lower leaf spot ratings were recorded for DP-1 compared with Southern Runner, Hull, C-99R, and C 34-24. The group 4 line C 165-47 had leaf spot ratings that were comparable to those recorded for Southern Runner, Hull, C-99R, and C 34-24. Among the group 4 runner lines, AP-3 and GA 02C had significantly lower leaf spot ratings than C 165-47, AT 201, and Georgia Hi-O/L, as well as all of the late maturing lines except for DP-1 and Virugard. Due to a combination of crop rotation and weather patterns, SSR damage was

low. Incidence of SSR was higher on Hull than on the majority of Virginia and runner type peanut lines. The yield for all of the Virginia type peanut lines did not significantly differ. Yields of GA 02C, EXP 3079A, C 34-24, and C-99R were higher than those recorded for Virugard, C 165-47, AT 201, and Georgia Green.

OCCURRENCE OF TSWV, LEAF SPOT DISEASES, AND SOUTHERN STEM ROT ON RUNNER AND VIRGINIA TYPE PEANUT LINES, WREC

Peanut Line	Peanut Type	Disease Rating			Yield (lb/A)
		TSWV Incidence[1]	LS[2] Rating	SSR Incidence[3]	
Maturity Group 3 [early] (mature 126-140 DAP)					
Andru II	R	5.3 b[4]	4.9 defg	0.3 f	3194 bcd
VA C92-R	V	7.0 b	5.9 abcde	2.0 bcde	3621 abc
Virugard	R	7.0 b	5.3 cde	0.5 ef	2641 e
Maturity Group 4 [mid-season] (mature 130-145 DAP)					
AP-3	R	6.0 b	3.9 g	0.8 def	3957 ab
Agra Tech 201	R	14.8 b	5.4 cde	0.3 f	2959 cde
C 165-47	R	10.7 b	6.0 abcd	1.3 def	2704 de
Carver	R	12.0 b	5.1 cdef	0.3 f	3621abc
EXP3079A	R	9.8 b	5.1 cdef	0.5 ef	4038 ab
EXP3081B	R	9.5 b	5.0 defg	0.8 def	3984 ab
EXP3085A	R	4.5 b	5.0 defg	0.3 f	4048 ab
GA 02C	R	7.3 b	4.0 fg	0.3 f	3285 abcde
Georgia Green	R	19.5 ab	5.0 defg	0.3 f	3022 cde
Georgia HI-O/L	R	13.0 b	5.6 abcde	0.3 f	3267 abcde
Gregory	V	10.8 b	6.6 ab	1.0 def	3557 abcd
Norden	R	10.8 b	4.8 efg	0.3 f	3594 abcd
NC-VII	V	10.3 b	5.3 cde	3.3 b	3512 abcde
VA 98R	V	16.3 ab	5.1 cdef	2.3 bcd	3267 abcde
Wilson	V	11.5 b	5.4 cde	2.0 bcde	3022 cde
Maturity Group 5 [late] (mature 140-165 days)					
C 34-24	R	34.8 a	6.3 abc	3.0 bc	4129 a
C-99R	R	15.5 b	6.6 ab	2.0 bcde	4147 a
DP-1	R	10.5 b	4.9 defg	1.0 def	3494 abcde
GA 01R	R	13.8 b	5.5 bcde	1.5 cdef	3975 ab
Hull	R	13.3 b	6.3 abc	5.0 a	3394 abcde
Southern Runner	R	18.0 ab	6.8 a	2.0 bcde	3966 ab

[1]TSWV incidence was expressed as the number of disease loci or hits per 60 feet of row.
[2]Late leaf spot was rated using the Florida leaf spot 1-10 scoring system.
[3]Southern stem rot (white mold) incidence was expressed as the number of disease loci or hits per 60 feet of row.
[4]Means in each column followed by the same letter were not significantly different according to analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EFFICACY OF SELECTED FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES, PEANUT RUST, AND SOUTHERN STEM ROT, GCREC

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

Objective: To compare registered fungicides applied on a 14-day calendar schedule for control of leaf spot diseases and southern stem rot, as well as assess their impact on yield in a dryland production system.

Methods: Peanut cultivar Georgia Green was planted on May 1 at the Gulf Coast Research and Extension Center near Fairhope, Alabama, at a rate of approximately five seeds per foot of row in a field with a history of peanut production. The soil type was a Malbis fine sandy loam (OM < 1 percent). Alabama Cooperative Extension System recommendations for fertility were followed. On April 14, the test area was subsoiled, bedded, and treated with a broadcast application of 2 pints per acre of Prowl. Temik 15G was applied at planting at a rate of 6.5 pounds per acre for thrips control. On May 28 and June 1, Gramoxone at 6 ounces per acre plus Storm at 1 pint per acre plus Activate at 1 pint per 50 gallons were applied for postemergent weed control. The test area was not irrigated.

Plots consisted of six 30-foot rows spaced 38 inches apart, which were arranged in a randomized complete block with six replications. Fungicides were applied as a full canopy spray at a calibrated volume of 20 gallons per acre using a six-row, tractor-mounted boom sprayer with TX-8 nozzles on a 14-day schedule on June 19, July 3, July 14, July 29, August 12, August 25, and September 2.

Early and late leaf spot (*Cercospora arachidicola* and *Cercosporidium personatum*, respectively) and rust (*Puccinia arachidis*) were visually rated on September 10 just prior to inversion of rows 2 and 3 using the Florida 1-10 leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper canopy, 4 = some leaf spotting in lower and upper canopy with light defoliation (≤ 10 percent), 5 = leaf spotting 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 = plants almost completely defoliated (≤ 95 percent), and 10 = plants completely defoliated or dead] and the ICRISAT rust rating scale (1 = no disease,…9 = 80-90 percent of leaves withering), respectively.

Counts of southern stem rot (SSR) loci or hits (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease) were made on September 10 immediately after plot inversion. Plots were harvested on September 12 and yields were reported at 10 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference test ($P \leq 0.05$).

Results: Temperature was near normal and rainfall was at or above normal levels for most of the 2003 growing season. Leaf spot severity was higher than what had been observed in previous years. All programs that included Headline 2.09EC and the Bravo/Abound program gave significantly better leaf spot control than Bravo Ultrex alone (see table). All other fungicide regimes were as effective as Bravo Ultrex in controlling leaf spot diseases. Peanut rust appeared in early August and by harvest had defoliated the untreated control plots. The Bravo/Abound treatment and the Headline program (1.5 application timing) gave significantly better rust control than the Bravo Ultrex standard. SSR incidence was minimal and no significant differences in disease levels were noted between any of the fungicide programs. Despite the high incidence of rust, no significant differences in yields were observed among treatments.

