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Final Report Summary
Southeastern Peanut Research Initiative
January 1, 2010-June 30, 2011
On Research Supported by the Grant

"Integrated Management of Tomato Spotted Wilt, Leaf Spot, Rust, White Mold, and CBR in Peanut"

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Field tests were conducted in which the effects of new cultivars and breeding lines CRSP 963 and CRSP 993 and C724-19-25 on incidence of spotted wilt and leaf spot were investigated. In addition, the test examined the performance of each of these lines under varying levels of fungicide inputs. Leaf spot epidemics were more severe in the new cultivar Florun 107 than in any other entry. Leaf spot severity in Tifguard were lower than Georgia Green, Georgia-06G, or Georgia-07W. However, yields among Tifguard, C724-19-25, Georgia-06G, and Georgia-07W did not differ and all were higher than Georgia Green. There was little improvement, if any in yield with increase from 4 to 7 fungicide applications. Several lines had numerically higher yields with the four spray program than the seven spray, possibly due to earlier initiation of tebuconazole applications in a year with white mold occurring early.

In a cultivar response to seeding rate trial, there were no differences between 3 and 6 seed/ft of row except for Georgia Green. Georgia-10T had lower incidence of white mold than Georgia Green or Georgia-06G. Yields of Georgia-10T, Georgia-06G, and Tifguard were greater than those of Georgia Green. Only Georgia Green had an increase in yield with 6 seed/ft of row compared to 3. Economic aspects of seed costs, yield, grade, and value/A as well as incidence of tomato spotted yield will be compared for the seeding rate range for each cultivar.

Trials were conducted examing the response of 10 cultivars and genotypes to Thimet insecticide for management of tomato spotted wilt. Pressure from spotted wilt wass light. Only Georgia Green had a reduction in tomato spotted wilt incidence in Thimet vs. non-treated plots. All other entries had incidence of tomato spotted wilt lower than that of Georgia Green, regardless of the Thimet treatment. In spite of low incidence of tomato spotted wilt, yield in Georgia-09B and Florida-07 increased 380 lb/A and 514 lb/A respectively. Georgia Greener, Georgia-06G, and Georgia-07W had no increase in yield with use of Thimet.

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Report to the
Southeastern Peanut Research Initiative
5th Quarter Report, May 18, 2011
On Progress on Research Supported by the Grant

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Update:

A. Field tests were conducted in which the effects of cultivars Georgia Green, Georgia-06G, Tifguard, and breeding lines CRSP 963 and CRSP 993 and C724-19-25 on incidence of spotted wilt and leaf spot were investigated. Tifguard has high levels of resistance to TSWV, and good resistance to root-knot nematode, but also has some leaf spot resistance. In addition, the test examined the performance of each of these lines under varying levels of fungicide inputs (0, 4, and 7 applications of fungicides that include chlorothalonil, tebuconazole). Leaf spot epidemics were heavy, and in non-treated plots was more severe in the potential new cultivar "FL 08031" than in any other entry. Leaf spot severity in Tifguard and breeding line C724-19-25 were lower than Georgia Green, Georgia-06G, or Georgia-07W. However, yields of Tifguard, C724-19-25, Georgia-06G, and Georgia-07W did not differ among themselves, and all had yields higher than Georgia Green. Although leaf spot control improved with use of 7 sprays compared to 4, there was little improvement, if any in yield. Several lines had numerically higher yields with the four spray program than the seven spray, possibly due to earlier iniation of tebuconazole applications in a year with white mold occurring early.

B. A field test was conducted at the UGA-CPES Lang Farm examining the effect of seeding rate (3,and 6 seed/ft of row) on tomato spotted wilt and yield in Georgia Green, Georgia-06G, Tifguard, and a new cultivar Georgia-10T, released by the University of Georgia. Objectives included determining whether seeding rates can be reduced in highly resitant lines. The trial was planted in April, 2010, but tomato spotted wilt epidemics were light this year. All entries included had lower incidence of TSWV than Georgia Green, but there was no differences among them. There were no differences between 3 and 6 seed/ft of row except for Georgia Green. Georgia-10T had lower incidence of white mold than Georgia Green or Georgia-06G. Yields of Georgia-10T, Georgia-06G, and Tifguard were greater than those of Georgia Green. Only Georgia Green had an increase in yield with 6 seed/ft of row compared to 3. Economic aspects of seed costs, yield, grade, and value/A as well as incidence of tomato spotted yield will be compared for the seeding rate range for each cultivar.

C. Trials were conducted examing the response of 10 cultivars and genotypes to Thimet insecticide for management of tomato spotted wilt. The test will included new cultivars Florida 07, Tifguard,

Georgia-06G, Georgia Greener, Georgia-07W, Georgia-09B and new proposed or possible cultivar releases from the and University of Florida. The test included Georgia Green as a standard. The trial was planted in April, 2010, but pressure from spotted wilt wass light. In previous years, with highly resistant cultivars we have observed yield responses to Thimet that were not explainable with level of spotted wilt suppression. Only Georgia Green had a reduction in tomato spotted wilt incidence in Thimet vs. non-treated plots. All other entries had incidence of tomato spotted wilt lower than that of Georgia Green, regardless of the Thimet treatment. In spite of low incidence of tomato spotted wilt, yield in Georgia-09B and Florida-07 increased 380 lb/A and 514 lb/A respectively. Georgia Greener, Georgia-06G, and Georgia-07W had no increase in yield with use of Thimet. The Univ. of Florida breeding line UF 08031 (now Florun-107) had spotted wilt ratings and yields comparable to the best of the available cultivars included in the trial.

