

ASA, CSSA, and SSSA
2010 International Annual Meetings

Oct. 31-Nov. 4 | Long Beach, CA



Green Revolution 2.0: Food+Energy and Environmental Security

[Start](#) | [View At a Glance](#) | [Author Index](#)

69-11 Effects of Irrigation, Cultivar and Plant Density On Cotton within-Boll Fiber Quality.

See more from this Division: C03 Crop Ecology, Management & Quality

See more from this Session: Cotton and Wheat Management

Monday, November 1, 2010

Long Beach Convention Center, Exhibit Hall BC, Lower Level

Share |

Lu Feng¹, **Vinicius Bufon**², Cory Mills³, Eric Hequet³, James P. Bordovsky⁴, Wayne Keeling⁵, Randal Boman⁶ and Craig Bednarz²,
(1)Chinese Academy of Agricultural Sciences - Cotton Research Institute, Anyang, China
(2)Box 42122, Texas Tech University, Lubbock, TX
(3)Texas Tech University, Lubbock, TX
(4)Texas AgriLife Research, Lubbock, TX
(5)Texas AgriLife Research, Plainview, TX
(6)Texas AgriLife Extension Service, Lubbock, TX

This study was designed to determine how within-boll fiber quality of cotton is affected through irrigation, cultivar, and plant density management. Field experiments were conducted in 2006 and 2007 using two contemporary cultivars, arranged in a split-split plot design with two irrigation rates (6.33 and 4.32 mm.day⁻¹) as the main plot, plant density (79,071; 128,490; 197,677 plants ha⁻¹) as the subplot, and cotton cultivar (FM9063B2RF and ST4554B2RF) as the subsubplot. Plants from 3 m of one row from each plot were hand harvested by fruiting position. First fruiting position bolls from main-stem nodes 9 and 14 were hand harvested by seed position and ginned separately for Advanced Fiber Information System (AFIS) fiber quality analysis. Increased irrigation generally increased fiber length and upper quartile length, and decreased fineness and maturity ratio. Irrigation effects were greater on fiber length and maturity ratio at seed positions close to the apex of the locule. Increased plant density reduced both fineness and maturity ratio. The cultivar FM9063B2RF produced longer, more mature, and finer fibers than the cultivar ST4554B2RF. The overall lowest fiber quality (i.e. shorter, and less mature fibers) occurred at seed positions close to the apex of the locule. The superior fiber quality (i.e. longer, and more mature fibers) was from the middle to the base of the locule. Abundant rainfall diminished the effects of irrigation on fiber quality.

See more from this Division: C03 Crop Ecology, Management & Quality

See more from this Session: Cotton and Wheat Management

[<< Previous Abstract](#) | [Next Abstract](#)