FARM BUSINESS MANAGEMENT

FARM ECONOMICS Facts & Opinions

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2006 Planting Decisions Given the March Planting Intentions Report

At the end of March, the U.S. Department of Agriculture (U.S.D.A.) released its planting intentions report for 2006. Summaries of planting intentions and potential market impacts are provided in the April 3, 2006 *Weekly Outlook Report* entitled "Planting Intentions Provide Market Surprise" (http://www.farmdoc.uiuc.edu/marketing/weekly/html/040306.html). In summary, U.S. corn acres in 2006 are expected to be 5% below 2005 levels while 2006 soybean acres are expected to be 6% above 2005 levels. Reduced corn acres increase the chance of higher corn prices at harvest while increased soybean acres increase the probability of lower soybean prices at harvest.

Revised price expectations may cause some farmers to revisit 2006 planting decisions, perhaps shifting some acres from soybeans to corn. Before making this switch, budgeting to compare crop profitability is a useful exercise. Consideration should be given to crop insurance payments as there is a fairly high probability that revenue insurance will make payments, particularly on soybeans. The following sections discuss crop insurance payments and crop budgets. Summary points are:

1. Given revised price expectations resulting from the planting intentions report, the chance that 2006 corn production will be more profitable than 2006 soybean production has increased.

2. Given prices used in budgets, there is more downside price risk for corn than for soybeans. Corn price is projected above the loan rate while soybean price is projected near the loan rate. For soybeans, prices below the projected price result in loan deficiency payments (LDPs).

3. Crop insurance choice impacts downside price risk. Projected prices for both corn and soybeans are near levels that result in insurance payments if crop insurance was purchased at high coverage levels. In some cases, higher per acre revenue will occur from lower prices as lowering prices cause the combination of LDPs and crop insurance payments to increase more than reductions in crop revenue.

2006 Crop Insurance Payments

The majority of crop insurance policies sold in Illinois are revenue insurances. These policies make payments when revenue is below a guarantee equal to:

Coverage level x benchmark yield x base price

The coverage level is a percent chosen by the farmer. The benchmark yield varies by insurance product. For Crop Revenue Coverage (CRC) and Revenue Assurance (RA) which are farm-level insurances, the benchmark yield equals the Actual Production History (APH) yield. For Group Risk Income Plan (GRIP) which is the county-level revenue insurance, the benchmark yield is the expected county yield set by the Risk Management Agency (RMA).

The base price equals the average of settlement prices of Chicago Board of Trade (CBOT) contracts during the month of February. The December contract is used for corn and the November contract is used for soybeans. In 2006, these prices are $2.59 for corn and $6.18 for soybeans. From 1972 through 2005, CBOT settlement prices would have resulted in average base prices of $2.55 for corn and $5.95 for soybeans. The 2006 base prices are above these averages by $.04 for corn and $.23 for soybeans.

Revenue used to determine crop insurance payments is actual yield – either county of farm yield, depending on the insurance product – times the harvest price. Harvest prices are averages of the CBOT contract prices in a month during the fall (October for soybeans, October for corn under CRC and GRIP, November for corn under RA). Table 1 shows 2006 harvest prices that will result in insurance payments if actual yields are at or below benchmark yields. For example, the price is $5.56 for soybeans at a 90% coverage level. The 90% coverage level is available only for GRIP. If a farmer purchased GRIP at the 90% coverage level, insurance payments will occur if the harvest price is below $5.56 per bu. and the county yield is less than or equal to the expected county yield. At an 85% coverage level, the price is $5.25. Again, any revenue product purchased at the 85% coverage level while make a payment if harvest price is below $5.25 given that actual yield is below benchmark yield.

Table 1. Harvest Prices Resulting in Insurance Payments Given Actual Yields at or Below Benchmark Yields, 2006.

