

**STABILITY OF BASIC YIELD COMPONENTS OF COTTON
OVER YEARS AND LOCATIONS**

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Abstract

The variability of cotton yields in recent years has become increasingly problematic, particularly in stressed environments. To address this variability, studies have been conducted to assess the yield stability of cotton cultivars. Yield can be broken down into various components including bolls per acre, seeds per boll, seeds per acre, lint per seed, and fibers per seed, among others. While yield components traits have not been fully explored as selection criteria, the manipulation of these traits could allow breeders to select for combinations that lead to more stable genotypes. This study was conducted to explore methodology to evaluate the stability of yield components of 10 entries from the past three years in the Arkansas Variety Test. The traits evaluated were lint yield, lint percentage, seed per acre, and lint per seed. Each trait of a given genotype was linearly regressed on a site mean yield with the calculated b_1 and R^2 used as stability parameters. In general, lint yield and seeds per acre had higher stability estimates across this set genotypes, which may not hold true in a wider group facing stressed conditions, and no trend was found relating stability in one component to another. Genotypes exhibiting a specific level of stability for a given trait could be identified, but it remains difficult to relate the overall stability of a genotype to its environmental response exhibited in a single yield component. To better understand the environmental effects on specific yield components, a more static measure, such as $CV\%$, may be better suited for this type of study.