

Evaluation of Cold Tolerant and Conventional Cotton Varieties and Planting Dates at the Gulf Coast Research and Education Center

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Seed for cotton cultivars currently grown in Alabama require warm soils in order to germinate and develop properly. Soil temperatures must remain above 60F for a period of several days, which normally occurs after early April in much of the state, but can be later. Cold fronts, rain, and heavy mulches used with conservation tillage can delay this even further. Producers planting early run the risk of poor stands due to delayed germination and seedling disease, as well as stunting from chilling injury. If producers were able to plant earlier, soil moisture may be more favorable, cotton would potentially have a longer growing season, would have peak flowering during the longest summer days, and may set bolls before soil moisture supplies are depleted by hot summer weather. In south Alabama, this may allow harvest before the peak of the hurricane season. Recently released “cold-tolerant” cotton varieties are claimed to germinate and grow well at temperatures well below the optimum for currently grown varieties.

PROCEDURES:

Two varieties each of “cold-tolerant” and “conventional” cotton cultivars were planted at each of three planting dates. One variety of each type was an early maturity and the other full season. Four replications of four 40-inch rows * 25 foot long plots of each variety were planted on April 1, April 14, and April 28, using conventional tillage. Initial land preparation and planting was delayed by persistent heavy rainfall.

Fertility and pesticide applications were according to ACES recommendations. Rainfall was plentiful through most of the season, and harvest conditions were generally good. Boll rot was heavy on the earliest planting date treatments due to persistent rainfall in August.

Plots were defoliated and harvested with a spindle picker when each treatment was mature. One pound grab samples were ginned on a mini-gin for lint quality and turnout, and lint analyzed for quality by HVI at the USDA-AMS lab at Pelham, AL.

Results

Yield and turnout results are presented in the Table below. Lint yields were very good and ranged from 918 to 1811 lb/A. Lint turnout ranged from 40 to 43% (not shown).

**Lint Yields from Cold Tolerant Varieties * Planting Dates,
GCREC, 2003**

Variety	Maturity*	Cold Tolerance*	Lint Yield (lb/A)		
			Planting Date		
			April 1	April 14	April 28
CT 110HQ	Early	Yes	1399	1390	1639
FM 958	Early	NA	1305	1264	1611
CT 310HQ	Full	Yes	918	1249	1811
DP 491	Full	NA	1045	1276	1717

* As listed by seed company

LSD ($P=0.10$) = 290 lb/A

Although initial stands were affected by variety (not shown), good growing conditions allowed poor stands to compensate and yield relatively well. The latest planting date yielded the highest for all varieties, while much of the difference can be attributed to severe boll rot and hard for the earlier planting dates. The early varieties tended to perform better than full season varieties at the earliest planting date, while the opposite was true at the latest planting date. Further testing will be needed to determine if these varieties have the potential to allow earlier planting for producers.