



1999 Cotton Management Economic Notes

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High MIKE Discounts and Irrigation Termination?

Crop maturity, insect pressures, water costs, and market factors all need to be considered in deciding on the final irrigation. Low lint prices and a steep discount for high micronaire are two important market factors for this year's termination decision. To address this issue, yield and lint quality measures from prior irrigation termination studies were priced according to current premium/discount schedules.

Production Data. Lint quality, yield, and other production data were obtained from experiments conducted in 1992, 1994, 1995, and 1996 in Central Arizona led by Husman and Silvertooth. Deltapine 5415 was the variety utilized for all years but 1996. Nu Cotton 33 was used in 1996. Timing for the first irrigation termination date was targeted for approximately 3 weeks after the onset of cut-out or when the number of nodes above the top, first position white flower (NAWF) became less than 5. Days beyond this first termination date are referred to as "extending the season." Observed yield changes from extending the season range between 1.5 to 17.6 lbs./day in the studies considered.

Micronaire. As shown in the table to the right, the current discount schedule for high micronaire or mike is over double what it has been in prior years. In particular, mike readings of 5.0 to 5.2 have historically received just a 1¢ to 2¢ discount, but currently receive a 7.5¢/lb. discount. For even a 1,000 lb. base

yield, current mike discounts are \$55/acre more than past years and 15% of the value of current low spot prices.

Mike refers to fiber fineness and is influenced by variety, environment, and management. In general, bolls set on the plant early in the season tend to develop high mike readings (coarser fibers) by the end of the season, and bolls set on the plant later in the season are less mature and have lower mike values at harvest. The blending of fiber bolls produced by a "top crop" from extending the season with the more mature "bottom bolls" can result in mike values that are more acceptable. For example, in 1994 mike readings over 5.0 were obtained in 8 out of 10 bales classed for the baseline irrigation termination date of 3 weeks after cut-out or when the NAWF are less than 5. But after extending the season for 24 days, only 1 bale out of 13 was classed with a mike reading above 5.0.

However, under some conditions extending the season can exacerbate the problem of high mike. As noted by Silvertooth, "In Arizona we commonly see high mike values for fields that have experienced substantial losses in fruit retention late in the season, commonly associated with the monsoon season. High mike values in situations like this can be exacerbated by prolonging the crop late in the season without realizing a major gain in boll retention to compensate for bolls lost under the adverse conditions. Without gaining a significant boll load late in the season, plant carbohydrates are loaded into existing bolls, creating fibers with higher micronaire." See

Recent Prices (August 23, 1999)	Upland (¢/lb)	Pima (ELS) (¢/lb)
Spot - uncompressed	48.38	81.25
Oct '99 Futures	51.13	
Dec '99 Futures	52.35	
Dec '00 Futures	56.65	
Adj. World Price	37.06	

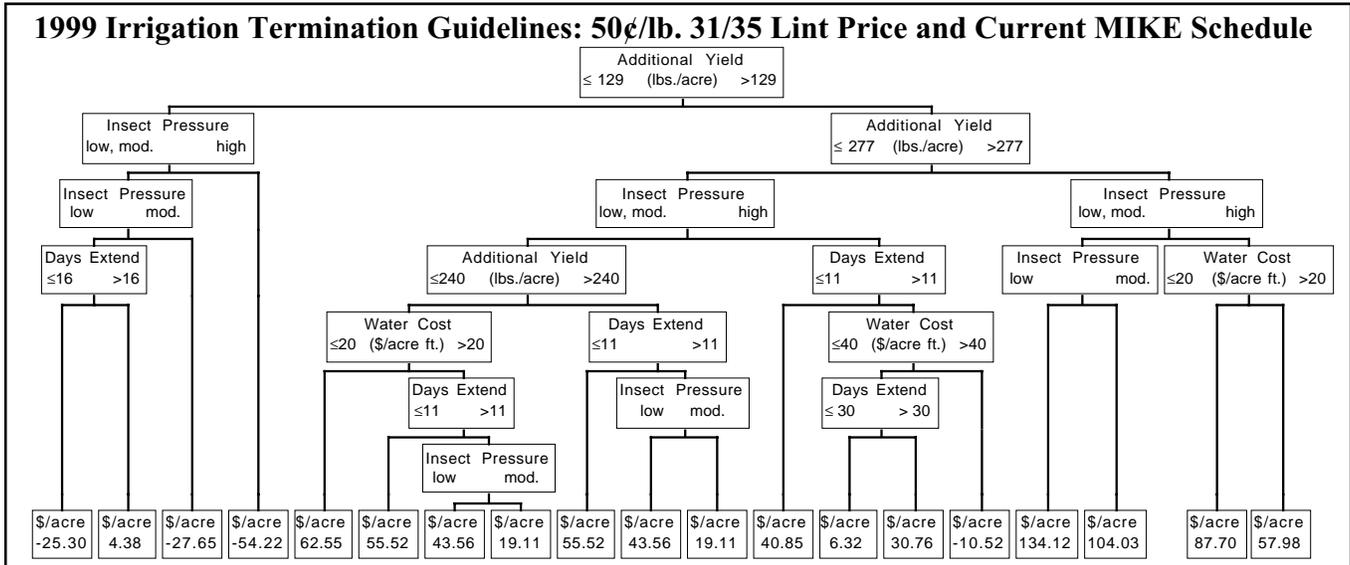
Note: Upland Spot for Desert SW grade 31-3, staple 35, add 300 points for compressed bales, Pima Spot for DSW grade 03, staple 46,