EFFECT OF SELECTED FUNGICIDES FOR THE CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, GCREC

Treatment and Rate/A	Application Timing (14 day schedule)[1]	Disease Ratings			Yield (lb/A)
		Leaf Spot[2]	Rust[3]	SSR[4]	
Bravo Ultrex 1.4 lb	1-7	4.3[5]	5.5	3.7	5158
Bravo Ultrex 1.4 lb	1,2,4,6,7	4.5	5.5	2.8	6441
Bravo Ultrex 1.4 lb + Moncut 1.1 lb	3,5				
Headline 2.09EC 6.0 fl oz	1,2	3.3	5.0	2.5	5570
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	3,5				
Headline 2.09EC 9.0 fl oz	4				
Bravo Ultrex 1.4 lb	6,7				
Headline 2.09EC 9.0 fl oz	1.5	3.3	4.2	2.5	6213
Bravo Ultrex 1.4 lb + Moncut 1.1 lb	3,5				
Headline 2.09EC 6.0 fl oz	4				
Bravo Ultrex 1.4 lb	6,7				
Bravo Ultrex 1.4 lb	1,2,4,6,7	3.5	4.3	2.5	6260
Abound 2.08SC 18.5 fl oz	3,5				
Tilt 3.6EC 2.0 fl oz + Bravo Ultrex 1.4 lb	1,2,4	4.2	5.7	3.0	5479
Abound 2.08SC 18.5 fl oz	3,5				
Bravo 720 1.4 lb	6,7				
Bravo Ultrex 1.4 lb	1,2,7	4.3	5.7	3.2	5538
Folicur 3.6F 7.2 fl oz	3,4,5,6				
Bravo Ultrex 1.4 lb	1,2,7	4.5	5.7	3.0	5518
Bravo Ultrex 1.4 lb + Moncut 70DF 0.54lb	3,4,5,6				
Bravo Ultrex 1.4 lb	1,3,5,6,7	4.3	5.3	2.8	5859
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	2,4				
Bravo Ultrex 1.4 lb	1,2,7	4.7	5.8	3.5	6029
Folicur 3.6F 7.2 fl oz	3,5				
Bravo 720 1.5 pt + Moncut 70DF 0.54 lb	4,6				
LSD ($P \leq 0.05$)		0.7	1.1	1.4	1295

[1]Fungicide applications were made 1 = June 19, 2 = July 3, 3 = July 14, 4 = July 29, 5 = August 12, 6 = August 25, and 7 = September 2.

[2]Early and late leaf spot were assessed using the Florida leaf spot scoring system.

[3]Rust rated using the ICRISAT 1-9 rating scale.

[4]Southern stem rot lesions, which were recorded at plot inversion, are expressed as the number of disease loci or hits per 60 feet of row.

[5]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

EVALUATION OF ABOUND 2SC AND TILT 3.6EC + BRAVO 720 (PRE-MIX) FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT, GCREC

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

Objective: To compare Abound 2SC and Tilt 3.6EC plus Bravo 720 (pre-mix) with currently registered fungicides at various rates and treatment intervals for controlling leaf spot diseases and southern stem rot in a dryland production system.

Methods: Peanut cultivar Georgia Green was planted on May 1 in a field with no prior history of peanut production at the Gulf Coast Research and Extension Center near Fairhope, Alabama, at a rate of approximately five seeds per foot of row. The soil type was a Malbis fine sandy loam (OM < 1percent). Alabama Cooperative Extension System recommendations for tillage, fertility, and weed control were followed. On April 14, the test area was subsoiled and bedded, then 2 pints per acre of Prowl was applied. Temik 15G was applied at planting at a rate of 6.5 pounds per acre for Thrips control. On May 28, Gramoxone at 6 ounces per acre plus Storm at 1 pint per acre plus Activate at 1 pint per 50 gallons were applied for postemergent weed control followed by a second application of the same herbicides on June 11. The test area was not irrigated.

Plots, which were arranged in a randomized complete block with six replications, consisted of six 30-foot rows spaced 38 inches apart. Fungicides were applied on June 26, July 9, July 21, August 4, August 14, August 25, and September 2 as a full canopy spray at a calibrated volume of 20 gallons per acre using a six-row, tractor-mounted boom sprayer with TX-8 nozzles.

Early and late leaf spot (*Cercospora arachidicola* and *Cercosporidium personatum*, respectively) and rust (*Puccinia arachidis*) were visually rated on September 10 just prior to inversion of rows 2 and 3 using the Florida leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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), and 10 = plants completely defoliated or dead] and the ICRISAT rust rating scale (1 = no disease,…9 = 80-90 percent of leaves withering), respectively.

Counts of southern stem rot (SSR) loci were made on September 10 immediately after plot inversion (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease). Plots were harvested on September 12 and yields were reported at 10 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference test ($P \leq 0.05$).

Results: From May through August, temperature and rainfall were at or above normal levels from. Leaf spot severity was higher than had been observed in prior years. With the exception of the programs that included Folicur 3.6F, all fungicide regimes controlled leaf spot as effectively as Bravo 720 alone (see table). Peanut rust appeared in early August and spread rapidly throughout the fields. At harvest, the untreated controls were almost completely defoliated (data not shown). When compared with the Bravo 720 standard, all of the fungicide programs, except for those that included Folicur 3.6F, gave similar control of peanut rust. SSR pressure was minimal and no statistical differences in control were noted among any of the fungicide programs. Despite the high incidence of rust, yields among all treatments were similar to those obtained with the season-long Bravo 720 standard.

EVALUATION OF ABOUND 2SC AND TILT 3.6EC + BRAVO 720 (PRE-MIX) FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, GCREC

