ILLINOIS FARM ECONOMICS UPDATE

farmdoc

Department of Agricultural and Consumer Economics
University of Illinois at Urbana-Champaign

2009 Rental Decisions Given Volatile Commodity Prices and Higher Input Costs

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October 15, 2008

IFEU 08-05

Turmoil within the financial sector has caused concerns about the performance of economies around the world. These concerns have lead to dramatic declines in commodity prices with current cash bids in the $3.50 per bushel range for corn and the $8.50 range for soybeans. Moreover, there is a great deal of uncertainty concerning the level of prices in 2009. Will corn prices average in the $3 range, $4 range, or $5 range? Arguments can be made for a continuing softness of commodity prices or a return to prices near levels experienced in the summer of 2008.

In this environment of extreme price uncertainty, many farmers and landowners are in the midst of making farmland rental decisions for 2009. Price uncertainty has greatly complicated decision-making as it is difficult to accurately estimate farmland returns for 2009. This in turn leads to difficulties in setting appropriate cash rent levels. Given these difficulties, we suggest the following:

1. If at all possible, use variable cash rent or share rent arrangements. These arrangements vary returns to the operator and landlord based on yields, prices and input costs (share rent arrangement), thereby automatically adjusting rents and returns to changing economic conditions.

2. If a fixed cash rent arrangement must be used, delay setting the cash rent until March 2009. Currently, it is difficult to form reasonable expectations of corn and soybean prices for use in budgeting 2009 returns. As a result, it is difficult to agree on a cash rent level. By March some price uncertainty may have dissipated. Moreover, base prices used for revenue crop insurance policies will be set, providing farmers with opportunities to purchase revenue crop insurances. If the cash rent must be set now, realize that the fundamentals of prices and costs suggest lower cash rent bids then what would have been established just a few months ago and what would have been justified by 2007 and 2008 returns.

3. Consider re-negotiating 2009 cash rent levels if rent levels have already been set at “high” levels. Cash rent bids based on corn above $5.00 per bushel and soybeans above $11 per bushel may no longer be appropriate. If prices remain low into December, it may be time to reduce “high” cash rents. Laying the groundwork for these renegotiations now seems prudent. This recommendation is particularly relevant for tracts whose cash rent levels were set commensurate with return levels in 2007 and 2008. If cash rent levels were low relative to returns in 2007 and 2008, 2009 may be viewed as a catch-up year and re-negotiation may not be needed in 2009.

Justifications for these suggestions are provided by reviewing the cost and price outlook for 2009.

Costs and Commodity Prices for 2009

One of the more certain things for 2009 is that non-land costs for corn and soybeans will be much higher. Projected higher costs are shown in the Appendix Tables 1 through 4 for northern, central-high, central-low, and southern regions in Illinois. Both the central-high and central-low categories are for the central section of Illinois. Central-high includes more productive farmland while central-low includes less productive farmland. For 2003 through 2007, corn yields averaged 186 bushels per acre for the central-high category and 167 bushels for the central-low category.

All regions will face similar cost increases. Hence, cost increases are illustrated only for corn in the northern region (see Appendix Table 1). Per acre non-land costs averaged $296 per acre from 2003 through 2007. The $296 non-land costs do not include land costs such as rent on cash rented farmland. From the $296 level, non-land costs are projected to rise to $416 per acre in 2008, a $120 increase over 2003-2007 cost levels. In 2009, costs are projected to increase to $579 per acre, a $163 per acre increase over 2008 levels. Costs for 2009 are projected to be double the 2003-2007 levels.

Until recently, higher expected prices offset cost increases. Expected prices for 2009 can be monitored by following Chicago Board of Trade (CBOT) futures contracts with harvest-time expirations in 2009. Here, the December contract for corn and November contract for soybeans will be used. Subtracting an estimated basis from futures prices will result in the market estimate of future cash prices. A $.50 basis is used here.