D. A final report from the Florida work was submitted with the 4th quarter report.

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Report to the
Southeastern Peanut Research Initiative
Final Report, May 13 2011
On Progress on Research Supported by the Grant

"Integrated Management of Tomato Spotted Wilt, Leaf Spot, Rust, White Mold, and CBR in Peanut"

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Update:

A. Field tests were conducted (planted in mid-May) 2009 which the effects of cultivars Georgia Green, Georgia-06G, Tifguard, and breeding lines CRSP 983 and CRSP 993 and C724-19-25 on incidence of spotted wilt and leaf spot were investigated. In addition, the test examined the performance of each of these lines under varying levels of fungicide inputs (0, 3, 4, and 6 applications of fungicides that included chlorothalonil, tebuconazole). Leaf spot pressure was intense. Final leaf spot ratings indicate greater final levels of defoliation in Georgia-06G than in Georgia Green or Tifguard in nontreated plots. Earlier ratings showed lower leaf spot severity in Tifguard than in Georgia Green, but by end of the season, these two cultivars were similar. All cultivars and breeding lines responded to fungicide inputs for leaf spot control. Yields of Georgia-06G, C724-19-25, and Tifguard were greater than for Georgia Green across fungicide treatments. All responded to fungicide inputs, but there was little yield response to greater than 4 fungicide applications on Tifguard.

B. Field trials were conducted (Planted late-April) in 2008 and 2009at the UGA-CPES Rigdon Farm to determine the effect of seeding rate (3,4,5,and 6 seed/ft of row) on tomato spotted wilt and yield in Georgia Green, Georgia-06G, Florida-07, and Tifguard. Objectives included determining whether seeding rates can be reduced in highly resitant lines, especially those (Florida 07, Georgia-06G, and Tifguard) that have larger seed than Georgia Green. There was a substatinal decrease in final incidence of spotted wilt with increased seeding rate in Georgia Green, but the effect was less noticable effect on the other three varieties. Georgia-06G, Florida-07 and Tifguard all have lower incidence of spotted wilt than Georgia Green regardless of seeding rate. Similarly, yields of all three other varieties were greater than those for Georgia Green for all seeding rates. Grade samples have been processed and economic analysis has been completed. Across the two years, based on disease severity and economic aspects of seed costs, yield, grade, and value/A, use of reduced seeding rates may be possible with all three of these new cultivars without significantly increasing the risk of losses to TSWV. A manuscript is in progress reporting the results of the two years..

C. A field experiment was conducted (planted late April) examining the response of a total of 16 cultivars and genotypes to Thimet insecticide for management of tomato spotted wilt. The test included new cultivars Florida 07, Tifguard, AT-3085, Georgia-06G, Georgia Greener, Georgia-07W, and Georgia-08V and Georgia Green as a standard. Several (most) of the cultivars and breeding lines in the test had lower final incidence of spotted wilt than Georgia Green in the untreated plots. Georgia Green showed a strong response to Thimet, based on final incidence ratings. Cultivars Georgia-08V, Florida-07,Tifguard, Georgia Greener, Georgia-06G, Georgia-07W, and Georgia-2C had final spotted wilt ratings much lower than those of Georgia Green across Thimet treatments, and most of these cultivars had no significant response to Thimet for incidence of spotted wilt. However, in spite of low incidence of spotted wilt in event nontreated plots, Georgia-07W had approximately a 400 lb yield response to Thimet. Yield response to Thimet in Georgia Green was over 1000 lbs/A, but few of the other released cultivars had a significant yield response to Thimet.

D. Field experiments were conducted (planted early May) to examine the effects of silicate and plant growth regulator materials on incidence of spotted wilt. Georgia Green cultivar was used for these evaluations. These materials were compared to a nontreated check and in-furrow applications of Thimet insecticide as a standard. There was a significant reduction in incidence of spotted wilt and increase in yield with the use of Thimet, but no other treatment was different from the nontreated control.

E. Trials were conducted at Citra, FL to examine the Effects of reduced fungicide rate upon early leaf spot, late leaf spot, rust and TSWV. The preliminary data for disease severity indicates that reduced rates of Provost and reduced rates of Topguard showed reduced early leaf spot compared to the untreated check but did not show any significant differences between treatments. Both leaf spot rating using the Florida leaf Spot rating scale and percent defoliation followed the trends observed with fungicide control of early leaf spot. Late leaf spot occurred at such a low level that there were no significant differences between any of the reduced rate fungicide application and the untreated check. The highest rate of Topguard resulted in greatest severity of rust in this test. Yield data has not yet been collected but will be available in the final report. The preliminary data for white mold severity indicates that the lowest rate of Abound was not different from the highest rate. The standard fungicides evaluated for disease control were significantly better than the untreated check when evaluating severity of disease.

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