

National Peanut Board Check-Off Research  
Final Report with Exec. Summary- 2009

2009, several hundred lines were tested for their oleic acid concentration. The third objective related to providing data valuable to the US peanut grower. We evaluated advanced breeding lines and cultivars for their maturity, yield, grade and disease reaction. Data generated will be provided to growers to aid in making decisions for planting. No cultivars were released during the period.

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238  
FL-46  
723  
2009

I. Title: Breeding Superior Peanut Varieties for the Southeast

II. Investigators:

Project Leader: B.L. Tillman ([btillman@ifas.ufl.edu](mailto:btillman@ifas.ufl.edu))

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III. Objectives:

The University of Florida Peanut Breeding Program is a continuous effort to develop and deploy peanut varieties with improved yield, grade and disease resistance. New cultivars are one of the most cost effective ways to improve the competitiveness of peanut with other crops. Production costs continue to escalate forcing producers to find ways to increase yield and/or reduce costs. High yielding, disease resistant cultivars are a very important method of reducing costs and increasing yields. The ongoing University of Florida Peanut Breeding program is focused on developing varieties with disease resistance, high yield and good grades.

Peanut breeding is a long-term endeavor whose objectives do not change dramatically with time. The UF breeding program screens germplasm for resistance to tomato spotted wilt (TSWV), leafspots, white mold, CBR (*Cylindrocladium black rot*) and nematodes. We have the capability to screen large numbers of genotypes for reaction to TSWV, leaf spot and white mold. We have limited capacity to screen for resistance to CBR and root knot nematode. Screening for nematode resistance and CBR has been conducted in farmer's fields, whereas TSWV, leaf spot and white mold nurseries has been on the research station in Marianna.

A. On-going University of Florida Breeding Program

- a. Test University of Florida peanut breeding lines for resistance to late leafspot, white mold, TSWV, CBR, and root knot nematodes, as well as for pod yield, grades, and maturity.

#### RESULTS

In 2009, this project partially supported disease resistance screening (for leaf spot, white mold and TSWV) of over 300 new breeding lines. In addition, about 50 lines were screened for resistance to root knot nematode and were tested for pod yield and grade characteristics. Several lines performed well in two or more disease screening tests as well as in tests designed to test for maximum yield and grade potential. These lines will be evaluated for their potential as cultivars in the 2010 season and beyond.

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- b. Evaluate advanced University of Florida breeding lines for fatty acid composition.

RESULTS

In 2009, this project partially supported the continued testing for oleic fatty acid concentration in UF breeding material. The high oleic trait is important for the US peanut industry to maintain a competitive advantage in the export and domestic markets.

- c. Variety management
  - i. Evaluate advanced lines for maturity
  - ii. Evaluate advanced lines and varieties in leafspot fungicide management studies (i.e., 0, 4, 8 leafspot sprays), to determine which ones could perform well in a reduced leaf spot spray program.
  - iii. Evaluate advanced lines and varieties for white mold resistance in plots with and without inoculation with *S. rolfsii*.

RESULTS

In 2009, this project partially supported testing about 60 new lines over three locations in Florida (Marianna, Jay and Citra, FL). These tests were conducted using optimum production methods to determine yield potential. In addition, these 60+ lines were evaluated for their reaction to leaf spot, white mold and spotted wilt. Several lines performed well under both optimum conditions and when challenged with disease. These lines will be evaluated for their potential as cultivars in 2010 and beyond.

Several cultivars were evaluated for their reaction to leaf spot under three fungicide regimes. This data is used to assign disease risk points within the Peanut Rx program.

Expenditures

The \$25,000 provided by this project partially funded the salary of a Agricultural Research Assistant in Marianna, FL.

Executive Summary

The project partially supported the three main objectives 1) evaluating disease resistance, 2) testing oleic acid, and 3) characterization of advanced breeding lines. Over 300 new lines were evaluated for their reaction to leaf spot, white mold and TSWV. These three diseases are the most important and costly for growers each year. Continued testing of new lines is important for development of future cultivars. High oleic acid oil is an important trait for the future of peanut in the US. Many foreign competitors have already realized the advantages of high oleic peanuts and are benefiting from improved products and consumer acceptance. The UF peanut breeding program continues to be a leader in high oleic peanut research and breeding and this project assisted in that endeavor. In