Figure 1 shows settlement prices for the December 2009 corn contract on every Wednesday from May 7th until Oct 8th. During this period, the highest futures price occurred on June 25th and was $7.34 per bushel, implying a cash price of $6.84 ($7.34 futures price - $.50 basis). Since this high, prices declined reaching a low on August 6th of $5.75. Between August 6th and September 24th, prices varied but did not show an upward or downward trend. On September 24th, the settlement price was $6.03. During the two weeks between September 24th and October 8th, future corn prices declined, reaching $4.77 on October 8th. The $4.77 futures price on October 8th implied a cash price of $4.27.

Figure 2 shows settlement prices for the November 2009 soybean contract. The high occurred on July 2nd and was $15.38 per bushel. The $15.38 implied an expected cash price of $14.88. From this high, prices generally declined. On September 24th, the settlement price was $11.54. During the two weeks between September 24th and October 8th prices declined by $2.04, reaching $10.00 on October 8th. The $10.00 futures price implied a cash price of $9.50.

Besides declining, there is a great deal of price uncertainty. Bid prices on options contracts can be used to gauge price uncertainty. On October 8th, options contracts implied that there was a 33 percent chance that the December 2009 futures contract would be below $3.53 per bushel in December 2009. There also was a 33 percent probability of a price above $5.06 per bushel. Much of the focus currently is on the possibility of low prices. There is, however, a significant chance of relatively high prices.

Operator and Farmland Returns for Alternative Prices

Prices obviously have a large impact on returns. Table 1 shows operator and farmland returns for northern, central-high, central-low, and southern regions implied by the budgets contained in Appendix Tables 1 through 4. Settlement price on October 8th imply a $4.20 corn price and a $9.50 soybean price. At these prices, operator and farmland land returns are $189 for northern Illinois, $240 for the central-high region, $168 for the

central-low region, and $133 for the southern region. These operator and farmland returns were estimated assuming a 50% corn – 50% soybean rotation. Other rotations would result in different returns. Variability in returns across regions is linked to expected yields. The central-high region has the highest operator and farmland return of $240 and also the highest expected yields (191 bushels for corn and 54 bushels for soybeans). The southern region has the lowest operator and farmland return of $133 per acre and also the lowest expected yields (151 bushels for corn and 47 bushels for soybeans).

Operator and farmland returns represent the amount that remains to be split between the farmer and landlord. In northern Illinois, the operator and farmland return is projected at $189 per acre for a $4.20 corn price and a $9.50 soybean price. If cash rents are set at $150 per acre, the farmer would have a $39 per acre return ($189 operator and farmland return - $150 cash rent).

Between 2000 and 2006, the farmer margin (i.e., operator and farmland return – cash rent) averaged about $50 per acre in Illinois. Since 2006, risks have increased greatly. For farmers to have the same risk post-2006 as existed at a $50 cash rent pre-2006, it was estimated that the farmer margin needs to increase to $135 per acre (see "Consider Higher Costs and Additional Risk When Negotiating Cash Rents", a July 13, 2007 *Illinois Farm Economics: Facts and Opinions"* newsletter available in the management section of *farmdoc*).

At a $135 farmer margin, resulting cash rent will be extremely low given the operator and farmland returns shown in Table 1 for a $4.20 corn price and a $9.50 soybean price. Subtracting $135 farmer margin from operator and farmland returns gives cash rent bids of $54 for northern Illinois ($189 operator and farmland return - $135 farmer margin), $105 for central-high region, $33 for central-low regions and -$2 for the southern region. These rents are substantially below historical averages.

Given current price expectations and price uncertainty, it is impossible to set rents at near historical levels without having the farmer facing substantially more risk. Alternatively, setting cash rents so farmers have the same risk level will cause landlords to have extremely low returns. At the same time this risk-return dilemma exists, there is good chance that prices will rise, causing higher levels of profitability to exist on Illinois grain farms in 2009 than is projected using October 8th CBOT settlement prices.

