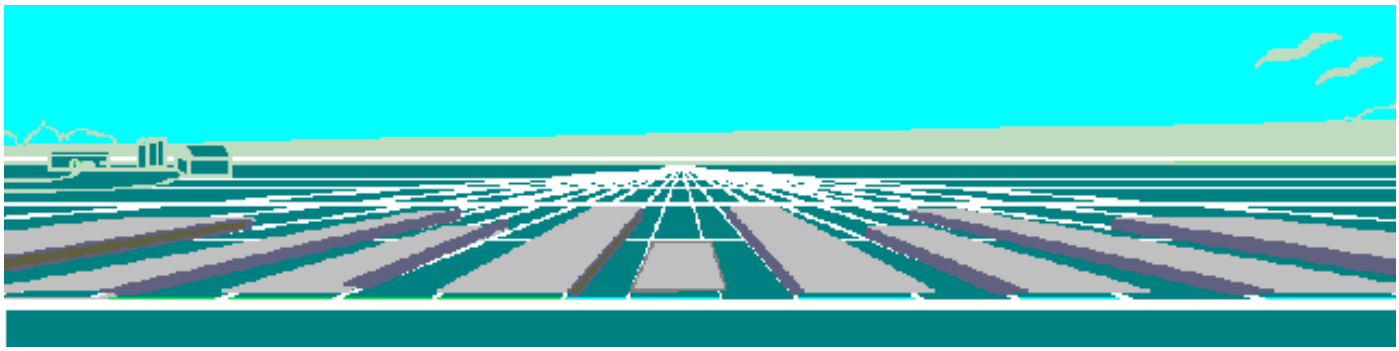

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HOG PRICE RISK MANAGEMENT

Price risk management for pork producers is important, but often difficult. Traditionally, many producers have managed risk by selling hogs throughout the year. By selling every month or week the producer was assured of receiving the average price for the year. Now many producers are part of a coordinated production system that produces hogs every week, but the individual producer may only sell hogs for 3 weeks out of 8 or even less frequently. In addition, producers are wondering if they can do better than the annual average.

Futures and options contracts are tools available to producers, which allow them to establish an approximate price for hogs separately from the decision of when to market them. Although these tools have been around for a number of years (futures since 1967 and options 1987), relatively few producers use them regularly.

A recent analysis by Lawrence and Vontalge evaluates alternative futures and options strategies and decision rules for pork producers. The study considered a producer marketing hogs each month from 1987-1999 or 144 groups of hogs. Estimated returns from the strategies are compared with cash market sales and five different packer contracts for the finishing period. The full report is at http://www.econ.iastate.edu/faculty/lawrence/ManagingHogPriceRisk.pdf

In general, we found:

Prices ($/cwt live weight)

- Average prices $45.58, average costs $43.54 (ISU Estimated Returns).
- Average futures price at placement (four months before slaughter) $45.92.
- Futures at slaughter $46.66, a $.74 downward bias of futures consistent with earlier studies.
- Actual basis was $.33 lower than the expected basis based on previous 5-year average.

Returns ($/cwt live weight)

- The cash market produced the highest average returns and the greatest loss, $2.04.
- Futures had the lowest average return and smallest loss, $1.09.
  - However, futures beat cash in 44 percent of the months.
- Various option strategies were in the middle and averaged $1.46-1.92.
  - Option strategies beat cash in only 19-37 percent of the weeks.

When to Use

- Cash had the highest average returns for hogs sold in March – August.
- Futures had the highest average returns for hogs sold in January and February.
- Various options strategies produced higher average returns in September-December.

If-then-else strategies based on cost of production

- Use the individual tool only if it is projected to cover breakeven cost, else:

- *Stay in the cash market*: used the tool ¼ to ½ the time, had positive returns in ? of the months, and beat the cash-only strategy less than ¼ of the time.
- *Hedge in the futures market*: used the tool ¼ to ½ the time, had positive returns in ½ of the months, and beat the cash-only strategy 37-44 percent of the time.
- *Buy a put option two strike prices out of the money*: used the tool ? to ½ the time, had positive returns in 58-63 percent of the months, and beat the cash-only strategy 19-31 percent of the time.

