FACTORS INFLUENCING MICRONAIRE IN COTTON CROPS

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Outline

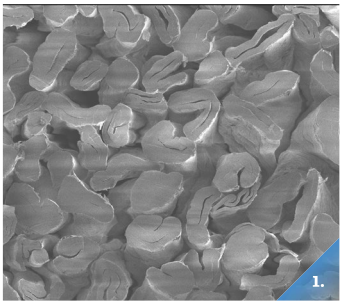
Micronaire is a measure of fibre linear density (fineness) and maturity. Factors affecting supply and partitioning of photosynthetic assimilates to fruit affect micronaire. High micronaire occurs when there are good growing conditions and/or fruit number is low. Conversely low micronaire occurs when growing conditions are poor and/or fruit number is high. Little research has established the degree of impact of factors influencing micronaire, so field experiments were conducted to investigate effects of planting date; cultivar; canopy manipulation; and fruit number.

Outcomes

- Micronaire was affected by interactions of planting time, canopy manipulation (tipped out and regulated (with mepiquat chloride), and fruit load.
- Fruit removal in late planted treatments in normal and smaller canopies had similar micronaire to their earlier planted equivalents indicating compensatory mechanisms.
- Cultivar and planting time were the only consistent main effects on micronaire, with late planting time reducing micronaire.
- The ability to predict final micronaire was successful when the temperature during boll filling, the size of the final bolls, and the leaf area at late flowering was considered together.

Industry Impact

This study has highlighted that in capturing understanding of management impacts on micronaire, the differences in cultivars, and influences of management modifying the period in which fibre thickening occurs need to be especially considered. It also reinforced opportunities to account for impacts of the effects of management by capturing the effects on boll growth directly.



1 FACTORS influencing photosynthesis influence fibre thickening and micronaire.

2 PLANTING time, cultivar, canopy size, and fruit number were varied to understand their effects on micronaire.

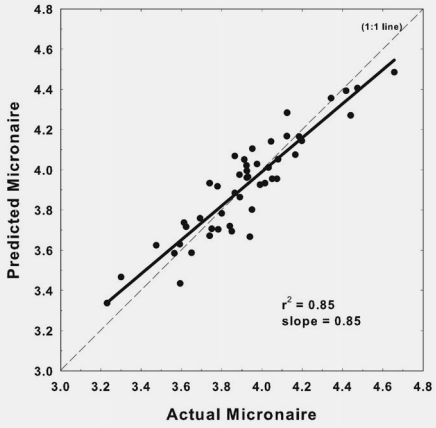


FIGURE 3. Predictions of micronaire were successful when temperature during boll filling, leaf area, and final boll size were considered together.