Need for Flexibility and Variable Cash Rent Arrangements

The risk on Illinois grain farms, as well as the substantial upside potential, argues for flexibility in leasing arrangements offered by variable cash or share rent arrangements. A number of resources exist for specifying variable cash leases. An *Illinois Farm Economics: Facts and Opinions* article entitled "Flexible Cash Leases Based on Crop Insurance Parameters" describes a lease based on base prices used to set insurance premiums and expected county yields (see August 8, 2007 newsletter in the management section of *farmdoc*). Lease forms for this and other leasing arrangement are available in the law & taxation section of *farmdoc*.

The basic design of a variable cash rent lease is to have a formula that determines rents based on actual gross revenue. Higher gross revenues will result in higher cash rents and vice versa. Often, the farmer and landlord will agree on a base rent that will occur for a base yield and a base price. Rents will go up or down based on the following formula:

$$\text{cash rent} = \text{base rent} \times \left[\frac{\text{actual yield} \times \text{actual price}}{\text{base yield} \times \text{base price}} \right]$$

To illustrate, suppose the base rent is set at $180 for a 180 bushel corn yield and a $4.20 corn price. If the yield turns out to be 200 bushels and the price is $5, the cash rent is $238 per acre:

$$\$238 \text{ cash rent} = \$180 \text{ base rent} \times \left[\frac{200 \text{ bu. actual yield} \times \$5.00 \text{ actual price}}{180 \text{ bu. base yield} \times \$4.20 \text{ base price}}\right]$$

Often, a minimum and maximum cash rent are specified. If, for example, the maximum rent is $250, the cash rent is $250 when the formula indicates that the cash rent should be above $250. Use of variable cash rental arrangements requires farmers and landlord to agree on:

1. Base cash rents, base yields, and base prices.
2. How actual yield will be determined. Often, individuals use farm yields in the calculation. Sometimes, county yields are used.
3. How actual price will be determined. Usually, individuals agree on an elevator or other delivery point to collect prices. Prices are then collected and averaged. For example, an agreement may be to collect prices on every second Wednesday from XYZ elevator from the February through December. The prices are then averaged to arrive at the actual price.

Commodity program payments will need to be split under variable cash rent arrangements if actual farm yields or farm prices are used in the calculation of rents. Otherwise commodity program payments may be placed in jeopardy.

Setting Cash Rents on Fixed Cash Rental Arrangements

If a cash rental arrangement must be used, we suggest waiting to set the cash rent level. This may allow some time to pass and clarity to be added to the economic picture. Given more clarity, it will be easier to set cash rents. If rents can be set in March, guarantees and premiums for crop insurance will be known. Then, revenue guarantees can be put into place at the same time as cash rent levels are determined.

At this point, a framework could be put into place for specifying the cash rent at a later date. Base prices on crop insurance products may be a suitable item. The *Illinois Farm Economics: Facts and Opinions* article entitled "Flexible Cash Leases Based on Crop Insurance Parameters" may be of use in agreeing on a framework (see August 8, 2007 newsletter in the management section of *farmdoc*).

Lags in Cash Rents

Setting fixed cash rents based on estimated budgets for 2009 using current corn and soybean prices suggest that returns will be lower for 2009 than 2007 and 2008. This implies that cash rent levels should also be lower for 2009 than 2007 and 2008. Anecdotal evidence suggests that fixed cash rents will be higher in 2009 than previous years. In some cases, these rents will be considerably higher. What explains this disconnect? Following are possible explanations:

- There is usually a lag in adjusting cash rents to changing economic conditions. For example, 2006 and 2007 rents would have been negotiated when commodity prices were lower than what they were at the end of the leasing period. Therefore, 2009 might be viewed by some landowners as a "catch-up" year, a year to negotiate rents at higher levels than justified to catch-up on lower rents received than were justified in previous years. Operators may be willing to go along with this for a year or so.

- Rents are negotiated based on more historic costs and returns than projected budgets. This goes along to some extent with the first point.

- Operators that have forward priced a considerable amount of their grain at

higher prices than used in our budgets can bid the higher rents. There have been opportunities to forward price grain at considerably higher prices than currently being offered.

