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Peanut Breeding
September 10, 2011
Final Report

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A Report to the National Peanut Board
through
The Texas Peanut Producers Board

Title: Development of High-Oil Peanuts for Use as Biodiesel Fuel

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Objectives.

To improve the competitiveness of peanut, we propose to increase the oil content of peanut from about 48% to near 60%. This will result in an increase of 25% of the gallons of oil that can be produced per acre. We have wild species accessions that have oil content in this range, and cultivated accessions containing 50 to 55% oil. These and the "ugly peanut" do not have appearance in shape and size typical of normal peanut varieties. However, the shape and size is not a primary concern for oil production. The Tamrun 98 variety has improved shell out, which could increase the oil extracted by 5%. We propose to combine the high oil trait with the high yield and shelling percent to develop a variety that can be more competitive for use as biodiesel fuel and give growers another market for peanuts. We have set up a system for oil analysis of plots. The AgriLife-Lubbock Center has a NMR spectrometer for measurement of oil content and we have developed standards by using conventional chemical analyses.

Technical Report

We identified several lines from the introgression program that are elevated in oil content and we placed six of these lines with checks into yield trials in 2010. These tests were planted at five locations. Yield on two of the lines was competitive with the Tamrun OL07 check in most tests. In one West Texas test one line was the top yielding line in the test and would have produced 100 gallons of oil per acre more than the Tamrun OL07 check, or 350 gallons total per acre. One test was planted to be screened for Sclerotinia blight resistance. Those ratings indicated that all the lines were as good as the Tamrun