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.)

Researchers: Charles E. Simpson¹, Mark D. Burow², and Michael R. Baring³

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The objective for this project is to conduct quality analyses on early generation materials in the Texas peanut breeding program. We proposed to get analyses done on oil content, sugar content, and protein percent, free fatty acid composition, peroxide values, flavor, and/or blanchability. By conducting these analyses at early generations we become more efficient in our selection program because we are able to eliminate lines that have undesirable quality traits before we have expended significant resources and time evaluating these lines for disease resistance and/or agronomic characteristics. Before NPB funding, we would get these quality analyses on a few materials that were essentially ready for release and in some cases near or past approval for release. With the NPB funding we are able to concentrate our efforts on lines that are high in quality traits.

During the 2008 funding period (extended) we were able to get the more complete type analyses run on approximately 80 lines from the Lubbock peanut breeding project, 26 samples from the College Station project and 20 samples from the Stephenville project.

This information will be used to make selections for further line testing in 2009, and we will complete the evaluations when the remaining data are available to make selections for further yield and other agronomic testing as well as for further crossing and backcrossing.

Acknowledgments

We express sincere appreciation to the National Peanut Board, through and with the Texas Peanut Producers Board, for support of this research. These funds help us to make our breeding and selection work more efficient.

Respectfully submitted,
Charles Simpson, Co-PI, representing the team: Burow, Baring, Simpson
Peanut Quality Tests
March 24, 2009
2008 FINAL REPORT

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type analyses run on approximately 80 lines from the Lubbock peanut breeding project, 26
samples from the College Station project (Table 1) and 20 samples from the Stephenville
project (data not available at this writing but will include the 15 traits listed below for the
data in Table 1, plus blanching data for all 20 samples).
Table 1. Means for peanut quality data of 3, 4, or 5 replications from selected locations – 2008 samples from the College Station Project.

<table>
<thead>
<tr>
<th>Line ID</th>
<th>Fat %</th>
<th>Sugar %</th>
<th>Moisture %</th>
<th>Roasted Peanut Flavor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tx055307</td>
<td>46.5</td>
<td>6.35</td>
<td>3.3</td>
<td>6.05</td>
</tr>
<tr>
<td>Tx055308</td>
<td>46.5</td>
<td>7.15</td>
<td>3.6</td>
<td>6.05</td>
</tr>
<tr>
<td>Flv.Ru. 458</td>
<td>47.2</td>
<td>6.13</td>
<td>3.2</td>
<td>6.07</td>
</tr>
<tr>
<td>TR OL07</td>
<td>46.9</td>
<td>6.40</td>
<td>3.6</td>
<td>5.92</td>
</tr>
</tbody>
</table>

These samples were all in the acceptable range and compare favorably to Flavorrunner 458 and other established, widely grown peanut varieties. Other attributes tested in these analyses that were all in the acceptable ranges were: tastes of cardboard, earthy, musty, painty, plastic, metallic, sweet, salty, beany, coffee dark, woody.

We were also able to obtain limited shelling data on breeding lines in the disease screening nursery at the Stephenville location. The data we targeted included:
- Shelling %
- Splits %
- Jumbo %
- Oil stock %
- Medium %
- US # 1 %

This information above will be used to make selections for further line testing in 2009, and we will complete the evaluations when the remaining data are available to make selections for further yield and other agronomic testing as well as for further crossing and backcrossing.

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