CANOPY POSITION EFFECT ON FIBER PROPERTIES OF NORMAL AND LATE-PLANTED COTTON

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Abstract

Although growing cotton (Gossypium hirsutum) immediately after a winter small grain crop is economically risky in much of the SE USA, recent advances in production practices may enhance the probability of success. The effects of late-season boll development on cotton fiber must be known to optimize this system. Our objective was to determine the effect of planting date and canopy position on boll characteristics and fiber properties of cotton. In 1995 and 1996, first sympodial white blooms were tagged during the first and fourth week of flowering in normal (early May) and late (late May in 1995, early June in 1996) planted cotton. Both years, lint yield was about 220 lb/ac higher for cotton planted at the normal date than for cotton planted at the late planting date. Maximum canopy photosynthetic rates were similar between the two planting dates within each year. For both planting dates in both years, midday canopy photosynthesis began to decline at about 20 days after first flower. Regardless of planting date, the bottom bolls had lower lint percent and longer fibers than the top bolls. For boll weight, seeds per boll, motes per boll, and micronaire, there was a tendency for the top bolls in the normal planting date to have similar values to the bottom bolls in the late planting date. These bolls had similar flowering dates, so they experienced roughly the same environmental conditions during growth. Interestingly, the top bolls from the late planting date had similar values to the bottom bolls from the normal planting date for boll weight, seeds, and motes even though the top bolls developed primarily while average temperature and daylength were lowest and declining fastest. The data suggest that reduced micronaire with late planted cotton may be due to lower values throughout the canopy rather than a preponderance of very low quality bolls near the tip of the canopy.

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