

## 1996 Cotton Management Economic Notes

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August 16, 1996

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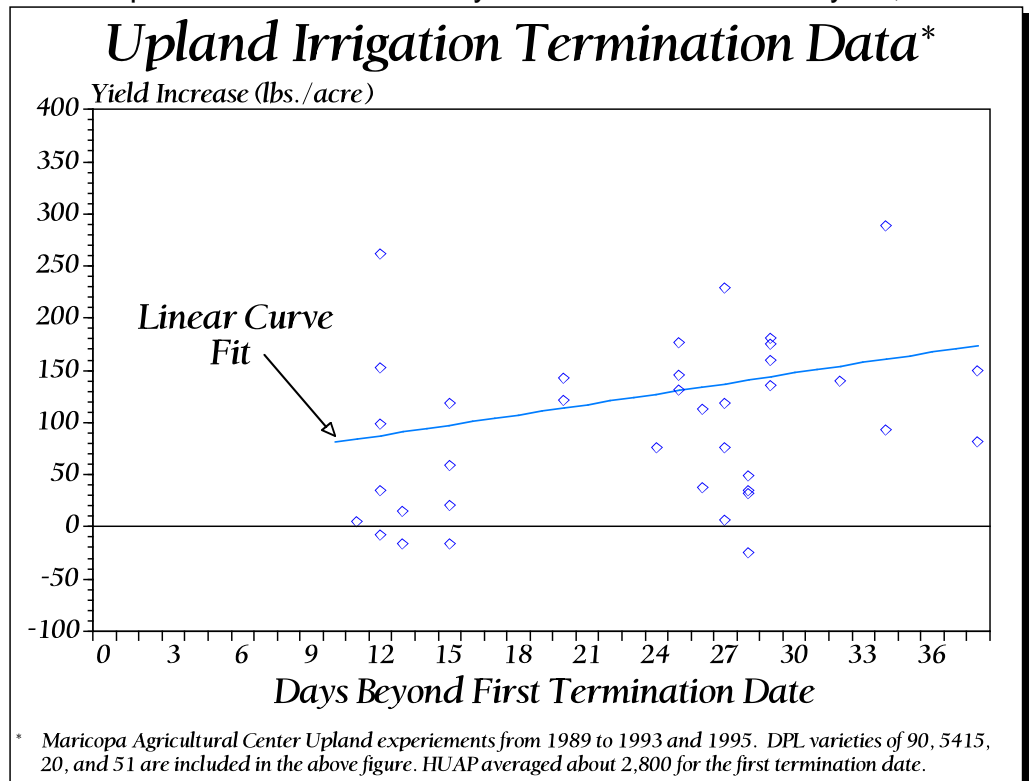


### Economics of Irrigation Termination

The decision of when to terminate continues to be an issue of debate. With many fields relatively clean of insect pressure the temptation to extend the season is great. But do prices and added expenses warrant extending the season?

from Yuma, Marana, and a very favorable yield increase from a 1994 Buckeye study but the estimated linear curve fit changed very marginally. The estimated fit shown gives equal weight to every year rather than every observation or experiment. After an initial 80lb. yield increase around day 11, esti-

**Additional Yield.** The figure to the right shows additional lint yield obtained from extending the season beyond initial termination dates. Data was obtained from experiments conducted at Maricopa Agricultural Center. Timing of the initial irrigation termination date was targeted for supplying three weeks of available soil moisture after the onset of cut-out or when the number of nodes above the top, first position white bloom (NAWB) become less than 5. This averaged about 2,800 HUAP or August 13 by the calendar. Other sites were added to the data



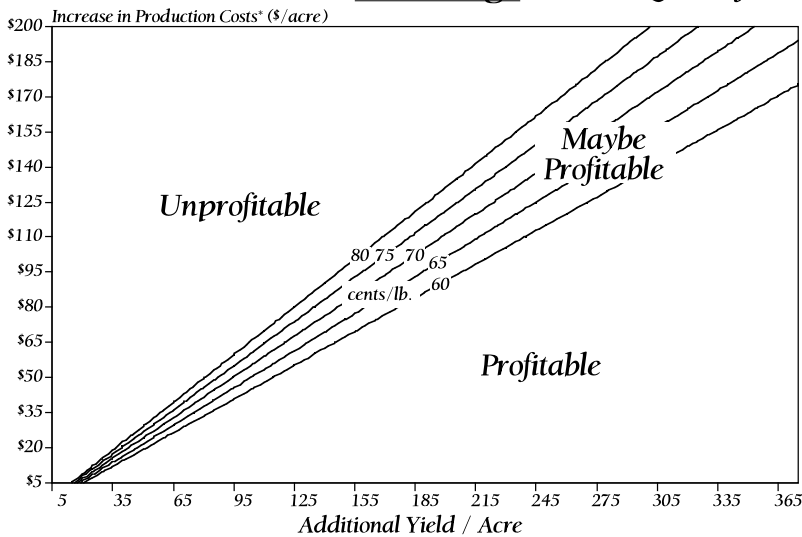
Recent Prices	August 16, 1996	
	Upland (¢/lb)	Pima (ELS) (¢/lb)
Spot - uncompressed	69.22	115.0
Oct '96 Futures	72.72	
Dec '96 Futures	73.04	
Dec '97 Futures	75.00	
Adj. World Price	61.62	

mated yield increases only 3.3 lbs./day. Other more flexible functional forms estimate a yield decline after about day 32. It is not unheard of to get a 250+ lb./acre yield increase from extending the season, but experimental data indicates that these yield increases are highly improbable. A n increase of 100 to 150 lbs. is much more likely for extending the season 2 to 4 weeks. But is this yield increase justified with higher production, harvest, ginning, and other costs?

