INSTITUTION: University of Georgia

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

RES. AGR. NO.: 25-21-RF332-577 PROJECT LEADER: Dr. Tim Brennecka

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PROGRESS REPORT: Advanced germplasm from three different breeding programs was evaluated for susceptibility to our major peanut diseases in the southeast. A total of 27 advanced lines plus 13 cultivars were planted in replicated plots to evaluate white mold, TSWV, and leaf spot. The weather was very favorable for white mold and good epidemics developed. Standard susceptible cultivars like GA-09B and GA-06G had 96% infected plants. The known resistant line Bailey had only 50% infection, and the recently released GA-12Y had only 38% infection. GA-12Y was the most resistant entry in the test to white mold and also had the highest yield of any entry (6098 lb/A). With the high levels of disease present, GA-06G made only 3739 lb/A, whereas 8 advanced lines had yields in excess of 5000 lb/A. These yields were obtained in spite of the white mold inoculations and only receiving 5 total fungicide sprays with just chlorothalonil. Leaf spot developed rapidly due to wet weather and there were obvious differences among genotypes. Severity on commercial lines ranged from GA-09B with a 7.8 on the Florida 1-10 scale down to 4.6 with one of the advanced breeding lines. TSWV was relatively low throughout the trial. All entries were also evaluated in the greenhouse for susceptibility to root knot nematode. The known resistant cultivar Tifguard had a gall and egg mass rating of only 0.6 and 0.4, respectively, whereas the known susceptibles were generally in excess of 3. Breeding lines with high levels of resistance were verified in the study.