2003 BELTWIDE COTTON CONFERENCES, NASHVILLE, TN – JANUARY 6-10

SCREENING FOR RESISTANCE TO COTTON FLEAHOPPER

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Abstract

Damage due to insect pests is one of the many constraints leading to decreased cotton (*Gossypium hirsutum* L.) yields. Key insect pests in cotton are cotton fleahopper (*Pseudatomoscelis seriatus* Reuter), bollworm (*Helicoverpa zea*) and tobacco budworm (*Heliothis virescens*). Benefits of earliness are lost due to early season pests such as the cotton fleahopper. This insect delays crop maturity by removing early season fruit forms and thus increasing vulnerability to late season pests such as bollworms and tobacco budworms. Cotton fleahopper is controlled currently by chemical measures, b•t use of chemicals leads to destruction of natural enemies. The best method to solve this problem is to develop cotton fleahopper (CFH) resistant genotypes. Little information exists in the literature related to screening methods suitable for identifying resistance. This study was designed to develop a rapid screening technique to identify CFH resistance.

Four replications of each of twenty genotypes of cotton, including one genotype of *G. arboreum* were all planted in pots and grown in the greenhouse. These plants were transferred to an insectary when all plants reached at least the 10th node stage of growth. Plants were confined in cages made of loose weave cotton fabric. Six CFH were released into each cage and held for 72 hours. Numbers of live CFH were determined after 72 hour and percent square damage was determined 48 hours following the removal of the CFH. No differences were observed in the number of live CFH after 72 hours. Differences were observed among the genotypes in percent square damage. Percent square damage was highest in Acala Maxxa and *Gossypium arboreum,* while Acala 1517-99, Deltapine 50, and TAM 96WD-69s exhibited lower percent square shed.

Sixteen genotypes were planted in a split block design (with treated and non-treated blocks) with 4 replications. Cotton fleahopper (adults and nymphs) and percent square set were determined on 5 consecutive plants in each single row sub-plot on multiple dates during the summer of 2002. Across all dates, mean number of CFH per plant were higher in *Gossypium arboreum,* otherwise no consistent differences in mean number of CFH per plant were observed among these genotypes. Square set was numerically higher in Lankart 142, Suregrow 747, Stoneville 474, and TAM 96WD-22h (considered hairy-leaf genotype) and Deltapine 50 and TAM 96WD-69s (smooth-leaf genotype). No differences in yield were observed between treated and non-treated plots.

Field and no-choice feeding tests during 2002 suggested that Lankart 142, Suregrow 747, and Stoneville 474 were the most resistant hairy-leaf genotypes and not different in resistance than the smooth leaf genotypes Deltapine 50 and TAM 96WD-69s.