Note: Upland Spot for Desert SW grade 31-3, staple 35, add 300 points for compressed bales, Pima Spot for DSW grade 03, staple 46, 8/8/96.

**Production Costs.** Extending the season will increase the cost of insecticide applications,

### Lint Price (¢/lb.) Required to Justify "Extending the Season" with no Change in Lint Quality



\* Increase in production costs for water, insecticide, and defoliation. Additional costs for ginning, harvest, and opportunity cost of money are accounted for in the figure.

water, defoliation, and possibly other production costs. For illustration, say that two additional insecticide applications at \$15/acre, two additional irrigations at \$18/acre, and increased defoliation costs of \$13/acre are required. The figure above indicates that for this \$79/acre increase in production cost it would take 133.0 lbs. and 144.5 lbs. of lint to just break-even from extending the season with 75¢ and 70¢ cotton, respectively. Because insect pressures and water costs vary greatly across the state, these estimates may differ substantially.

#### Harvest, Ginning and Finance.

Harvest, hauling, and ginning costs are accounted for in the above figure at \$.20/lb. Additional cottonseed is assumed to yield 160% of additional lint yields with a value of \$.05/lb. Extending the season also means that the crop will be sold at a later date, increasing finance charges. Funds are charged at an annual rate of 10% with a base yield of 1,200 lbs. and lint price of 70¢/lb. in the above figure. This amounts to \$4.83/acre for extending the season 21 days.

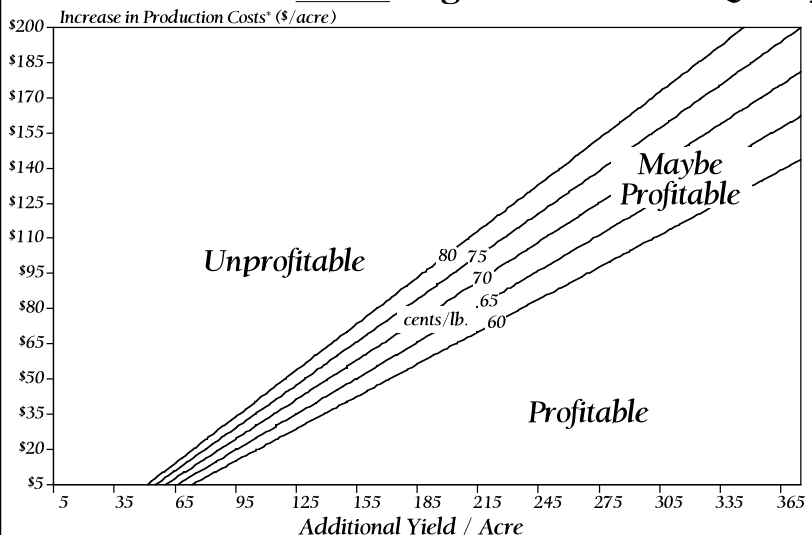
**Quality.** Gray and light gray percentages for all cotton classed in the Phoenix classing office have increased from about 5 percent for classing dates in September and October to 15 to 20 percent for class-

ing dates in December for three out of the last four years. This kind of quality degradation could easily drop your average price by 2 cents a pound. Extending the season risks deteriorating the quality of both the initial base yield and the additional yield from extending the season. The figure in the lower right corner gives the lint price required to justify extending the season with a 2¢ degradation in lint quality for a 1,200 lb. base yield. A higher base yield would increase the amount of additional lint required to break-even with a degradation in quality. For the \$79/acre increase in production costs illustrated earlier, it takes 176.7 lbs. instead of 133.0 lbs. of additional lint to break-even selling 75¢ cotton. With 70¢ cotton the increase in required yield to break-even increases from 144.5 to 192.6 lbs. These yields are

above estimated yield responses shown on the first page.

**Risk Return Assessment.** If your estimated production costs for extending the season are low, the risk of quality degradation could turn a marginal return into a negative one quite easily. Assuming the economics of extending your season are viable with no change in lint quality, a wise strategy may be to extend the season on part of your acreage while terminating the rest. Returns have the potential to be enhanced while hopefully keeping financial risks manageable.

### Lint Price (¢/lb.) Required to Justify "Extending the Season" with 2¢/lb. Degradation in Lint Quality



\* Increase in production costs for water, insecticide, and defoliation. Additional costs for ginning, harvest, decrease in lint quality (1,200 lb. base yield) and opportunity cost of money are accounted for in the figure.