HOW COMPETITIVE IS PALMER AMARANTH *(AMARANTHUS PALMERI)* WITH COTTON?

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Abstract

Cotton growth may be compromised by season long infestation of noxious weeds. Palmer amaranth (*Amaranthus palmeri*) is the most common weed in Texas cotton and is also present throughout the Southern U.S. Therefore, it was chosen as a model specie for this study to examine competitive effects with cotton. Palmer amaranth can generally be controlled by PPI and PREAndre herbicide treatments, however recent developments have now made postemergent control possible on an "as needed" basis. Therefore, a study was conducted to establish the competitive effect that Palmer amaranth has on cotton growth and development.

This study was conducted on a Burleson clay soil near College Station, Texas in 1996. The cotton variety chosen for this study was Deltapine 50, which is commonly planted in Central Texas region. Palmer amaranth were planted two inches to the left of the cotton seed row, representing weeds generally uncontrollable by cultivation techniques, at densities of 0,1,2,4,6,8,10, & 12 plants per 30ft of row.

Palmer amaranth densities exceeding two plants per 30 ft of row significantly decreased cotton lint yields. Densities of 4 to 12 weeds per 30ft of row decreased yields from 26-65%, respectively. Palmer amaranth biomass production leveled off at the 8 plants per 30ft of row density, when individual weeds began to compete with each other. The Palmer amaranth competition did not affect cotton fiber micronaire, length, or strength. Cotton was plant mapped at both midseason and harvest at given distances from the weeds to examine physiological effects that Palmer amaranth may have on cotton growth. However, due to variability in the data no significant differences in cotton development could be shown between weed densities. Cotton and Palmer amaranth biomass was measured at midseason and Palmer amaranth density did not have any significant affect on either.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 1:798-799 (1997)
National Cotton Council, Memphis TN