

# The Future of Cotton in the Northern Texas High Plains

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## BACKGROUND

Water planning efforts by the water management group at Texas AgriLife Research and Extension Center at Amarillo identified changes in crop type as a conservation or reduction strategy in reducing water use for Region A. One of the important and impacting concerns regarding such changes has been profitability. The mix of crops currently produced has been optimized under operating and marketing constraints. Continuance of existing irrigation practices however, indicate the 50-year target reductions in water use will not be met without changes in the near future. One such change in crop type involved growing cotton as a major limited-irrigation crop north of the Canadian River in northern Texas. Cotton was produced in the area in the 1940's and a gin was even located near Dumas. Given the shorter growing season in terms of heat units, the chance for early frosts or freezes and transport distances to gins, the crop was later displaced by corn grown for the emerging cattle feedyard industry.



**Mature cotton variety plots at NPRF.  
Every 2 rows x 25 ft are a plot.**

## OBJECTIVE

Evaluate the feasibility and production of growing new varieties of cotton in the northern most region of Texas through field trails.



**The new Moore County Gin was built in response to growing producer needs.**

## RESULTS

Personnel at the North Plains Research Field have conducted unsupported variety trials over the last six years in order to assess the production potential of differing cotton varieties. The results indicate that varietal production ranged from 0.5 to 2.5 bales per acre in some years. Thus, variety selection will have a significant impact on production and receipts.

Additionally, irrigation requirements differ substantially from that of further south production, given that northern producers must plan for the average frost date within the area. Irrigation scheduling was adhered to according to evapotranspiration (ET) demands from the North Plains ET network on a daily basis. With the advent of Roundup-Ready cotton, the option of improved weed control in cotton also exists. It has also been determined the cotton growth model used for the southern regions and the beltwide cotton areas does not readily apply to the northern growing region. In particular, the number of heat units to produce a mature boll of cotton is in error, thereby indicating the flexibility of the cotton to mature in a differing and sometimes diverse environment. The alteration can result in losses of quality and fiber length. Nonetheless, in order to meet the targeted reductions in water use and input costs, cotton will likely be tried by a large number of producers in Region A. Future efforts at the NPRF regarding cotton will entail refining the cotton plant modeling with regards to heat units and also look at probabilities of early frosts based on data from the NPET network. The senior author has procured a small commodity grant to assist in the costs of conducting the study in 2006.