If-then-else strategy based on price forecast

- Use the individual tool only if its projected price is higher than a forecast price using a simple seasonal price forecast, else:
  - *Stay in the cash market*:
    - used the tool 29-60 percent of the time,
    - had positive returns in 55-63 percent of the months,
    - beat the cash-only strategy 13-22 percent of the time.
    - all but one tool produced average returns higher than the cash-only strategy,
  - *Buy a put option two strike prices out of the money* :
    - used the tool 29-60 percent of the time,
    - had positive returns in 56-62 percent of the months,
    - beat the cash-only strategy 19-62 percent of the time.
    - most tools comparable to or higher than cash-only strategy.

Compared with packer contracts

The packer contracts evaluated were synthetic contracts that are similar to contracts packers offer, but are not the exact replication of the actual contract.

- Two window contracts and a cost-plus contract evaluated did not have ledger accounts that had to be repaid during times of higher prices.
  - These 3 contracts had lower average returns, smaller losses, and less variation than cash, futures, or options strategies.
  - They beat the cash market in fewer than ¼ of the months.
- Two ledger contracts evaluated require that the long run contract price should equal the long run cash price by paying back above market prices with below market prices at a later date.
  - The variation in returns was less and losses were smaller than cash, futures, and option strategies.
  - The percent of months with positive returns was considerably higher than any other strategy.

Summary

A wide variety of price risk management tools is available to pork producers. However, there is no clear-cut best strategy for all producers or one that works best all the time. The efficient market hypothesis essentially guarantees that a single strategy will not be consistently profitable.

Producers who rely solely on the cash market may be disappointed as well since it produced the greatest variation in returns and greatest losses, even though it had the highest average return. Basing strategy selection on marketing month can help because some strategies worked better in certain months than did others. Strategies that utilize a simple seasonal price forecasting model and a combination of marketing tools in an “if-then-else” strategy worked better than most strategies in that it produced the highest average returns, avoided the large losses, and produced positive returns a greater percent of time than did the cash market.

Packer contracts did reduce price risk, but often at the expense of average returns. Clearly producers must be sure that their cost of production is less than the base price for the contract. Contracts lowered average returns, variation, and size of losses compared with other marketing strategies. Risk limiting results and simplicity of use explain the popularity of these contracts.

John Lawrence

CROP OUTLOOK BASED ON USDA JUNE 30 ACREAGE AND GRAIN STOCKS REPORTS: NEGATIVE FOR CORN PRICES, NEUTRAL FOR SOYBEANS

Corn

USDA's June 30 planted acreage and grain stocks reports reinforce earlier market caution signs for farmers. The stocks report showed indications that domestic corn feeding in the March-May quarter ***was about six percent less than a year earlier***. Reported corn planted acreage was modestly above that of last year and the March planting intentions report figures.

Corn Balance Sheet (Mil. Bu.) 6/30/00.

				Prelim.	Proj.	Projected 2000-01		
	1994-95	1995-96	1997-98	1998-99	1999-00	A	B	C
Plant. A(Mil.)	79.2	71.2	79.5	80.2	77.4	79.6	79.6	79.6
Harv.A.(Mil)	72.9	65.0	72.7	72.7	70.5	72.8	73.1	73.3
Bu./A.	138.6	113.5	126.7	134.4	133.8	120.0	135.0	140.0
Production	10,103	7,374	9,207	9,759	9,437	8,736	9,869	10,262
Imports	7	16	9	19	15	14	10	10
Carryover	850	1,558	883	1,308	1,787	1,894	1,894	1,894
Total	10,960	8,948	10,099	11,086	11,239	10,644	11,773	12,166
Utilization:								
Feed & Resid.	5,533	4,711	5,505	5,496	5,500	5,450	5,550	5600
Food, Ind. & Seed	1,693	1,583	1,782	1,822	1,915	1,960	1,965	1970
Exports	2,177	2,228	1,504	1,981	1,930	1,970	2,000	2035
Total	9,402	8,522	8,791	9,299	9,345	9,380	9,515	9,605
Carryover	1,558	426	1,308	1,787	1,894	1,264	2,258	2,561
U.S. Farm Price ($)	2.26	3.95	2.43	1.94	1.85	2.20	1.70	1.60
Iowa Ave. Price ($)	2.2	3.85	2.33	1.84	1.75	2.10	1.60	1.50
Harv. Price, C.Ia ($)	1.80	2.90	2.40	1.75	1.40	1.85	1.35	1.25
Dec. Fut. @ Harv. ($)	2.20	3.35	2.80	2.10	1.95	2.35	1.90	1.80
Long-Term Probability(%)						20	60	20
Carryover: % Of Total Use	16.6	5.0	14.9	19.2	20.3	13.5	23.7	26.7