Treatment and Rate/A	Application Timing (14-day schedule)[1]	Disease Ratings			Yield (lb/A)
		Leaf Spot[2]	Rust[3]	SSR[4]	
Tilt 3.6EC 2.0 fl oz + Bravo 7201.0 pt	1,2,4,6,7	3.2[5]	5.5	4.3	4417
Abound 2SC 18.5 fl oz	3,5				
Tilt 3.6EC + Bravo 720 24.0fl oz (pre-mix)	1,2,4,6,7	3.3	4.2	3.2	5125
Abound 2SC 18.5 fl oz	3,5				
Headline 2.09EC 6 fl oz	1,2	4.2	6.3	3.3	4201
Folicur 3.6F 7.2 fl oz	3,4,5,6				
Bravo Ultrex 1.4 lb	7				
Headline 2.09EC 6.0 fl oz	1,2	3.2	5.5	4.0	5026
Folicur 3.6F 7.2 fl oz	3,5				
Headline 2.09EC 9.0 fl oz	4				
Bravo Ultrex 1.4 lb	6,7				
Headline 2.09EC 9 fl oz	1.5	3.3	5.2	4.0	4850
Folicur 3.6F 7.2 fl oz	3,5				
Headline 2.09EC 12 fl oz	4				
Bravo Ultrex 1.4 lb	6,7				
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 lb	1,2,4	3.5	5.2	4.0	4496
Abound 2SC 18.5 fl oz	3,5				
Bravo 720 1.5 pt	6,7				
Bravo 720 1.5 pt	1,2,4,6,7	3.3	4.5	3.5	4207
Abound 2SC 18.5 fl oz	3,5				
Bravo 720 1.5 pt	1,2,7	4.0	6.2	3.7	4948
Folcur 3.6F 7.2 fl oz	3,4,5,6				
Bravo Ultrex 1.4 lb	1,2,4,6,7	3.5	5.2	3.5	5020
Bravo Ultrex 1.4 lb + Moncut 70DF 1.1 lb	3,5				
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.5 pt	1,2,4	3.3	4.7	4.0	4672
Bravo 720 1.5 pt	3,5,6,7				
Bravo 720 1.5 pt	1-7	3.0	4.0	4.2	5019
LSD ($P \leq 0.05$)		0.6	1.3	1.5	856

[1]Applications were made at two week intervals on June 26, July 9, July 21, August 4, August 14, August 25, and September 2.

[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[3]Rust rated using the ICRISAT 1-9 rating scale.

[4]Southern stem rot (SSR) incidence is expressed as the number of disease loci or hits per 60 feet of row.

[5]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

COMPARISON OF NEW AND EXPERIMENTAL FUNGICIDES WITH CURRENT STANDARDS FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT, GCREC

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

Objective: To compare new and experimental fungicides with currently registered fungicides under a 14-day calendar spray schedule for the control of leaf spot diseases and southern stem rot, as well as impact on yield of peanut in a dryland production system.

Methods: Peanut cultivar Georgia Green was planted on May 1 at a rate of approximately five seeds per foot of row in a field with a prior history of peanut production at the Gulf Coast Research and Extension Center near Fairhope, Alabama. The soil type was a Malbis fine sandy loam (OM < 1 percent). Recommendations of the Alabama Cooperative Extension System for tillage and soil fertility were followed. On April 14, the test area was sub-soiled and bedded, and then 2 pints per acre of Prowl was applied. Temik 15G was applied at planting at a rate of 6.5 pounds per acre for thrips control. Gramoxone at 6 ounces per acre plus Storm at 1 pint per acre plus Activate at 1 pint per 50 gallons were applied for postemergent weed control on May 28 and June 11. The test area was not irrigated.

Plots, which consisted of six 30-foot rows spaced 38 inches apart, were arranged in a randomized complete block with six replications. Fungicides were applied as a full canopy spray at a calibrated volume of 20 gallons per acre using a six-row, tractor-mounted boom sprayer with TX8 nozzles on June 26, July 9, July 22, August 5, August 14, August 25, and September 2.

Early and late leaf spot (*Cercospora arachidicola* and *Cercosporidium personatum*, respectively) and rust (*Puccinia arachidis*) were visually rated on September 10 just prior to inversion of rows 2 and 3 using the Florida leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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), and 10 = plants completely defoliated or dead] and the ICRISAT rust rating scale (1 = no disease…9 = 80 to 90 percent of leaves withering).

Counts of southern stem rot (SSR) loci or hits were made on September 11 immediately after plot inversion (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease). Plots were harvested on September 16 and yields were reported at 10 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference test ($P \leq 0.05$).

Results: During the 2003 growing season, temperature was near normal levels and rainfall was at or above normal levels. Leaf spot severity increased throughout the season as a result of the above average rainfall in June, July, and August. The programs that included four midseason applications of Folicur 3.6F, as well as the season-long Stratego program were not as effective in controlling leaf spot as the season-long Bravo 720 standard program (see table). Peanut rust appeared in early August and spread rapidly through the fields. As was observed for leaf spot control, the Folicur 3.6F programs gave poorer control than most of the other fungicide programs. Since SSR pressure was low, few differences in the control of this disease were seen among the fungicide programs. Yields for all the programs that included applications of Folicur 3.6F were significantly lower compared with those for the Bravo 720 program. Peanuts treated with Bravo 720/Stratego also yielded significantly less than those sprayed season-long with Bravo 720 alone.

COMPARISON OF NEW AND EXPERIMENTAL FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT, GCREC

Treatment and Rate/A	Application Timing (14-day schedule)[1]	Disease Ratings			Yield (lb/A)
		Leaf Spot[2]	Rust[3]	SSR[4]	
Bravo 7201.5 pt	1,2,7	3.0[5]	3.3	4.3	5315
JAU6476 5.7 fl oz	3,4,5,6				
Bravo 720 1.5 pt	1,2,7	3.7	5.7	3.7	4738
Folicur 3.6F 7.2 fl oz	3,4,5,6				
USF2010 3.5 fl oz	1,2	4.0	6.0	3.7	4509
Folicur 3.6F 7.2 fl oz	3,4,5,6				
Bravo 720 1.5 pt	7				
Stratego 7.0 fl oz	1,2	4.2	6.5	4.5	4338
Folicur 3.6F 7.2 fl oz	3,4,5,6				
Bravo 720 1.5 pt	7				
Bravo 720 1.5 pt	1,2,4,6,7	3.5	5.2	3.5	5374
Abound 2SC 18.5 fl oz	3,5				
Bravo 720 1.5 pt	1,3,7	3.0	4.2	3.3	4817
Headline 2.09EC 9.0 fl oz	2				
Headline 2.09EC 6.0 fl oz	4				
Folicur 3.6F 7.2 fl oz	5,6				
Bravo 720 1.5 pt	1,7	3.0	4.0	2.8	5400
Headline 2.09EC 6.0 fl oz	2				
Headline 2.09EC 9.0 fl oz	4				
Folicur 3.6F 7.2 fl oz	3,5,6				
Bravo 720 1.5 pt	1-7	3.0	3.8	3.2	5511
Bravo 720 1.5 pt	1,2,4,6,7	3.0	3.2	4.3	4679
Bravo 720 1.5 pt + Moncut 70DF 1.1 lb	3,5				
Stratego 7.0 fl oz	1-7	3.7	5.0	4.7	5079
Bravo 720 1.5 pt	1,2,7	3.2	4.2	4.7	4351
Stratego 7.0 fl oz	3,4,5,6				
Headline 2.09EC 9.0 fl oz	1.5	3.2	5.0	5.0	4528
Folicur 3.6F 7.2 fl oz	3,4,5,6				
Bravo 720 1.5 pt	7				
Tilt 3.6EC 2.0 fl oz + Bravo 720 1.0 pt	1,2,4	3.0	3.7	3.8	5446
Bravo 720 1.5 pt	3,5,6,7				
LSD ($P \leq 0.05$)		0.4	1.1	1.8	783

[1]Applications were made at two-week intervals June 26, July 9, July 22, August 5, August 14, August 25, and September 2.

