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PROGRESS REPORT
submitted to:

The National Peanut Board
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FOR RESEARCH ENTITLED: Characterizing the pathogens associated with severe
wilt symptoms on peanuts grown in North Carolina

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Research was conducted in 2006 to better understand the role that Tomato Spotted Wilt Virus (TSWV) plays in the yellowing disease of peanuts. Sticky traps and sentinel plants of petunia (*Celebrity Blue*) and tobacco (*Nicotiana clevelandii*) were placed in peanut fields at the Peanut Belt Research Station in Lewiston-Woodville, NC, to monitor the movement of thrips and occurrence of TSWV from May to September. Thrips populations were greatest in early June and gradually declined until mid-August when they increased. Work is currently in progress to identify the species of thrips found on the sticky traps. TSWV was detected in tobacco sentinel plants in May when peanuts were present but was not detected on any sentinel plants thereafter. TSWV was detected on peanut in early July and throughout the growing season until the end of September.

Peanut plants exhibiting yellow and classic ringspot symptoms of TSWV were monitored and sampled throughout the growing season. All collected samples were tested for TSWV with ELISA. Plants with yellowing symptoms were first observed and flagged on August 15th and they were monitored for the rest of the season. The average incidence of TSWV for the entire stand of peanuts was 3% and 1% of the entire stand eventually developed the yellowing syndrome. Approximately 6% of the plants with early classic

ringspot TSWV symptoms later developed yellowing syndrome. All plants with yellows and classic ringspot symptoms of TSWV tested negative for Peanut Stunt Virus (PSV) and Groundnut Ringspot Virus, and potyviruses.

Experiments are currently in progress to confirm the occurrence of TSWV with an RNA-based method and to characterize the virus from infected leaves of peanut. These experiments will provide information to study if there are different strains of TSWV present in the stand, as well as if different strains are present in different tissues of a plant. These experiments will also provide information about different strains of TSWV being present at different time points during the growing season. If these different strains are present, methods will be used to characterize their activity and also to assess their ability to be transmitted by thrips.