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Basis Changes in the Pork Pricing Structure

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Market Report	Yr Ago	4 Wks Ago	4/13/01
Livestock and Products, Average Prices for Week Ending			
Slaughter Steers, Ch. 204, 1100-1300 lb Omaha, cwt	$73.59	$79.88	$79.86
Feeder Steers, Med. Frame, 600-650 lb Dodge City, KS, cwt	97.10	97.02	100.72
Feeder Steers, Med. Frame 600-650 lb, Nebraska Auction Wght. Avg	102.17	98.94	104.33
Carcass Price, Ch. 1-3, 550-700 lb Cent. US, Equiv. Index Value, cwt	113.05	121.19	121.00
Hogs, US 1-2, 220-230 lb Sioux Falls, SD, cwt	51.00	47.37	49.87
Feeder Pigs, US 1-2, 40-45 lb Sioux Falls, SD, hd	61.00	58.50	57.75
Vacuum Packed Pork Loins, Wholesale, 13-19 lb, 1/4" Trim, Cent. US, cwt	135.20	131.80	115.95
Slaughter Lambs, Ch. & Pr., 115-125 lb Sioux Falls, SD, cwt	81.08	*	78.00
Carcass Lambs, Ch. & Pr., 1-4, 55-65 lb FOB Midwest, cwt	170.00	171.00	171.00
Crops, Cash Truck Prices for Date Shown			
Wheat, No. 1, H.W. Omaha, bu	2.82	3.17	3.22
Corn, No. 2, Yellow Omaha, bu	2.03	1.85	1.92
Soybeans, No. 1, Yellow Omaha, bu	5.06	4.23	4.16
Grain Sorghum, No. 2, Yellow Kansas City, cwt	3.50	3.45	3.57
Oats, No. 2, Heavy Sioux City, IA , bu	1.37	1.36	1.40
Hay, First Day of Week Pile Prices			
Alfalfa, Sm. Square, RFV 150 or better Platte Valley, ton	85.00	115.00	115.00
Alfalfa, Lg. Round, Good Northeast Nebraska, ton	47.50	70.00	85.00
Prairie, Sm. Square, Good Northeast Nebraska, ton	*	117.50	105.00

* No market.

In December 1998 hog prices fell to unprecedented levels. Adjusted for inflation these were some of the lowest prices received by pork producers. The basis relationship (the difference between a futures contract price for a commodity and a local cash price for that commodity) between the cash markets and the Chicago Mercantile Exchange (CME) futures contract on lean hog carcasses increased to record proportions as well. Was the record wide basis a one time event, based on the futures markets inability to drop as quickly as the cash bid, or are there underlying fundamental changes in the basis for hogs?

With the February 1997 contract, the CME changed the hog contract from live hogs to lean hog carcass. This change intended to match the contract with businesses that use such an instrument and tended to make the contract more useful to the meat industry. Live hog producers were advised that the contract could be adjusted to live hog price by using a factor of .74.[1] The futures contract price per hundredweight is multiplied by .74 to reach a live hog price per hundredweight. While this relationship is an approximation of the live hog weight to the lean carcass weight, (i.e. a 250 pound live hog yields a carcass approximately 185 pounds 250X .74=185) it is not exact. Using this ratio, the new basis between the CME lean hog contracts to live hog cash prices should be calculable.

A second question arose over hog contract basis while conducting a study of hog marketing strategies. The relationship of highest value in cash, futures and options values over a fifteen year period showed a difference in the frequency of occurrence for highest value, Table 1. The value used is the net return to the producer, or cash value per hundredweight less basis and premium cost.

When determining the highest net value to the producer in the study in Table 1, the basis between cash and futures was held constant after adjustment for lean contract of .74. If basis had widened considerably after 1996 then the basis used in the study for the contract years after 1997 would be too small and

[1]Wellman, Al. NebFact, *Highlights of the New Chicago Mercantile Exchange Lean Hogs Futures Contract*. 1996

the net
value to the producer using futures or options would be higher than what actually occurred.

