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SURVEY AND ON-FARM TRIALS TO EVALUATE THRESHOLDS AND IMPACT OF HEMIPTERAN SPECIES IN VIRGINIA COTTON D. Ames Herbert and Sean Malone Virginia Tech Suffolk, VA

<u>Abstract</u>

Survey

Eighteen commercial cotton fields randomly selected from three counties in Virginia were surveyed for presence of hemipteran pests and plant damage. Fields were visited weekly for the period between pinhead square and when growers made bollworm/budworm protective sprays. Three square retention ratings were taken at weekly intervals from June 11 through July 1. At each rating, 50 plants were inspected per field for total squares and number missing or damaged. Numbers of plant bugs and stink bugs were determined using ten 6-row-foot beat sheet samples and ten 25-sweep net samples per field, per visit. Damage to blooms was determined by visual inspection of 50 blooms, randomly selected throughout the field. Level of internal boll injury was determined by removing and opening 50 quarter-size diameter bolls per field. Results showed that 89 and 100% of the fields had plant bugs and stink bugs (both green and brown) present, respectively. At some time during the season, 2% reached the 8/100 sweeps threshold for plant bugs, and 8% reached the 1/6-row-foot threshold for stink bugs. No fields had square retention rates below 80% (range = 81-100%, avg. week 1 = 98%, avg. week 2 = 95%, avg. week 3 = 94%). However, all fields had some level of boll injury (avg. = 22%) and 79% were over the current 15% threshold.

On-Farm Replicated Trials

Large replicated strip plot trials were established in 5 additional growers' fields where square retention dropped below 80%. Individual strips were 8 rows wide but varied in length from 372 to 2,082 feet depending on field size. Treatments were either Bidrin (different rates according to the grower's preference) or an untreated control, with either 3 or 4 replicates. Post treatment boll injury was determined by inspecting 50 bolls per plot, as described above. Yields were measured by harvesting each strip plot and weighing with a weigh-dump cotton boll buggy. A sub-sample from each plot was ginned to determine the lint:seed/trash ratio. Results showed that square retention had dropped to between 55 and 78% in these trial fields prior to Bidrin applications. Boll damage after Bidrin treatments ranged from 0 to 50% and there was a difference of 27, 31, 25, 4 and 2% between the treated and untreated plots in the 5 tests, respectively. However, only one trial had a significant difference (P = 0.05) in lint yield among the treatments. Data pooled over all locations showed an increase of 38 lb/acre with the treatment compared to the untreated controls (P=0.01, LSD=27.4).