Corn Stocks and Feeding

Reported stocks, and processing and exports so far this marketing year indicated domestic corn feeding for the September-May period was 0.6 percent less than a year earlier, along with the six percent decline in March-May. ***To reach USDA's early June projection of marketing-year feeding, domestic corn feeding from June through August will need to be about 29 percent greater than at the same time last year.*** That looks quite unlikely based on feeding rates for the past nine months and improving pasture conditions. ***The bottom line is that August 31, 2000 and 2001 U.S. corn carryover stocks may be modestly higher than previously projected. (See the corn balance sheet above). Lower feed use this marketing year hints that recent USDA projections of corn feeding for the 2000-01 marketing year may be slightly optimistic.***

Indicated U.S. plantings of corn at 79.6 million acres were up 3% from 1999 plantings and up 2 percent or 1.7 million acres from the March planting intentions report. The increase from earlier intentions reflects warm and dry weather early this spring and a strong rally in corn prices during April and May.

Indicated acreage should be large enough to allow a modest build-up of U.S. corn carryover stocks by August 31, 2001—with an approximately normal U.S. average yield. However, the potential for record yields should not be minimized. In many areas, corn development is well ahead of normal and rains have been widespread except for a few pockets in western Iowa and parts of Nebraska. Seventy-four percent of the corn crop in major states was reported in good-to-excellent condition on July 2 and July 9. If the U.S. average yield would slightly exceed 138.6 bushels per acre of the previous record year (1994), corn carryover stocks likely would increase by around 35 percent from a year earlier by August 31, 2001. Total U.S. corn supplies for the marketing year would be about 8% larger than last fall.

Either way, storage space may be tight this fall and a repeat of prices similar to those of the past two years would be quite likely. Price pressure beyond what is already in the cash market could come from the large amount of old-crop corn for which, in many cases, the LDP was taken earlier. USDA's FSA reports that 77 percent of the 1999 U.S. corn harvest has had the LDP taken on it. A significant part of this grain may still be in storage and owned by farmers. Farmers have taken the LDP on 88 percent of last year's soybean crop. FSA facility loans may lead to slightly increased on-farm storage capacity. However, unlike past Farmer-Owned Reserve programs, no storage payments are available. The only incentive for putting up new storage is an interest rate advantage of a few percentage points.

Soybeans

Soybean planted acreage was estimated at a record 74.5 million acres, up one percent from 1999 and the eleventh consecutive year of increase. Indicated acreage is down 0.4 million acres or 0.5 percent from the March intentions.

Cautions on North Dakota Soybean Acreage

The largest increase in plantings of soybeans, by states, was in North Dakota. Official figures for that state show a 56 percent increase over last year in soybean planted acres, along with a 29 percent increase for canola, a 24 percent decrease for sunflower seed, an 11 percent increase for all wheat, and a 10 percent increase in planted acreage of all major crops including hay. Fallow acreage is a potential swing factor in North Dakota's planted acreage, as is a small shift of pasture into crops. However, it would be surprising that these two sources of land would boost total planted crop acres that much. On a trip to the Red River Valley area in late winter, farmers there showed strong interest in planting more soybeans, as they have been doing since the start of Freedom to Farm. However, the size of increase in combined plantings of all crops is surprising. If there is an error in North Dakota and part of it is in soybeans, it could result in some reduction in the U.S. soybean acreage number. (Note: after this was written, USDA revised its N.D. canola acreage for 2000 downward by a very minor 20,000 acres, along with a 10,000 downward revision for Minnesota. These changes do not remove the uncertainty).