[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.

[3]Rust rated using the ICRISAT 1-9 rating.

[4]Southern stem rot (SSR) incidence is expressed as the number of disease loci or hits per 60 feet of row.

[5]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

COMPARISON OF EXPERIMENTAL FUNGICIDES FOR CONTROL OF FOLIAR AND SOIL-BORNE DISEASES OF PEANUT, GCREC

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

Objective: To evaluate the new fungicide V-10116 and V-10114 for the control of leaf spot diseases and southern stem rot and its impact on yield in a dryland production system and to compare product efficacy against that of currently registered fungicides.

Methods: Peanut cultivar Georgia Green was planted at the Gulf Coast Research and Extension Center near Fairhope, Alabama on May 1 in a field with prior history of peanut production at a rate of approximately five seeds per foot of row. The soil type was a Malbis fine sandy loam (OM < 1 percent). Alabama Cooperative Extension System recommendations for fertility and weed control were followed.

Plots, which were arranged in a randomized complete block with six replications, consisted of six 30-foot rows spaced 38 inches apart. On April 14, the test area was sub-soiled and bedded, then 2 pints per acre of Prowl was broadcast. Temik 15G was applied at planting at a rate of 6.5 pounds per acre for thrips control. Gramoxone at 6 ounces per acre plus Storm at 1 pint per acre plus Activate at 1 pint/50 gallons were applied for postemergent weed control on May 28 and June 11. The test area was not irrigated. Fungicides were applied as a full canopy spray at a calibrated volume of 20 gallons per acre using a six-row, tractor-mounted boom sprayer with TX-8 nozzles on a 14-day schedule on June 26, July 9, July 24, August 5, August 14, August 27, and September 2.

Early and late leaf spot (*Cercospora arachidicola* and *Cercosporidium personatum*, respectively) and rust (*Puccinia arachidis*) were visually rated on September 10 just prior to plot inversion of rows 2 and 3 using the Florida 1-10 leaf spot scoring system [1 = no disease, 2 = very few leaf spots in canopy, 3 = few leaf spots in lower and upper 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), and 10 = plants completely defoliated or dead] and the ICRISAT 1-9 rust rating scale (1 = no disease…9 = 80-90 percent of leaves withering).

Counts of southern stem rot (SSR) loci or hits were made on September 11 immediately after plot inversion (one locus is defined as ≤ 1 foot of consecutive symptoms and signs of the disease). Plots were harvested on September 16 and yields were reported at 10 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference ($P \leq 0.05$).

Results: During the 2003 production season, temperature and rainfall was at or above normal levels. The best leaf spot control was noted in the plots receiving one or more applications of Headline 2.09EC, as well as with the Folicur 3.6F/Bravo program (see table). Programs that included V-10116 proved as effective as Bravo 720 in controlling leaf spot diseases. Effective leaf spot control was also obtained with the Bravo 720 plus Kocide 4.5LF program. Peanut rust appeared in early August and spread rapidly through the field resulting in almost complete defoliation in the untreated controls (data not shown). Fungicide programs that included Folciur 3.6F and/or Headline 2.09EC gave better rust control than Bravo 720 alone. The Bravo 720 standard and V-10116 displayed similar levels of rust activity. Since SSR pressure was low, differences in SSR damage noted among any of the programs was minimal. Despite differences in the level of leaf spot and rust control, yields recorded for the Bravo 720 standard and the other fungicide programs did not significantly differ. Yield for the season-long V-10116 program were significantly lower than those obtained with the Headline 2.09EC/Folicur 3.6F/Headline 2.09EC/Bravo 720 program.

COMPARISON OF EXPERIMENTAL FUNGICIDES FOR THE CONTROL OF FOLIAR AND SOIL-BORNE DISEASES, GCREC

Treatment and Rate/A	Application Timing (14-day schedule)[1]	Disease Ratings			Yield (lb/A)
		Leaf Spot[2]	Rust[3]	SSR[4]	
V-10116 6.1 fl oz	1-7	4.7[5]	7.0	4.3	3604
Bravo 720 1.5 pt	1-7	4.2	6.5	4.0	4234
Bravo 720 1.5 pt V-10116 6.1 fl oz	1,2,7 3,4,5,6	3.7	5.8	3.7	4594
V-10116 8.2 fl oz	1-7	4.3	6.2	3.7	4574
Bravo 720 1.5 pt V-10116 8.2 fl oz	1-7	3.7	6.3	3.3	4319
V-10116 6.1 fl oz V-10116 6.1 fl oz + V-10114 7.6 fl oz	1,2,7 3,4,5,6	4.0	6.3	2.7	3984
Folicur 3.6F 4.0 fl oz Bravo 720 1.5 pt	1,2,7 3,4,5,6	3.5	5.0	4.3	4253
Headline 2.09EC 9.0 fl oz Folcur 3.6F 7.2 fl oz Headline 2.09EC 12.0 fl oz Bravo 720 1.5 pt	1.5 3,5,6 4 7	3.2	5.3	3.3	4732
Bravo 720 1.5pt Headline 2.09EC 6.0 fl oz	1,2,4,6,7 3,5	3.3	4.3	3.7	4378
Headline 2.09EC 12.0 fl oz Folicur 3.6F 7.2 fl oz	3,5 4,6	3.2	5.2	3.3	3978
Bravo 720 1.0 pt + Kocide 4.5LF 1.0 pt	1-7	3.7	4.8	4.3	3762
LSD ($P < 0.05$)		0.6	1.0	1.6	932

[1]Applications were made at two-week intervals on June 26, July 9, July 24, August 4, August 14, August 27, and September 2.
[2]Early and late leaf spot were assessed using the Florida 1-10 leaf spot scoring system.
[3]Rust rated using the ICRISAT 1-9 rating.
[4]Southern stem rot incidence is expressed as the number of disease loci or hits per 60 feet of row.
[5]Mean separation within columns was according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

COMPARISON OF CALENDAR AND AU-PNUT ADVISORY FUNGICIDE PROGRAMS FOR CONTROL OF LATE LEAF SPOT, PEANUT RUST, AND SOUTHERN STEM ROT ON PEANUT, GCREC

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

Objective: To determine whether extending the interval between applications of recommended fungicides from the recommended 14-day schedule to 21- or 28-day intervals has an impact on the control of leaf spot diseases, peanut rust, and southern stem rot on a partially resistant peanut line, as well as the performance of recommended fungicides applied according to the AU-Pnut leaf spot advisory program.