Coverage Level	Corn	Soybeans
90%	$2.33	$5.56
85%	2.20	5.25
80%	2.07	4.94
75%	1.94	4.64
70%	1.81	4.33
65%	1.68	4.02
60%	1.55	3.71

The March U.S.D.A. planting intentions report may have changed price expectations. In the April 3rd *Weekly Outlook*, analysis suggests that a corn price of $2.30 per bu. for the 2006-07 market-year is consistent with 2006 production at trend-line yields and corn usage at "normal" levels. The $2.30 market-year price is roughly consistent with a $2.40 harvest price for crop insurance purposes. At the time of this writing (April 6, 2006), the December CBOT futures contract is trading between $2.60 and $2.70 per bu. Hence, fundamentals suggest that the prices on the December corn contract will decline. Analysis in the *Weekly Outlook* suggested a 2006-97 market-year price consistent with projected soybean usage and trend-line yields is "$5.20 at best". A $5.20 farm-level price would result in a harvest price of about $5.30. Currently, the November 2006 futures contract is trading in the $5.90 to $6.00 range. Hence, the fundamentals used in the *Weekly Outlook* suggest some erosion in the price of the November CBOT contracts.

The projected $2.60 harvest price for corn is above break-even prices resulting in insurance payments (see Table 1). For soybeans, the situation is different. A $5.30 harvest price results in a crop insurance payment at a 90% coverage level. Revenue insurances for soybeans have a good chance of making payments at high coverage levels.

Corn and Soybean Budgets

Table 2 shows budgets for corn-after-soybeans, corn-after-corn, and soybeans. Projected yields are based on trend-line yields. Costs are projected from historical Illinois Farm Business Farm Management averages updated to 2006 conditions based on 2006 input prices. Farm-level prices are $2.30 for corn and $5.20 for soybeans, consistent with fundamentals suggested in the April 3, 2006 *Weekly Outlook.* No LDPs are included in Table 2 as projected prices are above loan rates. Any of these assumptions can be changed in online budgets available in the management section of *farmdoc* (see "Per Acre Revenue and Costs for Illinois Crops" input box in the management section (http://www.farmdoc.uiuc.edu/manage/index.html)).

Table 2. 2006 Per Acre Crop Budgets, Central Illinois -- High Productivity Farmland.

	Corn-after-Soybeans	Corn-after-Corn	Soybeans
Yield per acre	180	168	51
Price per bu	$2.30	$2.30	$5.20
LDP per bu	0	0	0
Crop revenue	$414	$386	$265
LDP revenue	0	0	0
Other gov't payments	29	29	29
Crop insurance proceeds	0	0	0
Gross revenue	$443	$415	$294
Fertilizers	79	86	24
Pesticides	39	39	28
Seed	40	40	30
Drying	9	9	2
Storage	6	6	3
Crop insurance	8	8	6
Total direct costs	$181	$188	$93
Machine hire/lease	$8	$8	$7
Utilities	4	4	4
Machine repair	16	16	14
Fuel and oil	14	14	13
Light vehicle	2	2	2
Mach. depreciation	21	21	19
Total power costs	$65	$65	$59
Hired labor	$8	$8	$8
Building repair and rent	3	3	3
Building depreciation	3	3	3
Insurance	6	6	6
Misc	6	6	6
Interest (non-land)	13	13	12
Total overhead costs	$39	$39	$38
Total non-land costs	$285	$292	$190
Operator and land return	$158	$123	$104

Operator and land returns are projected at $158 per acre for corn-after-soybeans, $123 for corn-after-corn, and $104 for soybeans (see Table 2). These operator and land returns indicate that corn is more profitable than soybeans.

Corn-after-soybean returns include fertilizer costs of $79 per acre. This budgeted number has nitrogen price at relatively high levels. There are, however, areas where shortages of nitrogen may exist and nitrogen prices could be significantly higher than those represented in Table 2. Specific estimates of fertilizer prices should be obtained before revising planting decisions.

The corn price of $2.30 used in Table 2 is above the loan rate. The average of loan rates across all Illinois counties average $2.01 per bu. in 2006. Reductions in the market-year price of corn up to the loan rate will reduce crop revenue while not triggering corn LDPs. On the other hand, the soybean price of $5.20 is near the soybean loan rate, which averages $5.12 across all Illinois counties in 2006. Hence, there is more downside price risk for corn than for soybeans, without considering the impacts of crop insurance.

Crop insurance changes the risk position, particularly under situations where revenue products have been purchased at high coverage levels. To illustrate, GRIP payments were estimated using the *2006 iFARM What-If Analysis* for a Logan County, Illinois case given a 90% coverage level, 100% protection level, and actual yields equal to county's expected yields (176.1 bu. for corn and 50.8 bu. per acre soybeans).

