

2015

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## Recommended Citation

Wisner, Robert (2015) "Pre-harvest new-crop corn and soybean pricing strategies show incentives for using options markets," *Ag Decision Maker Newsletter*: Vol. 6 : Iss. 11 , Article 2.

Available at: <http://lib.dr.iastate.edu/agdm/vol6/iss11/2>

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Five options offered for 2002 Farm Bill, continued from page 2

The tradeoff is between maximizing the corn base acres and increasing program yields. Updated program yields apply only to counter-cyclical payments, however, and current price forecasts for the 2002 crop are near or above the levels at which these payments would be made. For direct payments, maximizing corn base acres is all that really matters. In future years, counter cyclical payments may come back into play.

Two electronic spreadsheets are available for analyzing options for commodity acreage bases and yields. More details plus a hand worksheet are available under Crop Cost and Returns at the Ag Decision Maker Web site or from ISU Extension publication FM-1872a, "Commodity Programs for Crops." The Farm Bill Payment Analyzer can be downloaded from the *Ag Decision Maker* Web site at:

[www.extension.iastate.edu/agdm](http://www.extension.iastate.edu/agdm). The Farm Service Agency (FSA) will be using a program developed at Texas A and M University, which can be accessed at:

<http://www.afpc.tamu.edu/models/base/>.



## Pre-harvest new-crop corn and soybean pricing strategies show incentives for using options markets

by Robert Wisner, extension grain marketing specialist, [rwwisner@iastate.edu](mailto:rwwisner@iastate.edu), 515-294-6310; Dean Baldwin and Neal Blue, Ohio State University

Recent research on pre-harvest pricing strategies for the 1985–86 through 2001–02 marketing years confirms our earlier work showing significant incentives for pre-harvest pricing with the use of options markets. Previous research through the 1997 marketing year identified potential \$18,000 to \$19,000 average yearly gains in net income for a 1,000 acre cash grain farm (half corn and half soybeans) versus harvest cash sales.

These results came from pricing 80 percent of a 10-year moving average of the farm's production with corn put option purchases in mid-May, and 20 percent with hedge sales in July for harvest delivery.

Soybeans were priced with synthetic puts (hedge sale of November futures, plus purchase of call options two strike prices out of the money). Calls were purchased 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.

### Years after short crops

If the previous year's U.S. production was a weather-reduced short crop (production fell below the previous year's use due to adverse weather over a sizeable part of the Corn Belt, but not necessarily in your area), grain is priced in late February before harvest with hedge sales of December futures. Pre-harvest pricing in the winter in those years typically offered higher income than pricing at planting time or waiting until harvest time. Hedge sales were closed out in mid October for soybeans and in early November for corn.

Additional marketing gains were available in many years, especially in the post-1995 Freedom-to-Farm years, by taking advantage of post-harvest basis improvement and market carry (premium of July futures prices over harvest-delivery futures). Although these gains were not considered in the pre-harvest study, the pre-harvest strategies analyzed in this study would give farmers the flexibility to store grain and gain from basis improvement after harvest.\*

*continued on page 4*

\*(For information on how to implement these post harvest strategies, see "MRP Modules" on <http://www.econ.iastate.edu/faculty/>)

Pre-harvest new-crop corn and soybean pricing strategies show incentives for using options markets, continued from page 3

Case farms

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 pre-harvest marketing were similar for both farms. The analysis also was done for a farm in northwest Ohio, with very similar results to those from the Iowa farms. All marketing-related costs were deducted from the gross price that was received.

Synthetic puts

In the updated study, the statistically most significant strategy for the 1985–2001 period was the use of synthetic puts on both corn and soybeans. A synthetic put position is created by selling a portion of the crop through hedge sales on the futures market or with elevator contracts, to protect against declining prices. Then, the same volume of call options is purchased to allow the farmer to retain upward price flexibility, in case new developments should cause prices to rise later on.\* The earlier study analyzing prices through 1997 identified corn put options purchases (combined with a small amount of new-crop hedge sales in early July) as the statistically best performing strategy.

