PHOENIX SPOT PRICES: U.S.D.A. QUOTES AND STATISTICAL ESTIMATES

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A research study has been completed that estimates spot cotton prices from bid-sheet sales using statistical procedures. Cotton, Inc. was a main source of funding for the cost of this research, and the research would not have been possible without that financial support. The complete report on the research is titled, "Estimates of Implicit Prices for Cotton in the Phoenix Spot Cotton Market," and will be available as the Agricultural Economics Research Series Report No. 34.

The research study had three primary objectives as follows:

1. to develop a statistical procedure that will emulate the daily quotations produced by the quotations committee,

2. to use actual sales information from the Phoenix Spot Market to statistically estimate prices, premiums and discounts,

3. to compare the statistically generated prices, premiums and discounts with same-day U.S.D.A. quotations.

The research was begun in March of 1982 and completed in November of 1983. Seven Arizona growing companies supplied information on the bid-sheet sales of cotton grown by the companies. In the 1980-81 marketing season, 27 days had sufficient number of lots sold to allow estimates of prices, premiums and discounts, and the research used 2,108 individual lots. In the 1981-82 season, estimates were possible on 44 days, and 3,409 lots were included in the research.

Prices of the base cotton (mike 5, 41 grade and 34 length) as estimated by statistical techniques was on average about 3/4 cents below the U.S.D.A. quotes in both the 1980-81 and 1981-82 seasons. This pattern of overstating the price in the U.S.D.A. quotes was sufficiently consistent to have at least a low level of statistical confidence.

Intensive study on differences between U.S.D.A. quotes and statistical estimates for premiums and discounts for non-base grade, staple and micronaire were completed for the 1980-81 and 1981-82 marketing seasons. In the 1980-81 season, grade-staple premium and discounts in U.S.D.A. quotes overvalued by 1.56 cents, and micronaire discounts overvalued by 1.70 cents in the U.S.D.A. quotes. In the 1981-82 season, the U.S.D.A. quotes overvalued non-base grade-staples by only .88 cents (not statistically significant) and overvalued non-base micronaire cotton by 1.61 cents.

In the 1980-81 and 1981-82 seasons, the U.S.D.A. quotes tended to overvalue short staples and undervalue long staples. There was also a tendency for U.S.D.A. quotes to undervalue high grades and overvalue low grades. Considering differences between estimated and U.S.D.A. quoted values for both base and non-base cotton, the U.S.D.A. quotes seem to have placed approximately correct values on the highest priced combinations of grade, staple and micronaire. The medium and low priced cottons were substantially overvalued by the U.S.D.A. quotes.

The statistical research on spot prices in the Phoenix market showed that it was possible to estimate prices, premiums and discounts, using statistical procedures, that were comparable to those quoted by U.S.D.A. spot quotation committees. However, relatively few days each year have sufficiently large number of lots of cotton sold to allow statistical estimates that would be acceptable substitutes for the U.S.D.A. quotation system as it currently operates.

AN ANALYSIS OF HEDGING STRATEGIES FOR ARIZONA COTTON PRODUCERS

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Summary

This study compared selected hedging strategies for Arizona upland cotton producers including a no-hedge, a planting hedge, and several technical hedging strategies for the time period 1974-82. Technical hedging strategies relied upon forecasting methods to signal the placing and lifting of hedges. Forecasting methods employed included moving averages, exponential smoothing and linear regression analysis. Hedging strategies were plotted in regions of preference relative to no-hedge and planting hedge strategies.

Methodology

Various hedging strategies including a no-hedge, a planting hedge, and selected technical hedging strategies were evaluated. No-hedge and planting hedge strategies were used as reference points for comparison with technical strategies.

Hedging strategies were evaluated on the basis of one contract of 50,000 pounds of cotton. The period 1974-82 was chosen in order to represent the most current time frame in which cotton prices were relatively free of influences from governmental programs.