Grant Report
Fund 367401 (RE: APPA-RIA03-PID 22 BID 1248)
January 16, 2014

Title: Integrated management of TSWV, leaf spot, rust, stem rot, and Cylindrocladium black rot on peanut.

Project Leader (Alabama):
Austin Hagan, Department of Entomology and Plant Pathology

Results: Yield and reaction of commercial peanut varieties to diseases was evaluated on rainfed and irrigated sites at the Wiregrass Research and Extension Center in Headland, AL. Weather patterns at this site were favorable for leaf spot but not stem rot development. For the rainfed study, disease incidence was higher in Tuff Runner than Georgia-09B, Tifguard, Georgia-10T, and Georgia-12Y, despite low TSW pressure. Early leaf spot was the dominant disease observed through mid-September but late leaf spot rapidly intensified into October. Similarly high leaf spot intensity was recorded for Georgia-08V, Georgia-10T, and Georgia-12Y, while equally low damage ratings for this disease were recorded for Tifguard, Georgia-07W, Georgia-06G, Tuff Runner, and Georgia Greener. Stem rot incidence was higher on Georgia-11J compared with all other cultivars except Georgia-08V, Florida 07, and Flo-Run 107. Florida 07, Georgia-09B, Georgia-12Y, Georgia-11J, Georgia-06G, and Tuff Runner had equally high yields, while similarly low yields were recorded for Georgia-08V, Tifguard, and Flo-Run 107. On an irrigated site, significant differences in TSW incidence were noted between peanut cultivars with Flo-Run 107 having a higher TSW incidence than all cultivars except for Florida-07, Georgia-08V, Georgia-09B, Georgia-11J, Georgia Greener, and Tuff Runner. Disease intensity in 5 additional peanut cultivars was equally low as the TSW ratings Georgia-07W. Georgia-08V, Georgia-10T, Georgia-12Y, and Flo-Run 107 had similarly high leaf spot intensity ratings, while the least leaf spotting and premature defoliation were observed in Tifguard, Tuff Runner, Georgia-11J, Georgia-07W, C1805-2-9, and Georgia Greener. Higher stem rot indices were found for Georgia-11J than all varieties except for Georgia-08V and Georgia-09B. With one exception, stem rot indices for the remaining cultivars were similarly low. Yield of Georgia-6G was higher than all varieties except for Georgia-12Y, Georgia Greener, Tuff Runner, and Georgia-07W, while those for Florida-07, Georgia-11J, and Georgia-8V were similarly low. Impact of planting date, peanut variety, and insecticide treatment on thrips feeding damage, TSW incidence, leaf spot diseases, stem rot, and yield of peanut was evaluated. Thrips damage Florida 458 and Georgia-06G peanut varieties was higher at the mid-May than mid-April planting date, while TSW incidence was higher at the April than later May planting date. Yields were higher but leaf spot intensity lower at the later than early planting date. Stem rot incidence was not influenced by planting date. Thrips damage ratings and yields were higher but TSW incidence, leaf spot intensity, and stem rot incidence were lower for Georgia-06G than Flavorunner 458. Cruiser insecticide seed treatment as well as Temik 15G and Thimet 20G soil insecticides proved more effective in reducing thrips feeding damage on the April than May-planted peanuts. Of the three insecticide treatments on April-planted peanuts, Thimet 20G and Temik 15G gave the best protection from thrips. In contrast, Temik 15G gave the best thrips protection in the May-planted peanuts. Yield response with Thimet 20G and Thimet 20G + CruiserMaxx was similar to that obtained with Temik 15G. Yield for the Cruiser-treated and the non-insecticide treated seed control were similar. Also, yield response with Thimet 20G or Cruiser insecticide seed dressing alone also did not significantly differ. In a second thrips trial at the WGREC, Thimet 20G gave superior protection from thrips feeding damage on the peanut varieties Flavorunner, Georgia-12Y, and Georgia-06G. When compared with the non-insecticide treated control, no reduction in thrips damage was obtained with the CruiserMaxx insecticide seed dressing as well as early post applications of the insecticides Radient and Admire. Row spacing had no impact on the efficacy of the above insecticide treatments in protecting peanut from thrips. Incidence of TSW and leaf spot was higher in Flavorunner 458 than Georgia-06G and Georgia-12Y with the latter having the lowest rating for both diseases. Stem

rot incidence was also higher in Flavorunner 458 than Georgia-06G and Georgia-12Y. Twin row Flavorunner 458 and Georgia-06G peanuts suffered less stem rot damage compared with these same varieties in single rows. Regardless of row spacing, equally high yields were recorded for Georgia-12Y. Higher yields were obtained with Georgia-06G and Flavorunner458 on twin than single rows. Effect of seeding rate on disease activity and yield of five commercial peanut varieties in a rainfed production setting was evaluated at the WGREC. Monthly rainfall totals were above to well above average and temperatures below average for May, June, July, and August. Seeding rate significantly impacted stand density as well as TSW and stem rot incidence but not leaf spot intensity and yield. TSW incidence was low on all varieties but highest disease incidence was seen in Florida-07. Highest leaf spot intensity was recorded in Georgia-09B and equally low in Florida-07 and Tifguard. Florida-07 produced the highest pod yields, while equally low yields were obtained for Georgia-09B, Georgia-10T, and Tifguard.

Publications

Campbell, H. L., A. K. Hagan, K. L. Bowen, and L. Wells. 2013. Influence of seeding rate and planting date on diseases and yield of three peanut cultivars. Proc. Am. Pnut. Res. Ed. Soc. 45:38-39. http://apresinc.com/wp-content/uploads/2013/12/2013-Proceedings-Final.pdf.