Methods: On May 28, the peanut cultivar DP-1 [maturity group 5], which is partially resistant to late leaf spot and southern stem rot (SSR), was planted at a rate of 6 seeds per foot of row in a field that has been cropped to peanut once every three years using conventional tillage practices in a Malbis fine sandy loam (OM < 1 percent) soil. After subsoiling and bedding the test area, Prowl at 2 pints per acre was broadcast for pre-emergent broadleaf weed and grass control. On May 28 and June 9, a tank mixture of Gramoxone at 6 fluid ounces per acre plus Storm at 1.5 pints per acre and the adjuvant Activate at 1 pint per 50 gallons of spray volume was broadcast. On June 25, Poast Plus at 1.5 pints per acre plus Prime Oil at 1 quart per acre was applied to control escape grass weeds. Cadre at 1.44 ounces per acre plus Activate adjuvant at 1 pint per 50 gallons of spray volume was broadcast on July 11. Soil fertility was adjusted according to the results of a soil fertility assay. The test area was not irrigated. A randomized complete block design with four replications per fungicide treatment regime was used.

Plots consisted of four 30-foot rows spaced 3.2 feet apart. Full canopy sprays were made on a 14-, 21-, and 28-day calendar schedule, was 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 of spray volume per acre. Application dates were July 8, July 22, August 4, August 18, September 2, September 14, and September 29 for the 14-day calendar program; July 8, July 29, August 18, September 8, and September 29 for the 21-day calendar program; and July 8, August 4, September 8, and October 7 for the 28-day calendar program. Fungicide applications scheduled according to the AU-Pnut leaf spot advisory were made on July 8, July 22, August 4, August 18, September 2, and September 23.

Early and late leaf spot were rated simultaneously 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 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 completely defoliated or dead. Leaf spot ratings were taken on July 30, August 13, August 27, September 11, and October 2. On October 2, peanut rust severity was rated using the ICRISAT 1-9 rust rating scale where 1 = no disease to 9 = 80 to 100 percent of leaves withered. Southern stem rot (SSR) loci (hit) counts, where one locus is defined as ≤ 1 foot of consecutive SSR damaged plants per row, were made immediately after plot inversion on October 16. The peanuts were picked on October 20 with a field combine and yields reported at 7 percent moisture.

Results: Rainfall totals reached or exceeded the historical average for May, June, July, August, and September but were below average for October. Since peanuts were cropped only once every three years, SSR pressure was low. Slight but significant increases in the number of SSR loci were seen when application intervals were lengthened from 14- to 28-days for the Folicur 3.6F and Abound 2SC programs (data not shown). When applied according to the AU-Pnut advisory, the Abound 2SC but not the Folicur 3.6F regimes were as effective as the 14- and 21-day calendar programs in controlling SSR (data not shown). Late leaf spot (LLS) was much more widespread than early leaf spot. For the season-long Bravo Ultrex and Abound 2SC regimes, LLS ratings significantly increased as application intervals were lengthened from 14 to 28 days but were similar across all application schedules for Folicur 3.6F (see table). When applied according to AU-Pnut, Folicur 3.6F gave better LLS control than the same fungicide applied on a 14-day schedule. With the Abound 2SC and Bravo Ultrex regimes, leaf spot ratings for the peanuts treated every14 days and according to the AU-Pnut advisory were similar. At the 14-day treatment schedule, similar peanut rust

control was obtained with the Bravo Ultrex, Folicur 3.6F, and Abound 2SC regimes. With the Bravo Ultrex and Abound regimes, rust levels recorded for the 14-day calendar schedules were significantly lower than the ratings for the 28-day schedules for these same fungicide regimes. A significant decline in rust control was noted between the 14- and 21-day schedules with Folicur 3.6F. Generally, application interval for the season-long Bravo Ultrex, Folicur 3.6F, and Abound 2SC calendar programs did not have a significant impact on peanut yield. In addition, the yield response obtained with the 14- and 21-day calendar schedules along with the AU-Pnut advisory for each of the above fungicide regimes was similar.

IMPACT OF APPLICATION SCHEDULE ON THE CONTROL OF LATE LEAF SPOT AND RUST, AS WELL AS ON PEANUT YIELD RESPONSE[1], GCREC

Fungicide Regime and Rate/A	Spray Schedule	Application Timing (DAP[2])	LLS rating	Peanut rust rating	Yield (lb/A)
Bravo Ultrex 1.4 lb	14-day	41, 62, 75, 89, 104, 116, 131	3.0[3]	3.5	3927
Bravo Ultrex 1.4 lb	21-day	41, 69, 89, 110, 131	3.0	4.5	4213
Bravo Ultrex 1.4 lb	28-day	41, 75, 110, 139	3.9	5.5	3349
Bravo Ultrex 1.4 lb	AU-Pnut[4]	41, 62, 75, 89, 104, 125	3.4	4.5	4160
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	14-day	41, 62, 75, 89, 104, 116, 131	3.4	4.5	4152
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	21-day	41, 69, 89, 110, 131	3.8	5.7	4252
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	28-day	41, 75, 110, 139	3.8	5.3	3826
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	AU-Pnut	41, 62, 75, 89, 104, 125	2.8	3.7	4634
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	14-day	41, 62, 75, 89, 104, 116, 131	2.8	3.2	4359
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	21-day	41, 69, 89, 110, 131	3.0	3.7	4450
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	28-day	41, 75, 110, 139	3.3	5.0	3927
Bravo Ultrex 1.4 lb Abound 2SC 1.2 pt	AU-Pnut	41, 62, 75, 89, 104, 125	2.7	3.2	4963
LSD ($P \leq 0.05$)			0.5	1.1	797

[1]Peanut cultivar was DP-1.

[2]DAP = days after planting when fungicide applications were made.

[3]Mean separation in each column was according to analysis of variance and Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

[4]AU-Pnut disease advisory rules specify that the first fungicide application be made immediately after six or more rain events (≥0.1 inch) and the second and subsequent applications immediately after three rain events.

YIELD RESPONSE AND REACTION OF COMMERCIAL AND EXPERIMENTAL PEANUT LINES TO LATE LEAF SPOT AND PEANUT RUST, GCREC

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

Objective: To compare the yields and reaction of newly released peanut lines to leaf spot diseases and southern stem rot with those of widely grown cultivars such as Georgia Green and Southern Runner in a well-rotated dryland production system.

Methods: On May 28, commercial and experimental runner peanut lines were planted at a rate of approximately 6 seeds per foot of row on flat beds in a field that was cropped to peanut after two years of cotton using conventional tillage practices in a Malbis fine sandy loam (OM<1 percent) soil. On April 14, the test area was subsoiled and bedded before 2 quarts per acre of Prowl was broadcast. Thrips were controlled with an in-furrow application of 6.5 pounds per acre of Temik 15G. On May 28, 6 fluid ounces per acre of Gramoxone plus 1 pint per acre of Storm plus 2 pints per 100 gallons of Activate was made for postemergent weed control that was followed with an application of 1.5 pints per acre of Storm plus 2 pints per 100 gallons of Activate surfactant on June 26. The test area was not irrigated. A randomized complete block design with four replications per peanut line was used.