- Some operators have lower costs or higher expected yields than used in the budgets, thus able to bid higher rents. The budgets are based on average costs and yields. Some operators have higher costs and some operators have lower costs. Likewise, some operators have higher yields than indicated in the budgets. Operators that have lower costs through their operating efficiencies or have contracted their inputs at lower costs than used in the budgets or expect higher yields could bid higher rents.

- Some operators are willing to receive lower margins per acre, thus offering higher cash rents. This paper discusses the need for operators to obtain a higher margin given today's higher risk levels. The margin each operator wants to achieve will vary from one operator to the next. Operators willing to receive a lower margin can bid a higher rent but are also assuming more risk.

Summary

Currently, there is a great deal of price uncertainty. This is causing difficulties is setting cash rents. We suggest using share rent or variable cash rent arrangements. If a fixed cash rent arrangement must be used, we suggest waiting in setting the cash rent level. Cash rent agreements set at relatively high levels may need to be re-negotiated.

Note: This article was also published as FEFO 08-17.

Table 1. Operator and Farmland Returns Given Different Prices.[1]

Price		Region			
Corn	Soybean[2]	Northern	Central-High	Central-Low	Southern
$ per Bushel		$ per Acre			
3.20	7.24	41	84	26	4
3.70	8.37	115	162	97	68
4.20	**9.50**	**189**	**240**	**168**	**133**
4.70	10.63	262	319	240	197
5.20	11.76	336	397	310	261
5.70	12.89	410	475	382	326

[1] Yield and costs based on budgets shown in Appendix Tables 1 through 4, assuming a 50% corn and 50% soybean rotation.

[2] Soybean price equals 2.26 times the corn price.

Figure 1. Settlement Prices on the December 2009 Corn Contract.

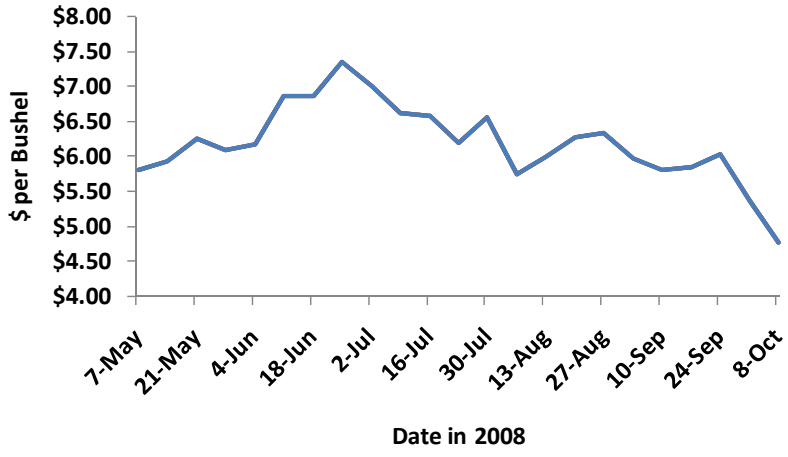
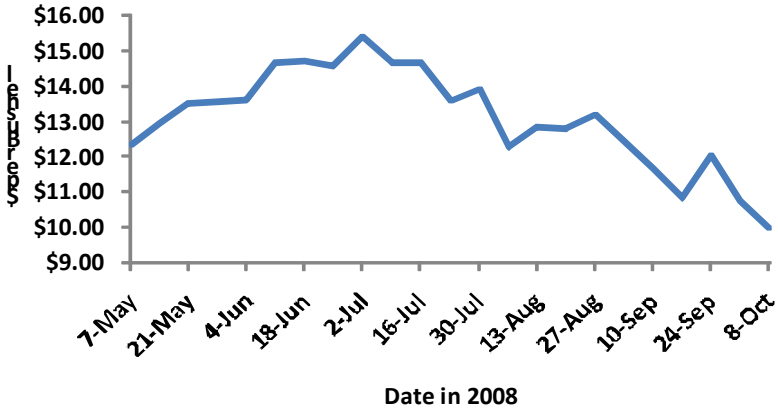


Figure 2. Settlement Prices on the November 2009 Soybean Contract.