Table 1.			
Frequency of Highest Value 1985-2000			
n = 106	**Cash**	**Futures**	**Option**
Percent	39%	25%	36%

Frequency of Highest Value 1997-2000			
n = 24	**Cash**	**Futures**	**Option**
Percent	8%	33%	58%
Difference	-30%	8%	22%
Percent of Change	-78%	31%	63%

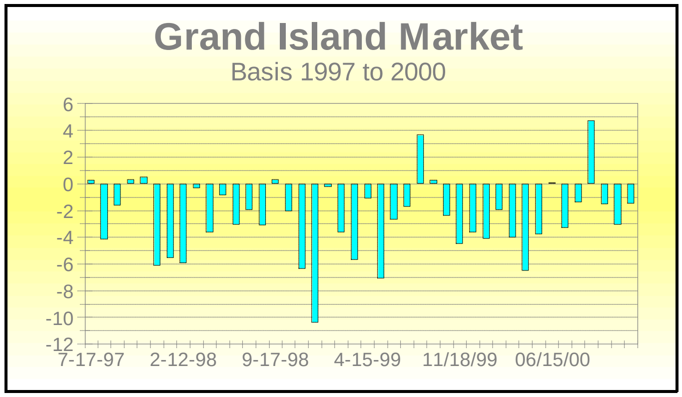
This caused us to review past basis studies on the live hog contract. Table 2 shows the actual basis between the Omaha cash price for live hogs and the live hog futures contract from 1990 to 1998. Lean hog futures prices multiplied by .74 were used for the 1997-98 period. Yearly average basis and total average basis are shown. The data shows that there is in fact a marked difference in basis from the period of 1990 to 1996 and the period of 1997-98. These basis differences would amount to $4.00 per hog using a current lean hog at a market weight of 250 lbs. Pork production has changed in the past decade and margins are small. A market basis ***difference*** of $4.00 per hog, if not anticipated, would be a deterrent to using futures markets as a marketing tool for pricing pork production.

Table 2. Omaha Basis Comparison 1990-96 and 97-98.			
1996	-$1.27	**1997**	-$2.23
1995	-$1.06	**1998**	-$2.71
1994	-$2.47		
1993	-$1.28		
1992	-$0.34		
1991	-$0.16		
1990	-$0.52		
Average	-$0.87	**Average**	-$2.47
		Difference	-$1.60

The Omaha market as a reporting source no longer exists. Another example of change within the pork industry. To add some data for subsequent years, the Grand Island auction was substituted. This market is a market in an area where packers do not have convenient plant deliveries, and thus provides some packer buyers on a regular basis that more nearly resembles the type of buyer that may have been competing for hogs at Omaha in the past. Grand Island basis may be more volatile than the Omaha basis. Shrinking spot market use may account for part of this too.

In 1997, the Grand Island basis was lower than Omaha, while it was higher in 1998. On average for the two years, Grand Island basis was 23¢ wider than Omaha. This difference should be considered when looking at more recent Grand Island data compared to earlier (pre-lean contract) Omaha data.

Grand Island basis shows considerable volatility in the three years shown in this chart. However, average basis is $2.67 on a live weight and is consistent with 1997-98 averages (Table 2). Also, while the negative $10.40 extreme in 1998 seems high, it came at an unusual time. The remainder of volatility is no more than that experienced in the past. In the previous low (1994), the three year period of 1993-1995 saw 19 occurrences of a negative basis greater than $4.00. In the period shown



below there are eleven such occurrences.

It was anticipated that basis changes would explain a great deal of the changes in values shown in Table 1. However, it would appear that other factors besides basis are affecting the relationship of net returns from cash, futures and options strategies. The live hog contract changed to a lean hog contract and there may be some difference beyond the .74 adjustment factor in the derivative relationship between live hogs and the lean carcass contract. Also, the current contract now settles in cash with no delivery option. It is possible that this change has influenced the relationship between futures and cash prices at the end of the contract period.

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