Plots consisted of four 30-foot rows spaced 3.2 feet apart. Full canopy sprays of Bravo Ultrex at 1.4 pounds per acre were made on July 8, July 24, August 5, August 18, September 2, September 14, September 29, and October 7 a four-row, ATV-mounted boom sprayer with three TX-8 nozzles per row that delivered approximately 10 gallons per acre of spray volume. The incidence of tomato spotted wilt (TSWV) in each peanut line was determined on September 4 by counting the number of TSWV loci (one locus was defined as < 1 foot of consecutive symptomatic plant(s) per row).

Late leaf spot (LLS) [*Cercosporidium personatum*] was rated on July 30, August 13, August 27, September 11, and September 17 together with 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 defoliation or dead. The AUDPC for late leaf spot was calculated from the disease ratings recorded on the above dates. Just before plot inversion, peanut rust [Puccinia arachidis] severity was rated using the ICRISAT 1-9 rust rating scale where 1 = no disease to 9 = 80 to 100 percent of leaves withering. Southern stem rot (SSR) [*Sclerotium rolfsii*] loci counts, where one locus is defined as ≤ 1 foot of consecutive SSR damaged plants per row, were made immediately after plot inversion on September 17 (maturity group 3 lines), October 6 (maturity group 4 lines), and on October 16 (maturity group 5 lines). Plots were harvested with a field combine 3 to 5 days after inversion. Yields reported at 7 percent moisture. Significance of treatment effects were tested by analysis of variance and Fisher's protected least significant difference test ($P \leq 0.05$).

Results: Rainfall totals reached or exceeded the historical average for May, June, July, August, and September but were below average for October. The unusually high rainfall for June and July may have suppressed peanut yields. A total of seven fungicide applications were made to the group 3 and 4 peanut lines, while the late maturing group 5 lines received eight fungicide applications.

While TSWV pressure was relatively low, some significant differences in the incidence of this disease were noted among the commercial and experimental peanut lines (see table). The level of TSWV was lower on GA 02C than in Georgia Green, Norden, and UF000324. Incidence of TSWV in the above and remaining peanut lines was similar. The heaviest LLS-related leaf spotting and premature leaf drop was recorded on the experimental line UF00620. Light leaf spotting in the lower and upper leaf canopy with little if any leaf shed was noted on C-99R, DP-1, GA 02C, Georgia Green, Hull Norden, UF000324, UF2383, and UF98324. According to LLS AUDPC values, the least season-long late leaf spot development was seen Norden and UF98324, while GA 02C and UF0060 suffered from the heaviest damage. Rust severity was significantly higher on Carver and UF00620 than on six of the other eleven peanut lines. The least rust damage was seen on DP-1, GA 02C, and Norden. Since peanuts were cropped only once every three years, overall SSR pressure area was low. The incidence of SSR was higher on Hull and UF000324

than on the majority of other commercial and experimental peanut lines. Andru II, C-99R, DP-1, GA 02C, Norden, UF00620, and UF2328 suffered less SSR damage than Hull and UF000324. No single disease appeared to consistently suppress peanut yield. Despite high LLS and rust ratings, Carver yielded higher than the current industry standard Georgia Green, as well as the commercial lines Andru II, DP-1, and Hull. Yield for the commercial lines AP-3, C-99R, GA 02C, and Norden, along with the experimental lines UF000324, UF2338, and UF98324 were similar to those recorded for Carver. Among the commercial and experimental lines, Andru II and UF00620, respectively, had the lowest pod yields.

EFFECT OF LATE LEAF SPOT AND PEANUT RUST ON THE YIELD OF SELECTED PEANUT CULTIVARS, GCREC

			Disease Rating				
Peanut Line	Maturity Group[1]	TSWV Incidence[2]	LLS[3]	LLS AUDPC[4]	Peanut Rust[5]	Southern Stem Rot[6]	Yield (lb/A)
Andru II	3	2.5 ab[7]	3.8 bc	111.3 bcd	4.5 ab	1.5 c	2650 e
AP-3	4	1.8 ab	3.8 bc	102.4 cd	4.5 ab	3.0 bc	4324 ab
Carver	4	3.3 ab	4.5 ab	119.6 abc	6.0 a	3.3 bc	4508 a
C-99R	5	4.5 ab	3.0 c	110.8 bcd	3.3 bc	2.5 c	4129 abc
DP-1	5	3.0 ab	3.0 c	94.9 d	2.8 c	2.3 c	3556 cd
GA 02C	4	1.3 c	3.3 c	133.8 a	2.8 c	1.5 c	4359 ab
Georgia Green	4	5.3 a	3.5 c	121.3 abc	4.5 ab	3.3 bc	3877 bcd
Hull	5	2.3 ab	3.0 c	106.3 bcd	3.5 bc	5.8 a	3636 cd
Norden	4	5.3 a	3.0 c	95.8 d	2.8 c	2.5 c	4324 ab
UF000324	4	5.0 a	3.5 c	105.1 bcd	4.5 ab	5.0 ab	4393 ab
UF00620	3	2.8 ab	4.8 a	132.9 a	6.0 a	1.5 c	3258 de
UF2328	5	4.5 ab	3.0 c	122.4 ab	3.3 bc	2.8 c	4336 ab
UF98324	5	3.5 ab	3.3 c	94.8 d	4.5 ab	3.3 bc	4083 abc

[1]Pod maturity for peanut lines in maturity group 3 [early] occurred 126-140 days after planting (DAP), 130-140 DAP for maturity group 4 [mid-season] lines, and 140-165 DAP for lines in maturity group 5 [late].
[2]Incidence of TSWV is expressed as the number of loci or hits per 60 feet of row.
[3]Late leaf spot was rated using the Florida leaf spot 1-10 scoring system.
[4]AUDPC refers to area under the disease progress curve.
[5]Peanut rust severity was evaluated using the ICRISAT 1-9 rust rating scale.
[6]Incidence of southern stem rot (SSR) is expressed as the number of disease loci or hits per 60 feet of row.
[7]Means in each column that were followed by the same letter are not statistically different according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

YIELD RESPONSE AND DISEASE CONTROL WITH RECOMMENDED FUNGICIDE PROGRAMS ON SELECTED CULTIVARS OF PEANUT, GCREC

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

Objective: To evaluate the efficacy of recommended fungicide programs for the control of leaf spot diseases, peanut rust, southern stem rot, as well as their impact on the yield of the Andru II, Carver, and DP-1 peanut cultivar.

Methods: On May 13, the peanut cultivars Andru II [maturity group 3], Carver [maturity group 4], and DP-1 [maturity group 5] were planted at a rate of 6 seeds per foot of row in a field that was cropped to peanut once every three years using conventional tillage practices in a Malbis fine sandy loam (OM<1 percent) soil. A split-plot design with peanut cultivars as whole plots and fungicide programs as subplots was used. 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. On April 14, the test area was subsoiled and bedded before 2 pints per acre of Prowl was broadcast. Temik 15G at 6.5 pounds per acre was applied in-furrow for thrips control. Postemergent applications of 6 fluid ounces per acre of Gramoxone plus 1 pint per acre of Storm plus 1 pint per 50 gallons Activate were made on May 28 and June 11. The test area was not irrigated. Full canopy sprays on all peanut cultivars were made on a 14-day calendar schedule on June 26, July 8, July 24, August 5, August 18, September 2, and September 14 with a four-row, ATV-mounted boom sprayer with three TX-8 nozzles per row in 10 gallons per acre spray volume. In addition, the DP-1 peanut received an additional application of Bravo Ultrex at 1.4 pounds per acre on September 29 and October 7.

Early and late leaf spot were rated simultaneously 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. Peanut rust severity was rated using the ICRISAT 1-9 rust rating scale where 1 = no disease to 9 = 80 to 100 percent of leaves withered. Leaf spot and rust ratings were recorded on September 12 for Andru II, September 18 for Carver, and October 3 for DP-1.

Southern stem rot (SSR) loci counts, where one locus or hit is defined as < 1 foot of consecutive SSR damaged plants per row, were made immediately after plot inversion on September 12 for Andru II, September 18 for Carver, and October 15 for DP-1. Andru II, Carver, and DP-1 were harvested on September 16, September 30, and October 20, respectively with a field combine and yields reported at 7 percent moisture. Significance of treatment effects were tested across all cultivars by analysis of variance and Fisher's least significant difference (LSD) test ($P \leq 0.05$). Since the cultivar x treatment interaction for leaf spot diseases, peanut rust, SSR, and yield were not significant, the data for each of these variables was pool or averaged across the three peanut cultivars.

Results: Rainfall totals exceeded the historical average for June and July, were average to slightly below average for May, August, and September, and were below average for October. Significant differences in the severity of leaf spot diseases and peanut rust, as well as the incidence of SSR were noted between peanut cultivars (Table 1). On all three peanut cultivars, late leaf spot (LLS) caused considerably more damage than did early leaf spot. Since peanuts were cropped only once every three years, southern stem rot pressure was low. The late maturing DP-1 peanut had significantly higher ratings for late leaf spot, rust, and SSR than did Andru II or Carver. In contrast, late leaf spot and rust severity, as well as SSR incidence was similar on the latter two peanut cultivars. While Andru II and Carver suffered significant less disease-related damage, yield for DP-1 was significantly higher. Andru II also had significantly higher yields than did Carver.

Significant differences in the severity of late leaf spot and peanut rust, as well as the incidence of SSR were noted between the recommended fungicide programs (Table 2). The Folicur 3.6F program gave the poorest control of late leaf spot while the Headline 2.09E program proved to be the most effective in controlling this disease. The lack of LLS control with Folicur 3.6F is most likely due to the used of a poorly formulated product that was found later to be unstable. The level of LLS control provided by the other fungicide programs was similar. While peanut rust severity was not very high, the least damage was seen on the peanuts treated with Stratego/Bravo Ultrex, Abound

2SC, Headline 2.09EC, or four applications of low rate of Bravo Ultrex plus Moncut 70DF. Incidence of SSR was higher for the program with a single application of Bravo Ultrex plusMoncut 70DF compared to that noted for the other Bravo Ultrex plus Moncut 70DF program. While the yield response for most of the fungicide programs was similar, those recorded for the Folicur 3.6F program were significantly lower than those obtained with the low rate of Bravo Ultrex plus Moncut 70DF program.

Disease ratings for LLS, peanut rust, and SSR, and yield data are segregated by fungicide program and each peanut cultivar in Table 3. For the Bravo Ultrex, Folicur 3.6F, four application Bravo Ultrex plus Moncut 70DF, and Abound 2SC/Folicur 3.6F programs, LLS control was similar on Andru II, Carver, and DP-1 peanuts. A decline in the effectiveness of the 9 ounce per acre Headline 2.09EC and one application Bravo Ultrex plus Moncut 70DF programs was noted on the late maturing DP-1 when compared to the level of LLS control noted with these same treatments on the two earlier maturing peanut lines. Also, the Abound 2SC program proved more effective in controlling LLS on Andru II than on DP-1. An increase in rust severity was observed on the late maturing DP-1 peanut maintained under the Bravo Ultrex, Folicur 3.6F, and one application Bravo Ultrex plus Moncut 70DF regimes.

TABLE 1. YIELD RESPONSE AND REACTION OF SEVERAL PEANUT CULTIVARS TO LATE LEAF SPOT, PEANUT RUST, AND SOUTHERN STEM ROT, GCREC

Peanut Cultivar	Maturity[1]	LLS Severity[2]	Rust Severity[3]	SSR[4]	Yield (lb/A)
Andru II	3 (early)	3.4 b[5]	1.7 b	0.5 b	4655 b
Carver	4 (mid-season)	3.7 b	1.6 b	1.1 b	3501 c
DP-1	5 (late)	4.4 a	2.1 a	2.8 a	4995 a

[1]Pod maturity for Andru II occurs 126 to 140 DAP, 130 to 140 DAP for Carver, and 140 to 165 DAP for DP-1 peanut.
[2]Late leaf spot (LLS) severity was rated using the Florida 1-10 leaf spot scoring system.
[3]Peanut rust severity was assessed using the ICRISAT 1-9 rating scale.
[4]SSR incidence is expressed as the number of disease loci or hits per 60 feet of row.
[5]Means in each column that are followed by the same letter are not significantly different according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

TABLE 2. EFFECTIVENESS OF RECOMMENDED FUNGICIDE PROGRAMS IN CONTROLLING LATE LEAF SPOT, PEANUT RUST, AND SOUTHERN STEM ROT, AS WELL AS THEIR IMPACT ON PEANUT YIELD, GCREC