Using the same timing and sales volumes but synthetic puts instead of puts, average income from the pre-harvest strategies for these farms was around \$19,000 to \$20,000 per year higher than harvest sales. In the years following short U.S. crops, if synthetic puts (call purchases two strike prices out of the money plus hedge sales) were used and calls were held until early July, the average annual income gains were reduced by slightly more than a thousand dollars per year versus straight hedge sales in the futures market. Purchasing at the money corn puts in May rather than using out of the money synthetic puts reduced annual average income gains versus harvest sales to around \$16,000 to \$17,000 per year over the 1985–2001 time period.

\*(For information on how to implement these post harvest strategies, see "MRP Modules" on http://www.econ.iastate.edu/faculty/)

Statistical performance

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 over this time period 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 the 1985–2001 period.

Figures 1 and 2 indicate the pattern has persisted since 1975. The figures show changes in December corn and November soybean futures from late February (after weather-induced short U.S. crops) or mid-May (in years following normal crops) to harvest time, for individual years since 1975.

It should be emphasized that

- these strategies did not provide higher prices than the harvest cash market every year, and
• 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 about 67 percent of the time for soybeans. The 2002 crop year is an example of years when new-crop prices depart from the normal tendency to decline from spring to fall. Pricing with puts or synthetic puts in such years provides considerably higher prices than forward contracts signed in the winter or spring, before widespread crop problems became obvious.

Early pricing and revenue insurance

In most years since the 1996 Freedom-to-Farm legislation, the best pre-harvest pricing opportunities have shown a strong tendency 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 pricing during the planting season. However, our results for the entire 1985–2001 period show moderately lower returns from routinely pricing in February rather than May. Market behavior in creating private-sector incentives for long-term grain storage to replace

Pre-harvest new-crop corn and soybean pricing strategies show incentives for using options markets., continued from page 4  
 CCC inventories suggests the pattern of higher early pricing opportunities may continue in the future.

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 futures prices rise from winter to the following fall.

### Risks in pricing grain below the loan rate

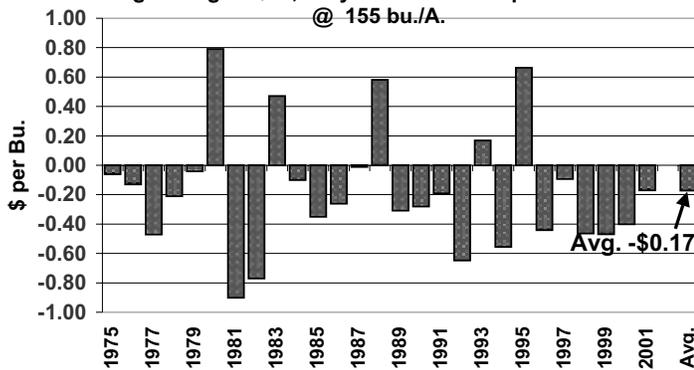
Corn and soybean growers should be cautioned that there is substantial risk in hedging or forward contracting new-crop soybeans before harvest when new-crop bids are well below CCC loan rates.

This is because of the exposure to risk of declining LDP payments if prices rise. This risk can be partially managed with options markets, but

at significant cost. LDP risks were not taken into account in this study. The new farm legislation exposes corn growers to slightly more LDP risk in pre-harvest pricing than in the past, due to the increase in loan rates and a likely increase in corn plantings in the future. The Iowa corn loan rates are approximately 9 cents higher than the pre-2002 rates. Because of a reduction in the soybean loan rate, the LDP risk is lower than in the past, but still potentially quite significant. In summary, new-crop contract bids and hedging prices well below the loan rate would create a significant LDP risk in pre-harvest pricing of corn and soybeans, unless options markets are used to retain upward price flexibility.

The 2002 agricultural legislation also introduces another risk management problem that increases the importance of using options markets in pricing before harvest. This new risk is the risk of reduced or lost counter-cyclical payments as grain prices rise.

**Figure 1. Change in December Corn Futures, 3rd. Week of May vs. early Nov.; & 4th. Wk. of Feb.vs. Early Nov. After Short Crops, 1975-2001**  
 Avg. change = \$13,400/yr. on 85% of crop from 600 A. @ 155 bu./A.



**Figure 2. Change in November Soybeans 3rd. Week of May vs. mid-Oct., & 4th. Wk. of Feb.vs. Oct. After Short U.S. Crops, 1975-2001**

