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Final
2006
Carried
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2007

**Final Report
to
National Peanut Board
Texas Peanut Producers Board
2006 Funding year**

Title of Project:

**Peanut quality evaluations of Texas Peanut Breeding lines
(in developing new Varieties with Early Maturity and/or Resistance to Root-knot
Nematode, Sclerotinia blight, Southern blight, Leafspot, and Tomato Spotted Wilt
Virus and with High O/L.)**

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The objective of our project is to conduct quality analyses on breeding materials in earlier generations so we are able to eliminate undesirable materials at an earlier stage, thus conserving resources to concentrate on those lines which are truly more promising to become released varieties that will serve the peanut industry, and ultimately the consumers, better.

In fact, our focus has begun to change with this past year's efforts to be more what we envisioned from this project's beginning. That is, to test earlier generation materials in order to make our program more efficient. We have mostly "caught up" in the program so that now, most of what we have to test is earlier generation material.

During 2006 we tested three different groups of material and prepared for testing a fourth group..

Group 1: This group of samples represents some advanced lines from which we may be able to select a new important variety for release. We had 19 samples evaluated for complete analysis, oil, sugar, flavor, and shelf-life. We have not been able to finalize the information from these analyses, so we do not have reporting results from these data.

Group 2: This group consisted of 4,600 seed which the J Leek Company used their new NIR to determine if the O/L ratio was high or low. These seed were individual-seed analyses of early generation materials (F₂), which allows us to eliminate a high percentage of these seeds in early generation, making our breeding effort more efficient. Again, we do not have final data analysis and conclusions about which lines to discard and which to keep. These decisions will be made in the next few weeks so we can carry the desirable materials forward by planting in field plots in 2007.

Group 3: These were samples submitted from the Lubbock program, and again we have not completed the study, interpretation, and final analysis of the data. We assume that, as above, we will be able to eliminate many undesirable lines and keep desirable lines for further testing.

Group 4: This group of materials will actually be tested in our own laboratory in Lubbock, because the expenditures we made were for purchasing supplies and replacement parts for equipment that we think will give us the capability to use our own lab to do sugar and oil analyses on a preliminary basis. We will probably sacrifice some accuracy and over all repeatability, but we will increase the number of early generation individual seeds we can examine, thus, the trade-off should be to our benefit in numbers of samples we can study. This increase in numbers is what plant breeding is all about: the larger the number of offspring one can study, the greater the probability of recovering the desired combination of genes from a cross.

ACKNOWLEDGEMENT

We express appreciation to the National Peanut Board and The Texas Peanut Producers Board for funding this project. We feel confident that the resources have been spent to the best advantage of our Texas Peanut Growers.

Acknowledgement

We wish to express our sincere appreciation to the National Peanut Board, The Texas Peanut Producers Board, the Western Peanut Growers Association, and our several cooperators who assisted us in many different ways to get these analyses conducted. We express appreciation to Dr. Michael Franke and the J. Leek Company for their willingness to work with us on these quality parameters.