Fungicide Program and Rate/A	Spray Timing	LLS[1]	Peanut Rust[2]	SSR[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb	1-7	3.7 bc[4]	2.3 a	1.8 ab	4359 ab
Bravo Ultrex 1.4 lb Folicur 3.6F 0.45 pt	1,2,7 3,6	5.8 a	2.4 a	1.5 abc	4121 b
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 1.4 lb	1,2,4,5,6,7 3	3.7 bc	2.6 a	2.2 a	4467 ab
Bravo Ultrex 1.4 lb Bravo Ultrex 1.4 lb + Moncut 70DF 0.4 lb	1,2,7 3,4,5,6	3.5 bc	1.6 b	0.6 c	4655 a
Bravo Ultrex 1.4 lb Abound 2SC 1.15 pt	1,2,4,6,7 3,5	3.3 c	1.2 b	1.1 bc	4509 ab
Bravo Ultrex 1.4 lb Headline 2.09EC 9 fl oz	1,2,4,6,7 3,5	2.6 d	1.2 b	2.0 ab	4354 ab
Stratego 7 fl oz Bravo Ultrex 1.4 lb	1,2 3,4,5,6,7	4.1 b	1.3 b	1.3 abc	4546 ab

[1]Late leaf spot (LLS) severity was rated using the Florida 1-10 leaf spot scoring system.
[2]Peanut rust severity was assessed using the ICRISAT 1-9 rating scale.
[3]SSR incidence is expressed as the number of disease loci or hits per 60 feet of row.
[4]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 ($P \leq 0.05$).

In contrast, the remaining fungicide programs gave excellent residual control of peanut rust on the peanut lines in all three maturity groups. For four fungicide programs, SSR incidence was higher on the later maturing DP-1 than on Andru II or Carver peanuts. Under the Abound 2SC/Folicur 3.6F, Folicur 3.6F, and four application Bravo Ultrex plus Moncut 70DF programs, incidence of this disease was similar on all three peanut lines. Regardless of the fungicide program, the Carver peanut consistently yielded significantly less than either Andru II or DP-1. That is surprising because the yield potential for Carver is equal to if not higher than that of the latter peanut lines. For six of the seven fungicide programs, the yield for Andru II and DP-1 did not significantly differ. With the four application Bravo Ultrex plus Moncut 70DF program, Andru II yielded significantly less than DP-1.

Table 3. Disease ratings and yield broken down by fungicide program and peanut cultivar, GCREC

Fungicide Program and Peanut Cultivar	LLS Rating[1]	Peanut Rust[2]	SSR[3]	Yield (lb/A)
Bravo Ultrex 1.4 lb/A Program				
Andru II	3.5 def[4]	2.3 abc	0.8 de	5104 abcd
Carver	3.4 defg	1.8 bcd	1.0 cde	3361 hij
DP-1	4.3 bcd	3.0 a	3.8 a	4611 bcdef
Folicur 3.6F 0.45 pt/A Program				
Andru II	5.3 ab	2.5 ab	0.5 de	4473 cdefg
Carver	6.0 a	1.8 bcd	2.0 bcd	2994 ij
DP-1	6.3 a	3.0 a	2.0 bcd	4898 abcde
Bravo Ultrex 1.4 lb/A + Moncut 1.4 lb/A Program				
Andru II	3.0 efgh	2.5 ab	0.8 bc	4886 abcde
Carver	3.5 def	2.3 abc	1.3 cde	4022 fgh
DP-1	4.6 bc	3.0 a	4.3 a	4382 defg
Bravo Ultrex 1.4 lb/A + Moncut 0.4 lb/A Program				
Andru II	3.3 defg	1.3 cd	0.3 de	4313 efg
Carver	3.8 cde	2.0 abcd	0.8 de	3992 fgh
DP-1	3.6 cde	1.5 bcd	0.8 de	5494 a
Abound 2SC 1.15 pt/A Program				
Andru II	2.5 fgh	1.0 d	0.0 e	4783 abcde
Carver	3.3 defg	1.0 d	0.5 de	3732 ghi
DP-1	4.0 cde	1.5 bcd	2.8 abc	4817 abcde
Headline 9 fl oz/A Program				
Andru II	2.4 fg	1.3 cd	1.0 cde	4565 bcdef
Carver	2.0 h	1.0 d	1.0 cde	2814 j
DP-1	3.5 def	1.3 cd	3.8 ab	5299 ab
Abound 2SC 0.75 pt/A; Folicur 3.6F 0.45pt/A Program				
Andru II	3.6 cde	1.3 cd	0.3 de	4462 cdef
Carver	4.0 cde	1.3 cd	1.7 cde	3808 gh
DP-1	4.6 bc	1.5 bcd	2.0 bcd	5184 abc

[1]Late leaf spot (LLS) severity was rated using the Florida 1-10 leaf spot scoring system.
[2]Peanut rust severity was assessed using the ICRISAT 1-9 rating scale.
[3]SSR incidence is expressed as the number of disease loci or hits per 60 feet of row.
[4]Means in each column that are followed by the same letter are not significantly different according to Fisher's protected least significant difference (LSD) test ($P \leq 0.05$).

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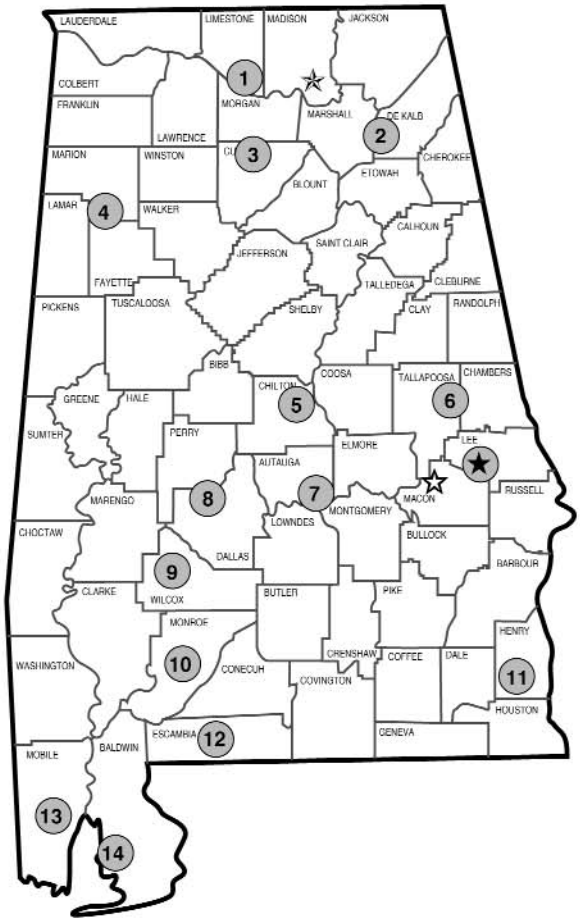

Research Unit Identification

★ Main Agricultural Experiment Station, Auburn.
✯ Alabama A&M University.
☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Research and Extension Center, Belle Mina.
2. Sand Mountain Research and Extension Center, Crossville.
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