

**USING PLANT MAPPING TO DETERMINE
POTENTIAL LINT YIELD OF COTTON CROPS**

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Abstract

Monitoring plant growth parameters and fruit distribution of cotton plants through the growing season can assist managers to detect and correct production problems. Although plant mapping and other monitoring techniques are now widely used by field managers, the interpretation of the data is not clearly understood. Plant mapping parameters measured during the growing season often fail to be correlated with final lint yield. This experiment was conducted in 1996 with the objective of studying the relationship between plant mapping parameters measured during the growing season with final lint yield. Twenty sampling sites were identified at planting in a 100 acre field located in Kingsville, Texas. Three plant mapping samples were collected during the growing season by selecting six plants from each of the twenty sampling sites. Lint yield was estimated by harvesting two 15 feet sections of row from each sampling site. A final plant mapping was done prior to final harvest by selecting six average plants from the harvest rows. Plant mapping parameters from each sampling date were correlated with lint yield. Number of main stem nodes, height to node ratio, percent retention at positions one and percent retention at positions two measured prior to bloom were not significantly correlated with final lint yield. However, plant height and total number of sites were the best indicators of yield potential early in the season. Number of green and open bolls per plant measured at cutout or near maturity were somewhat correlated with final yield. The correlation was improved when the number of green and open bolls were expressed in bolls per feet of row rather than on the per plant basis. Furthermore, the data showed that fifteen fruiting sites contained 92% of the total number of bolls harvested. The percent distribution of open bolls in these fifteen fruiting sites are displayed in Figure 1. These were positions one of branches 1-10 and positions two of branches 1-5. The number of bolls set at these key sites explained 67.4% of the observed variability in final lint yield. The number of bolls set at these key positions may be used as an early indicator of yield potential of cotton crops.

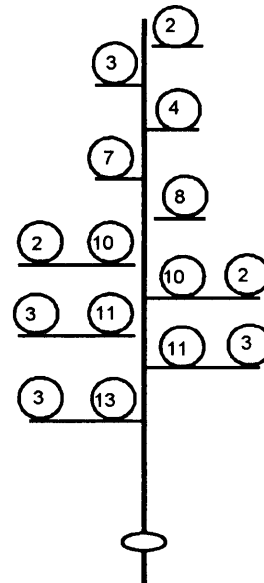


Figure 1. Percent contribution of each fruiting position to the number of open bolls at harvest. Kingsville, TX, 1996.