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Hagan, A. K., K. L. Bowen, H. C. Campbell, B. Gamble, M. Pegues, and L. Wells. 2013. Peanut disease control field trials, 2012. Alabama Agri. Exp. Sta. Entomology and Plant Pathology Departmental Series No.17A. http://aurora.auburn.edu/repo/bitstream/handle/11200/44178/Peanut%20Disease%20Control%20Trials%202012.pdf?sequence=1.

Hagan, A. K., H. L. Campbell, K. L. Bowen, and L. Wells. 2013. CruiserMAXX seed dressing compared with soil insecticides for thrips protection, TSWV incidence and yield response on three runner peanut varieties. Proc. Am. Pnut. Res. Ed. Soc. 45:25-26. http://apresinc.com/wp-content/uploads/2013/12/2013-Proceedings-Final.pdf.

Hagan, A. K., H. L. Campbell, K. L. Bowen, and L. Wells. 2013. Seeding Rate and Planting Date Impacts Stand, Diseases, and Yield of Runner Peanuts. Alabama Cooperative Extension System Plant Pathology Series Timely Information PP-731. https://sites.aces.edu/group/timelyinfo/Documents/2013%20Peanut%20Seeding%20Rate%20TI%20Formatted.final.pdf.

Hagan, A. K., H. L. Campbell, K. L. Bowen, and B. Gamble. 2014. Disease intensity and yield responses of rainfed commercial peanut cultivars compared, 2013. Plant Disease Management Reports 8. (submitted).

Hagan, A. K., H. L. Campbell, K. L. Bowen, and B. Gamble. 2014. Disease intensity and yield responses of irrigated commercial peanut cultivars compared, 2013. Plant Disease Management Reports 8. (submitted).

Hagan, A. K., H. L. Campbell, K. L. Bowen, and B. Gamble. 2014. Yield response and disease reaction of experimental peanut breeding lines compared, 2013. Plant Disease Management Reports 8. (submitted).

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Grant Report
Fund 367401 (APPA-RIA03-PID 22 BID 1248)
April 21, 2014

Title: Integrated management of TSWV, leaf spot, rust, stem rot, and Cylindrocladium black rot on peanut.

Project Leader (Alabama):
Austin Hagan, Department of Entomology and Plant Pathology

Results: Have begun to plant peanut trials for 2014 research season. Planting date x varicty x thrips control product studies have been initiated at the Gulf Coast Research and Extension Center and Wiregrass Research and Extension Center to evaluate the efficacy of soil, seed, and foliar-applied insecticides for the control of thrips and TSW in peanut as influenced by planting date and peanut variety. Additional trials comparing the efficacy of insecticide seed dressings with soil and foliar applied insecticides will also be conducted at the above locations with the objective of defining the effectiveness of CruiserMAXX insecticide seed dressing as compared with the standard Thimet 20G soil applied insecticide treatment. The impact of seeding rate as influenced by peanut variety selection will also be evaluated on rainfed sites at the Gulf Coast Research and Extension Center and Wiregrass Research and Extension Center. Unlike irrigated peanuts, seeding rates have a sizable impact on stand density and yield of rainfed peanuts. Additional peanut rotation, variety, fungicide, and nematicide screening trials will be planted over the next month at both of the above locations as well as the Wiregrass Research and Extension Center, Gulf Coast Research and Extension Center, Brewton Agricultural Research Unit, and Plant Breeding Unit/EV Smith Research Center. Reports summarizing studies conducted in 2013 have been submitted to AAES for editing prior to be posted to the web.

2013-2014 Peanut Research Publications and Abstracts

Bowen, K. L., H. L. Campbell, and A. K. Hagan. 2013. Predicting aflatoxin occurrence in peanuts. Proc. Am. Pnut. Res. Ed. Soc. 45:26-27. http://apresinc.com/wp-content/uploads/2013/12/2013-Proceedings-Final.pdf

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https://www.plantmanagementnetwork.org/pub/trial/PDMR/reports/2014/FC140.pdf

Campbell, H. L., A.K. Hagan, K.L. Bowen, and L. Wells. 2014. Evaluation of Fontelis and Koverall for peanut disease control in southeast Alabama, 2013. Plant Disease Management Reports 8:FC141.
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Campbell, H. L., A.K. Hagan, K.L. Bowen, and L. Wells. 2014. Evaluation of A18993 and A18126 for peanut disease control in southeast Alabama, 2013. Plant Disease Management Reports 8:FC142.
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Campbell, H. L., A.K. Hagan, K.L. Bowen, M. Pegues, and J. Jones. 2014. Evaluation of Fontelis for peanut disease control in southwest Alabama, 2013. Plant Disease Management Reports 8:FC145.
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https://www.plantmanagementnetwork.org/pub/trial/PDMR/reports/2014/FC146.pdf

Hagan, A. K., H. L. Campbell, K. L. Bowen, and L. Wells. 2013. CruiserMAXX seed dressing compared with soil insecticides for thrips protection, TSWV incidence and yield response on three runner peanut varieties. Proc. Am. Pnut. Res. Ed. Soc. 45:25-26. http://apresinc.com/wp-content/uploads/2013/12/2013-Proceedings-Final.pdf

Hagan, A. K., H. L. Campbell, K. L. Bowen, and B. Gamble. 2014. Disease intensity and yield responses of rainfed commercial peanut cultivars compared, 2013. Plant Disease Management Reports 8:FC147.
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Hagan, A. K., H. L. Campbell, K. L. Bowen, and B. Gamble. 2014. Disease intensity and yield responses of irrigated commercial peanut cultivars compared, 2013. Plant Disease Management Reports 8:FC148.
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