

## COMPARISON OF YIELD DIFFERENCES BETWEEN ROUNDUP READY VARIETIES AND SIMILAR TYPES

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### Abstract

One of the major concerns of Roundup Ready cotton varieties is the question of yield drag. While several reports indicate that there is no yield drag associated with Roundup Ready cotton, comparisons are often made between varieties that are not similar. In order to make proper comparisons and to determine if yield drag is real, comparisons must be made between the modified variety and its closest relative possible. One of the difficulties in conducting these evaluations is that sometimes these varieties are fairly far removed from their parents. Another compounding factor is that there is limited data that is consistent across time, that is, many of the Roundup Ready varieties have not been available for a sufficient length of time to accumulate numerous years of data.

These experiments were conducted at several locations across Louisiana in 1999 and 2000. Plot sizes varied as these were on-farm replicated experiments. Experiments were planted and managed by local producers using currently accepted management practices for their respective regions. In all cases, Roundup Ready and non-Roundup Ready cottons were planted intermingled and were treated with conventional weed control methods. Plots were harvested using the producer's spindle pickers and each replicate weighed. Experimental design was a randomized complete block with at least three replicates. Data was analyzed by ANOV and means separated by LSD at the 5% level of significance.

The locations of these experiments represented several of the major cotton growing areas of Louisiana. Locations included sandy loam and clay soils of the Mississippi river alluvial floodplain, and irrigated and non-irrigated locations on the Macon Ridge.

Varieties evaluated included D&PL 458 B/R and D&PL 33B (D&PL 5415 types), D&PL 655 B/R and D&PL 90 (D&PL 90 type), D&PL 451 B/RR and D&PL 428B (D&PL 51 type) and Stoneville 4892 B/R and Stoneville 4691B (Stoneville 474 type). Overall, there were no differences in yield between similar types at any location with one exception. At this location in Franklin parish, D&PL 458 B/R yielded less cotton lint than D&PL 33B (943 lb/A versus 1086 lb/A, respectively). At those locations where more than one type was included, differences were observed between types. At the East Carroll parish location, D&PL 458 B/R and D&PL 33B (D&PL 5415 types) provided greater cotton lint yield than D&PL 655 B/R and D&PL 90B (D&PL 90 types) on a non-irrigated clay soil.

In 2000, the two Stoneville varieties yielded equivalent amounts of lint on an irrigated silt loam soil, or a non-irrigated clay soil.

Generally, all varieties containing the Roundup Ready gene performed similarly when compared to similar types. Comparisons to non-transformed varieties could not be made in these experiments.