## USING YIELD MONITORS TO EVALUATE COTTON VARIETY TESTS

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## Abstract

Grain yield monitors have successfully been used to harvest variety and hybrid trials when certain guidelines were followed. However, there has been concern regarding cotton yield monitors and the way that they measure flow rate. A Beltwide effort was initiated to assess yield monitor performance in replicated variety trials with the objective of determining the source of yield monitor errors and developing protocols for using yield monitors to accurately harvest cotton variety trials. Data were collected from at least seven trials across six states. The trials were conducted with field scale plots containing at least six varieties. Yield was measured with a yield monitor and a reference scale. The reference scale varied among locations, but was an accepted device to measure variety yield. Other items were measured on each plot to assess potential sources of error between the yield monitor and reference scale. These included lint turnout and average boll mass.

Analysis of variance was used to determine varietal yield differences for four of the sites. This was done with yield calculated from both the reference scale and yield monitor. Significant yield differences were detected for all sites. Yield monitors tended to group the varieties similar to the reference scale however there were differences. In general, the highest and lowest yielding varieties were placed in the same statistical groups by the yield monitor and reference scale. Varieties that yielded near the mean for a location were typically not grouped similarly by the two means for measuring yield.

Errors were significantly different by variety for three of four locations. However, no clear methods to adjust for error have been discovered at this time. Other data that were collected will be considered in future analysis.