

**COTTON FIBER PROPERTY VARIABILITY  
FROM MOTES THROUGH SEEDS**

**G. Davidonis and A. Johnson**

**USDA-ARS-Southern Regional Research Center**

**New Orleans, LA**

**J. Landivar**

**Texas A&M University**

**Agricultural Research and Extension Center**

**Corpus Christi, TX**

**K. Hood**

**Perthshire Farms**

**Gunnison, MS**

**Abstract**

Cotton fiber quality at the bale level is a composite of all the constitutive fibers in the bale. Fiber variability can arise pre or post harvest. Pre harvest non uniformity can be traced to growing conditions and inherent fiber quality differences related to genotype. Bales contain fibers from mature seeds and motes (developmentally arrested seeds). The degree of variability shown in the fiber properties of seeds and motes serves as an indicator of the amount of variability in a bale. Cotton (*Gossypium hirsutum* L. was collected from machine harvested fields, fiber was removed by hand or ginned with a small 10 saw laboratory gin and analyzed using the Zellweger-Uster Advanced Fiber Information System (AFIS). Distribution of ginned mote and seed weights was similar for DP50, DP51 and NuCOTN 33B but composite fiber properties were different. Lack of fertilization or early termination of embryo growth results in small motes. Later termination of embryo growth produces larger motes. Cotton samples were categorized by ginned mote and seed weights. Motes (DP51, NuCOTN 33B) with fiber lengths (Lw) below 16 mm and a ginned mote weights of 1-4 mg had micronafis (micronaire) values significantly higher than fibers from motes with normal length (> 20 mm) fibers. No differences were found in micronafis values (1.8) for DP50 motes with ginned weights from 9 to 24 mg. Micronafis values for NuCOTN 33B motes in the 9 to 25 mg categories ranged from 2.4 to 3.0. Deltapine 50 had the lowest bulk micronafis (4.3) and as ginned seed weight increased from 56 to 115 mg, micronafis values increased from 3.2 to 5.3. NuCOTN 33B had a bulk micronafis of 5.3 and as ginned weight increased from 56 to 107 mg, micronafis values increased from 4.2 to 5.9. Cotton varieties with the most mature fiber also had the most mature mote fiber. The extent of fiber property variability present in field collected samples emphasizes the need for sampling techniques that take into account the degree of fiber property variability and give an accurate representation of bale fiber properties.