Table 3 shows insurance payments, LDPs, gross revenues, and operator and land returns for corn for market-year prices ranging from $2.30 per bu. down to $1.70 per bu. Harvest prices were selected to be consistent with their respective market-year prices. Gross revenue equals crop revenue plus LDP revenue plus GRIP payments plus direct and counter-cyclical payments of $29 per acre. Operator and land returns equals gross revenue minus $285 of non-land costs (see Table 2 for a list of non-land costs).

Table 3. Per Acre Corn Revenue for Logan County Example Given Different Prices.[1]

Market-Year Price	Harvest Price	LDP per bu[2]	LDP per acre[3]	GRIP Payment[4]	Gross Revenue[5]	Operator & Land Return[6]
2.30	2.40	0.00	0	0	443	158
2.10	2.20	0.00	0	38	445	160
1.90	2.00	0.14	25	97	493	208
1.70	1.80	0.34	61	156	552	267

[1] Revenue given a 180 bu. farm yield and a 176.1 bu. county yield

[2] LDPs per bu. based on a $5.12 county loan rate.

[3] Equals LDP per bu. times 51 bu. yield.

[4] Calculated for Logan County from *2006 iFARM What-if Analyzer* given a 90% coverage level, a 100% protection level, and 176.1 actual yield.

[5] Equals 180 bu. yield times commodity price plus LDP per acre plus GRIP payment plus $29 of direct and counter-cyclical payments

[6] Equals gross revenue minus $285 of costs (see Table 2).

Lower market-year prices result in higher GRIP payments. At $2.10 market-year price and a corresponding $2.20 harvest price, the GRIP payment is $38. The payment causes gross revenue to be $445, $2 higher than gross revenue at the $2.30 market-year price. As a result, operator and land return is $160 per acre at the $2.10 market-year price, $2 per acre higher than at the $2.30 market year price. LDPs result at market-year prices of $1.90 and $1.70. The combination of LDPs and GRIP payments at the $1.90 and $1.70 market year prices cause gross revenue and operator and land returns to be higher than at a $2.30 market-year price (see Table 3).

Table 4 shows results for soybeans with market year prices ranging from $5.20 down to $4.60. Similar trends exist for soybeans as for corn. As market-year prices are reduced, gross revenue and operator and land return increase.

Table 4. Per Acre Soybean Revenue for Logan County Example Given Different Prices.[1]

Market-Level Price	Harvest Price	LDP per bu[2]	LDP per acre[3]	GRIP Payment[4]	Gross Revenue[5]	Operator & Land Return[6]
5.20	5.30	0.00	0	22	316	126
5.10	5.20	0.02	1	31	321	131
5.00	5.10	0.12	6	39	329	139
4.90	5.00	0.22	11	48	338	148
4.80	4.90	0.32	16	56	346	156

[1] All revenue given a 51 bu. actual yield.
[2] LDPs per bu. based on a $5.12 county loan rate.
[3] Equals LDP per bu. times 51 bu. yield.
[4] Calculated for Logan County from *2006 iFARM What-if Analyzer* given a 90% coverage level, a 100% protection level, and 50.8 actual yield.
[5] Equals 51 bu. yield times market-year price plus LDP per acre plus GRIP payment plus $29 of direct and counter-cyclical payments
[6] Equals gross revenue minus $190 of costs (see Table 2).

Results in Tables 3 and 4 are dependent on crop insurance choice. Revenue insurance at lower coverage levels will not result in insurance payments at the prices shown in Tables 3 and 4. The 2006 *iFARM Crop Insurance What-If* Analyzer on *farmdoc* allows insurance payments to be calculated for different harvest prices and yields for all crop insurance products (see http://www.farmdoc.uiuc.edu/cropins/index.asp).

Summary

The March USDA planting intentions report indicates that farmers plan to plant more soybeans and less corn. As a result, relative prices between corn and soybeans have changed, with the change favoring corn production. However, price risk is much larger for corn than for soybeans. At prices used in budgets, there is little lower price risk for soybeans as the projected price is near the loan rate. Revenue insurance changes the risk position, particularly if high coverage levels were chosen.

As always, much can happen between spring and fall as weather and market conditions change. Profit expectations could change relative profitability of the crops.

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