June 1 soybean stocks were near trade expectations and continue to show the possibility that last year's U.S. crop may have been slightly overestimated. With normal soybean yields, the U.S. soybean carryover would be likely to increase substantially by August 31, 2001, very possibly by 30 to 50 percent from the level expected at the end of this summer. Total soybean supplies for this fall would be about seven percent above last fall. ***A U.S. average yield just above the 1994 record of 41.4 bushels per acre would boost supplies by about 12 percent from a year earlier.*** Last year's yields in much of the Corn Belt were somewhat below normal because of a dry August. ***These supplies are cautions that some added price risk is present for soybean prices in late summer and fall.***

International Developments

In the international picture, there are two additional cautions for soybeans. On a just-completed visit to China, officials there indicated that depressed corn prices appear to have brought a five to ten percent increase in China's soybean plantings this spring. Since China's corn acreage is much larger than its soybean acreage, a much smaller percentage decline in its corn plantings is anticipated. While about one-fifth of China's Grain Belt had been in a drought this spring, recent rains in the Beijing area are reducing (but not eliminating) drought fears in parts of its Corn/Soybean Belt. China has been a large buyer of U.S. soybeans and bean products in recent years, but a competitor in corn exports. Its increased soybean purchases this year are accounting for nearly two-thirds of the expected 19 percent increase in the marketing year total U.S. soybean exports. On the demand side, hog producers there reported hog prices were in the single digits in dollars per cwt., and will likely cause reduced hog numbers in the year ahead. China's corn export prospects for 2000-01 still hinge heavily on weather as well as the size of any short-term reduction in its hog numbers. Current indications suggest China may be less aggressive as a corn export competitor in the year ahead. Roughly one-fifth of its corn producing area and 15 to 20 percent of its Soybean Belt was quite dry in late spring and early summer. For the drought region, July is normally the month of greatest rainfall, and parts of the region have had modest rains so far this month.

WTO is expected to require China to remove some and eventually all of its protection of its inefficient soybean processing industry. That likely will encourage increased imports of soybean products relative to unprocessed soybean imports in the years ahead.

Another development to watch is South America's November-December 2000 soybean plantings. On a recent visit to Brazil, industry officials there expected its soybean plantings to increase by five to ten percent this fall, provided prices in late fall were near those seen during the U.S. planting season. Farmers and industry officials there indicated CBOT soybean futures prices below $4.30 to $4.50 would be needed to cause a leveling off of Brazil's

soybean acreage. November 2000 futures on July 13 were $4.61 per bushel, while July 2001 futures were at $4.97. The July futures would be a greater influence on Brazilian producers than November futures.

Table 1. Corn Crop, Percent Good to Excellent in Early August, Early July .

State	Mil. Harv. Acres	% of U.S.	2000 (07/09)	1999	1998	1995	1994	1993
Illinois	11.05	15.1	86	56	62	49	74	86
Indiana	5.55	7.6	85	38	65	59	75	75
Iowa	12	16.4	73	70	68	70	98	24
Kansas	3.25	4.5	67	73	80	60	85	84
Michigan	1.95	2.7	65	68	36	79	70	70
Minnesota	6.6	9.0	73	69	78	73	84	6
Missouri	2.85	3.9	74	27	57	40	68	38
Nebraska	8.05	11.0	54	69	81	50	92	65
Ohio	3.3	4.5	72	49	72	64	72	73
Pennsylvania	1.05	1.4	76	17	68	83	78	58
S. Dakota	3.95	5.4	82	79	88	55	89	40
Texas	1.85	2.5	74	82	26	66	78	77
Wisconsin	2.8	3.8	74	77	71	74	98	46
Maj. States	67.68	92.7	74	63	68	61	85	53
Others	5.33	7.3	est.76					
U.S. Avg. Yld.	73.01	100.0	140?	133.8	134.4	113.5	138.6	100.7
Severely affected states								
Percent of U.S. Harv. Ac. (%)			0.0	32.8	11.0	38.6	0.0	38.3

Robert Wisner