

NITROGEN FERTILIZATION OF ULTRA NARROW ROW COTTON

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Abstract

Developments in cotton (*Gossypium hirsutum* L.) production technology in the Mississippi River Delta region now include drill planting. Systems that include drill planted cotton are referred to as ultra narrow row (UNR). Ultra narrow row cotton production is designed to maximize economic returns by lowering inputs. Theoretically, UNR cotton will be lower yielding compared to conventionally spaced cotton, but lower yields will be offset by reduced input costs in UNR systems, thereby resulting in larger profit margins. Nitrogen (N) fertilization rates required to optimize yield and earliness for UNR cotton are unknown. The objective of these studies was to determine optimum N-fertilization rate for UNR cotton. Studies of N-fertilization of UNR cotton were begun in 1998 at the University of Arkansas - Southeast Branch Experiment Station. Nitrogen fertilization treatments ranged from 0 to 140 kg urea-N/ha in 28 kg N/ha increments. All N-treatments were surface applied without incorporation after seedling emergence. The N-fertilization rate necessary to produce maximum yield, boll load and boll weight rarely exceeded 56 kg N/ha within any one year. Trends of greater yields and boll loads were observed with greater N-fertilization rates when the data was pooled over years, although the differences were not always significant. Plant height increased with increasing N-fertilization up to 112 kg N/ha. Boll load increased with increasing N fertilization up to 84 kg N/ha.