

Cotton Irrigation Management with SDI (Field 2)

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Objective: Evaluate cotton production resulting from two management scenarios: 1) *High Input* - applies resources on limited areas to achieve maximum lint yield and 2) *Normal Input* - distributes the same resources over a wider area and is a typical management strategy.

Methodology: Cotton was planted in a field where a ten-zone SDI system was installed. Irrigations were applied in alternate furrows of 30-inch rows with each zone 1300 ft by 16 rows wide and independently controlled and metered. Two cotton management strategies were compared. A *High Input*, high-yield management scenario with the production goal of 3.5 bales per acre and no restriction on input level was replicated in four plots. The *Normal Input* scenario, with an annual yield goal of 2.5 bales per acre, was also replicated four times. In 2005, a hail event on June 16 resulted the replanting of this experiment on June 21, well beyond the normal last replant date. Each zone was planted with two different varieties, ST2448R and PM2167R. Seasonal irrigation in the *Normal* treatment totaled 1.99 inches compared to 2.36 inches in the *High Input* treatments.



Fig. 1. Late planted cotton in SDI management study, November 2005.

Results: Figures 2 and 3 show lint yield and seasonal irrigation water values for the 2002 through 2005 test years. Until 2004, the *High Input* methodology resulted in significantly higher lint yield, and higher seasonal irrigation value than the *Normal Input* treatments. However, in 2004, a record rainfall year, the High Input treatment produced 49 lb/ac less than the Normal treatment with respective yields of 1606 and 1655 lb/ac. In 2005, the late planted *High Input* treatments resulted in numerically higher yields than the normal treatment, although there were no significant differences. Unlike previous years, seasonal irrigation water value was negative (ranging from $-\$0.20$ to $-\$0.48/\text{ac-inch}$ of seasonal irrigation) indicating that 2005 irrigations reduced lint yield compared to non-irrigated treatments

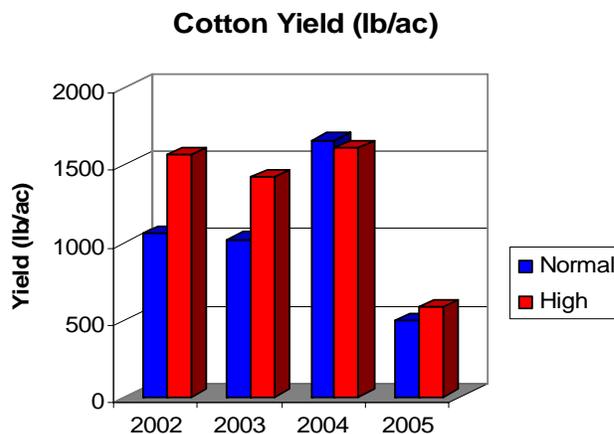


Fig. 2 Cotton lint yield from *Normal* and *High Input* SDI management, 2002-2005.

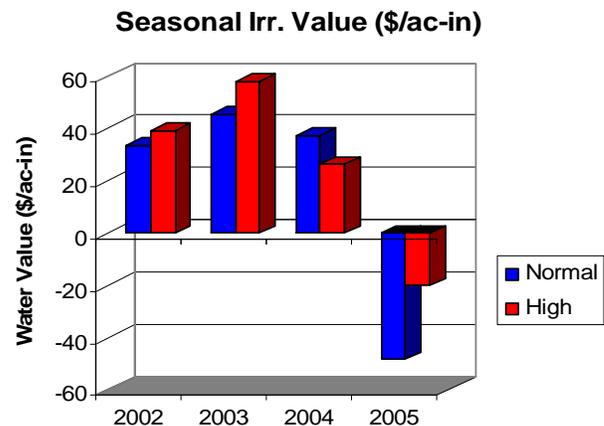


Fig. 3 Water value from *Normal* and *High Input* SDI management, 2002-2005.