DSW Spot Prices and Upper MIKE Schedule

Year	DSW 31/35	High MIKE Discounts (¢/lb.)		
		43-49	50-52	>53
1992	51.30	0.0	-2.0	-3.0
1993	55.68	0.0	-3.5	-4.5
1994	75.03	0.0	-1.5	-2.25
1995	85.34	0.0	-3.5	-5.0
1996	72.32	0.0	-3.5	-7.0
1997	69.48	0.0	-2.0	-4.0
1998	64.00	0.0	-2.0	-4.0
current	50.40	0.0	-7.5	-9.5

Prices are for the last week in November except for current values.

1999 Irrigation Termination Guidelines: 50¢/lb. 31/35 Lint Price and Current MIKE Schedule



ag.arizona.edu/cotton/fiber_quality.html or March 1998 cotton comments by Silvertooth for this article.

Termination Guidelines. The above chart has statistically categorized the outcomes of past irrigation termination studies for different levels of insect pressure, water cost, and base yield while imposing current market conditions. Insect costs of \$.25 (low), \$1.50 (moderate), and \$3.00 (high) per day are considered in the above chart for extending the season. Three water cost levels of \$10, \$30, and \$50 per acre foot are considered using water application rates associated with past termination studies. Each added irrigation required 0.3 hrs. of labor for each acre at a wage rate of \$5.75/hr. Although not a "decision branch" in the above chart, base yield values of 900, 1,200, and 1,500 lbs./acre are a component in the above return values. A 7.5¢/lb. change in the value of lint quality harvested will impact a 900 lb. base yield by \$67.50/acre and a 1,500 lb. yield by \$112.50/acre. If additional yield is obtained from extending the season, the economic impact from any enhancement or degradation in lint quality is even greater.

Lint Quality. Mike and strength price adjustments for lint quality were made by using HVI measurements from past irrigation termination studies and imposing current mike and strength price adjustments. For example, lint quality obtained in a 1994 study enhanced the average price received by 1.55¢/lb. using November 1994 prices from extending the season 24 days. But in applying current market price adjustments for the same 46 bales of lint results in an average price increase of 6.63¢/lb. The current market schedule for 1999 is over \$71/acre more favorable than the market schedule in 1994 when making adjustments for lint quality. However, lint quality did not always improve in value from extending the season. Quality adjustments are made from a base

lint price of 50¢/lb. for DSW grade 31-3 and staple 35 with no mike or strength price adjustments in the above chart.

Harvest, Ginning and Finance. Harvest, hauling, and ginning costs for additional yields are expensed in the above figure at 10¢/lb. Additional cottonseed is assumed to yield 175% of additional lint yields with a value of \$.065/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%.

Risk-Return Assessment. The above chart summarizes what the economic return for extending the season will look like for different additional yields, days for extending the season, insect pressures, water costs, and base yield levels using current market prices and the results from past irrigation termination studies. For example, if additional lint yield (1st & 2nd pick) is less than 129 lbs., your insect pressure is low, and you extend the season more than 16 days, the chart indicates you could expect \$4.38/acre more profit from extending the season (these values are an average of all the returns that fall in a final category).

Note that *year and days for extending the season rank at the top for being the most influential on economic returns.* If one is going to go for a top crop you need to think of extending the season at least 16 to 21 days. Extending the season one or two weeks is not very likely to produce beneficial returns. When additional yields are replaced by year, year effects are just as influential on explaining economic returns as number of days for extending the season. As we all know, every year is different so it might be wise to not place a bet on all of your acreage. See ag.arizona.edu/arec/ext/cotton.html for more summaries of yield response from extending the season.