Hedging by Cattle Feeders...

Sound Management?

*by Russell Gum and John Wildermuth**

Arizona cattle feeders do not have to be reminded that fat cattle prices can change significantly during the period of time required to finish out a lot of feeders. Nor do they have to be reminded that it is entirely possible for even the most efficient producer (the one who realizes the lowest possible cost per pound of gain) to lose large amounts of money due to falling fat cattle prices over the course of the feeding period. The purpose of this article is to demonstrate how Arizona cattle feeders can utilize the Chicago live cattle futures market to reasonably protect themselves from such an occurrence.

It is true that in the long run the market will reward those who are willing and able to accept the risks associated with speculating on market price changes. However, it is also true that there are those who cannot afford to accept risks (in some cases one bad year can lead to bankruptcy) and that in some situations the potential payoff is so small that even the most financially secure feeder would logically decide to hedge rather than speculate on the cash market. In order to establish the above assertion, it is necessary to first set-up the appropriate decision framework and second to present the empirical information needed for Arizona feeders to implement the decision process as developed.

The Technique of Hedging

The term "hedging" implies the taking of opposite positions in two related ventures so that potential gains from one cancel potential losses from the other. To illustrate how a feeder may use the Chicago Mercantile Exchange live beef futures contract to offset potential losses due to falling fat cattle prices, assume that he has bought forty 600 pound feeder steers at $30 per hunderweight in January. Given a typical rate of gain of 2.5 pounds per day, the feeder will be ready to market the cattle in 160 days, sometime in early June. The following examples illustrate the effect of a hedging operation based on the above assumptions and a stable, increasing, and decreasing cash market.

Estimating the Effective Price

The above examples are admittedly over-simplified; however, they do illustrate how a hedge works. Further, it can be seen from these examples that the net effect of the hedging operation can be described by the following equation:

$$EP = FS - FB + CS$$

Where,

EP = effective price

FS = price future contract is sold for

FB = price future contract is bought back for

CS = price fat cattle are sold for

For examples I-III:

$$EP_{I} = \$30 - \$30 + \$30 = \$30$$

$$EP_{II} = \$30 - \$33 + \$33 = \$30$$

$$EP_{III} = \$30 - \$27 + \$27 = \$30$$

Knowledgeable Arizona cattle feeders would quickly point out that at the time the feeder made the decision to hedge, the only information he had was the price at which he could sell the futures contract ($30.00). It is obvious that for decision making an estimate of the difference between the cash price he sells his cattle for and the price he pays to buy back the futures contract would allow a feeder to estimate his effective price *at the time the hedge is placed.*

The following are just such estimates by month for the Arizona Market:

(*Please turn to page 16*)

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Month	*Estimated Basis*
(*Difference between Chicago futures market prices and Phoenix choice fat cattle prices*)	
January	— .21
February	— .80
March	— .50
April	— .31
May	— .03
June	.50
July	.75
August	— .20
September	— .45
October	—1.36
November	—1.05
December	— .53

In the case above the feeder in January would know that the market for June futures was $30.00. He could then add $.50 (the adjustment for June) to get an estimated effective price of $30.50. Then, it is up to the feeder to decide to accept this $30.50 price or to speculate on the cash market in hopes of a higher price. It should be pointed out that this price is only an estimated price and not an actual price. Our estimates show that 68 percent of the time the actual price will be within ± 70 cents of the estimated effective price (EP) and 95 percent of the time within ± 1.40 of the estimated price.

It is hoped that the information presented here will be used by Arizona cattle feeders as they attempt to selectively utilize the futures market to their advantage. For example, it would seem logical that if the estimated effective price under the worst possible basis conditions in June (+ .50 — $1.40 or — $.90, there is only a 2.5 percent chance that the basis will be this low or lower) is large enough to guarantee a good profit and further that there is considerable uncertainty as to the June cattle market then even the most financially secure feeder might logically decide to hedge his cattle.

Example I — No change in the market:

	Cattle		*Date*	
Purchase	600# @ $30 — $180		1-1	Sell 1 June futures Cont. @ $30 — $300
Cost of Gain	400# @ $23 — $ 92			
		$272		
Sell	1,000# @ $30 — $300		6-1	Buy 1 June futures Cont. @ $30 — $300
	Profit = $ 28			Profit = $0

Net Profit $28 + 0 = $28 per head

Example II — Market increase $3.00:

Purchase	600# @ $30 — $180		1-1	Sell 1 June futures Cont. @ $30 — $300
Cost of Gain	400# @ $23 — $ 92			
		$272		
Sell	1,000# @ $33 — $330		6-1	Buy 1 June futures Cont. @ $33 — $330
	Profit = $ 58			Loss = –$30

Net Profit $58 – $30 = $28 per head

Example III — Market drop $3.00:

Purchase	600# @ $30 — $180		1-1	Sell 1 June futures Cont. @ $30 — $300
Cost of Gain	400# @ $23 — $ 92			
		$272		
Sell	1,000# @ $27 — $270		6-1	Buy 1 June futures Cont. @ $27 — $270
	Loss = –$ 2			Profit = $30

Net Profit $30 – $2 = $28 per head

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to: