

Research Shows Performance of New-crop Pricing Strategies

Dean Baldwin, Neal Blue, and I have just updated our pre-harvest pricing strategy research for the 1985-2001 crop years. Earlier research through 1997 showed an **\$18,000 to \$19,000 average yearly gain** in net income for a 1,000 acre cash grain operation (half corn & half soybeans) *vs. harvest cash sales*. These results came from pricing 80 percent of a 10-year moving average of production with corn put option purchases in mid-May, and 20% with hedge sales in July for harvest delivery. Soybeans were priced with synthetic puts (hedge sale on November futures, plus purchase of call options two strike prices out of the money, with calls held until the first week of July to see how the U.S. crop is developing. Calls were held to take advantage of possible weather rallies in late spring or early summer, and were sold the first week of July to avoid a strong seasonal tendency toward declining call premiums into late summer and fall. From July onward, price protection was retained through the hedge sales.

If the previous year's U.S. production was a weather-reduced short crop (production fell below the previous year's utilization due to adverse weather over a sizeable part of the Corn Belt, but not necessarily in your area), the computer pulled the marketing trigger in late February before harvest with hedge sales on December futures. Hedge sales were closed in late October, and gains from pre-harvest pricing represented higher income than harvest cash sales at that time. ***Additional post-harvest marketing gains were available in many years, especially the post-1995 Freedom-to-Farm years, by taking advantage of post-harvest basis improvement and market carry. These gains were not considered in the pre-harvest study, but pre-harvest strategies used would allow farmers to store and gain from basis improvement after harvest. (For information on how to implement these post harvest strategies, see MRP modules on our web site noted above).***

For the analysis, we used two actual northwest Iowa farms, one in Lyon County and one in O'Brien County. The O'Brien County farm had higher and more stable yields than the Lyon County farm, but gains from marketing were similar for both farms. The analysis also was done for a farm in northwest Ohio, and the results were quite similar to those for the Iowa farms.

In our updated study, the statistically most significant strategy for the 1985-2001 period was the use of synthetic puts on both corn and soybeans rather than puts for corn, as the previous study had indicated. Using the same timing and pricing amounts but synthetic puts instead of puts, annual income gains for these farms were around \$19,000 to \$20,000 per year vs. harvest sales. In the years following short U.S. crops, if synthetic puts (call purchases two strike prices out of the money) were used, with calls held until early July, the average annual income gains were reduced by slightly more than a thousand dollars per year. Purchase of at the money corn puts in May rather than using out of the money synthetic puts reduced annual average income gains vs. harvest sales to around \$16,000 to \$17,000 per year over the 1985-2001 time period. Statistical tests (two-tailed t tests) were used to see if these income gains might be due to random chance. Test results indicated the probability of occurrence by chance ranged from less than one percent to about four percent. In other words, the tests indicated that a seasonal pattern in new-crop prices has persisted over this time period. ***It should be emphasized that: (1) these strategies did not provide higher prices than the harvest cash market every year, and (2) past performance does not guarantee future results. Over the study period, gains over harvest cash sales occurred about 80 percent of the time for corn and in about 2/3 of the years for soybeans.***

In the years since Freedom-to-Farm, there has been a strong tendency for the best pre-harvest pricing opportunities to come very early in the life of the contract—often a year or more ahead of harvest, and with winter prices offering somewhat better opportunities than during the planting season. Our results for the entire 1985-2001 period showed moderately lower returns from routinely pricing in February rather than May, since this pattern has developed only in the last five years. Market behavior in creating private-sector incentives for long-term grain storage to replace CCC inventories suggests this pattern may continue in the future. That pattern may possibly create even larger economic incentives for pre-harvest pricing than those shown in our study for those farmers who feel comfortable pricing well ahead of harvest and understand appropriate risk management tools for doing so. ***For farmers who price a substantial part of production before harvest, Crop Revenue Coverage Insurance or Revenue Assurance with the harvest price option may be a useful tool for managing production risk. These two tools replace lost production at harvest replacement value by increasing insurance coverage if prices rise from winter to the following fall.***

Examples

Farm 1: 700 acre corn base & 20 acre oat base out of 1,000 acres

4-yr. Avg. corn yield = 160.5 bu./A., soybeans = 48 bu./A.

Old Corn Payment yield 120 bu./A.

Expected corn & soybean prices: at or below the loan rate, oats above

Gain in payments from updating base acres only:	-\$7,046
Gain in payments from updating base acres & yield: Method A	-1,835
Gain in payments from updating base acres & yield: Method B	-1,857

Farm 2: 500 acre corn base & 20 acre oat base out of 1,000 acres

4-yr. Avg. corn yield = 160.5 bu./A., soybeans = 48 bu./A.

Old Corn Payment yield 120 bu./A.

Expected corn & soybean prices: at or below the loan rate, oats above

Gain in payments from updating base acres only:	\$ 488
Gain in payments from updating base acres & yield: Method B	5,699
Gain in payments from updating base acres & yield: Method C	5,947

Method B: Old payment yield + 70% of difference between old yield and 1998-2001 farm average yield

Method C: 93.5% of 1998-2001 average farm yield

Farm 3: 658 acre corn base & 20 acre oat base out of 1,000 acres

4-yr. Avg. corn yield = 160.5 bu./A., soybeans = 48 bu./A.

Old Corn Payment yield 120 bu./A.

Expected corn & soybean prices: at or below the loan rate, oats above

Gain in payments from updating base acres only:	-\$5,464
Gain in payments from updating base acres & yield: Method A	253
Gain in payments from updating base acres & yield: Method B	5

Conclusions about updating FSA bases and yields:

- If you have a large corn base, you will probably want to keep it, and not update acres and yields.
- If you had approximately a 50/50 corn/soybean rotation in 1998-2001 and that is about equal to your old base, it will likely be advantageous to update both base and yields.
- For a corn base in the 60 to 70 percent of cropland range, careful figuring may be needed to determine which choice is best for your farming operation.

Note that the maximum corn counter-cyclical payment of \$0.34 per bushel for the 2002 and 2003 crops can be partially protected through purchases of call options, but extra cost is involved. On today's market, purchase of December \$2.20 call options (about equal to the equivalent of the U.S. average loan rate) would cost about \$0.195 per bushel. History indicates that about 80% of the time these calls would be likely to expire worthless or with less than initial cost if held into November.

Also Note that updating the yields affects only the counter-cyclical payment and not the direct payment.