

FINAL  
#16  
2005  
(candines)

NATIONAL PEANUT BOARD/SOUTHEAST PEANUT  
RESEARCH INITIATIVE  
FINAL REPORT FOR WORK  
DONE UNDER RESEARCH AGREEMENT-----

Quarter ending  
June 30, 2006

INSTITUTION: University of Georgia

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PROJECT TITLE: Uniform screening program for genetic resistance to peanut root  
knot nematode, leaf spot, and soilborne diseases

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RES. AGR. NO.: 25-21-RF332-530

PROJECT LEADER: Dr. Tim Brenneman

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EXPIRATION DATE: December 31, 2005 (Extended)

SPRI CONTACT: Emory Murphy

NPB CONTACT: Chris Destino

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PROGRESS REPORT: Advanced germplasm from several different breeding programs was collected to evaluate susceptibility to our major peanut diseases in the southeast. A total of 71 genotypes was screened in the greenhouse for resistance to peanut root knot nematode with a range of susceptibility identified. Resistant check NemaTAM had no galls or eggs formed, whereas others had ratings as high as 4.3 and 4.5 for galls and eggs, respectively. A new test for 2005 involved planting 71 genotypes at Plains, GA in replicated plots in a field with a history of CBR. Significant CBR developed and some cultivars such as GA-02C had little disease (10.9 %), whereas other lines such as C34-24-85 were severely affected (63.2%). This test appears to be more reliable than the greenhouse screen used previously and will be repeated in 2006. The white mold inoculation test was also successful with our best resistant lines such as AP-3 having average infections sites of about 11 inches, versus 50 inches for Georgia Green, and some developmental lines being over 60 inches. The final trial involved plots either inoculated or not inoculated with *Rhizoctonia solani*. This involved only currently grown cultivars, and illustrated again the good resistance of GA-01R. Some cultivars had large yield reductions from *Rhizoctonia* limb rot, such as C-99R which lost 926 lb/A, versus GA-01R which had statistically equal yields in inoculated versus noninoculated plots. Overall some very useful data was collected which will help breeders identify promising lines, and help us know how to manage these lines when they are released.

NATIONAL PEANUT BOARD/SOUTHEAST PEANUT  
RESEARCH INITIATIVE  
FINAL REPORT FOR WORK  
DONE UNDER RESEARCH AGREEMENT-----

Quarter ending  
Dec. 31, 2004

Final  
#14  
2004  
continues  
to  
2005

INSTITUTION: University of Georgia

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PROJECT TITLE: Uniform screening program for genetic resistance to peanut root  
knot nematode, leaf spot, and soilborne diseases

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RES. AGR. NO.: 25-21-RF332-415 PROJECT LEADER: Dr. Tim Brenneman

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EXPIRATION DATE: December 31, 2004

SPRI CONTACT: Emory Murphy NPB CONTACT: Stephen O'Brien

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FINAL

~~PROGRESS~~ REPORT: Advanced germplasm from five different breeding programs was evaluated for susceptibility to our major peanut diseases in the southeast. Over 100 lines were screened in the greenhouse for resistance to peanut root knot nematode and *Cylindrocladium* black rot (CBR). Although differences were found, both of these trials had less pressure than was expected. Evaluations in the field were much more successful where severe leaf spot pressure was present and a wide range of susceptibility was observed (20-100% defoliation). This was also true for stem rot (white mold) susceptibility with some genotypes having little disease and some being severely affected (average disease site from 9-98 inches long). Sixteen cultivars were also evaluated in split plots either inoculated or not inoculated with *Rhizoctonia solani*. Significant *Rhizoctonia* limb rot occurred, and some genotypes had equal yields with or without inoculation, whereas other cultivars lost as much as 1000 lb/A. Tomato Spotted Wilt Virus was also evaluated, but disease severity was too low to be meaningful. Some lines were rated for damage from three-corner alfalfa hopper, and significant differences were found among cultivars. These data will be invaluable to breeders as they evaluate advanced germplasm, and will also be essential in the development of the Fungal Disease Risk Index which helps growers manage both foliar and soilborne diseases.