Appendix Table 1. Historical and Estimated (2008 - 2009) Crop Returns and Costs, Northern Illinois.

	2003-2007 Averages[1]		2008 Budgets		2009 Budgets	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Yield per acre	176	49	182	52	180	51
Price per bushel[2]	$2.74	$7.25	$4.50	$10.20	*$4.20*	*$9.50*
LDP per bushel	0.14	0.02	0.00	0.00	0.00	0.00
Crop revenue	$517	$355	$819	$530	$756	$485
LDP revenue	24	1	0	0	0	0
Other government payments	33	32	24	24	23	23
Crop insurance proceeds	8	8	0	0	0	0
Gross revenue	**$582**	**$396**	**$843**	**$554**	**$779**	**$508**
Fertilizers	$70	$22	$112	$45	$210	$95
Pesticides	40	27	52	27	55	29
Seed	44	32	61	43	110	53
Drying	13	4	20	4	16	5
Storage	4	3	5	3	5	3
Crop insurance	11	6	20	8	27	12
Total direct costs	**$182**	**$94**	**$270**	**$130**	**$423**	**$197**
Machine hire/lease	$11	$9	$12	$10	$13	$11
Utilities	4	3	5	4	5	4
Machine repair	16	14	21	18	21	16
Fuel and oil	13	12	21	20	26	22
Light vehicle	2	1	2	2	2	2
Mach. depreciation	20	17	25	22	27	24
Total power costs	**$66**	**$56**	**$86**	**$76**	**$94**	**$79**
Hired labor	$8	$8	$10	$10	$10	$10
Building repair and rent	5	3	6	4	6	4
Building depreciation	6	3	7	4	7	4
Insurance	7	7	9	9	9	9
Misc.	5	5	6	6	6	6
Interest (non-land)	17	15	22	20	24	22
Total overhead costs	**$48**	**$41**	**$60**	**$53**	**$62**	**$55**
Total non-land costs	**$296**	**$191**	**$416**	**$259**	**$579**	**$331**
Operator and land return	**$286**	**$205**	**$427**	**$295**	**$200**	**$177**

[1] Averages for the years 2003 through 2007 for grain farms enrolled in Illinois Farm Business Farm Management.

Appendix Table 2. Historical and Estimated (2008 - 2009) Crop Returns and Costs, Central Illinois High Productivity Farmland.

	2003-2007 Averages[1]		2008 Budgets		2009 Budgets	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Yield per acre	186	52	180	50	191	54
Price per bushel[2]	$2.74	$7.28	$4.20	$10.20	*$4.20*	*$9.50*
LDP per bushel	0.13	0.03	0.00	0.00	0.00	0.00
Crop revenue	$517	$379	$756	$510	$802	$513
LDP revenue	24	2	0	0	0	0
Other government payments	32	32	25	25	24	24
Crop insurance proceeds	4	3	0	0	0	0
Gross revenue	**$577**	**$416**	**$781**	**$535**	**$826**	**$537**
Fertilizers	$75	$24	$118	$38	$215	$97
Pesticides	40	28	42	27	50	30
Seed	43	30	62	42	110	44
Drying	9	2	18	3	14	3
Storage	7	3	8	4	8	4
Crop insurance	10	6	20	8	27	12
Total direct costs	**$184**	**$93**	**$268**	**$122**	**$424**	**$190**
Machine hire/lease	$6	$5	$9	$7	$10	$8
Utilities	3	3	4	3	5	$4
Machine repair	13	11	17	15	18	$16
Fuel and oil	13	11	19	18	26	$22
Light vehicle	2	1	2	1	2	$1
Mach. depreciation	20	17	25	22	27	$24
Total power costs	**$57**	**$48**	**$76**	**$66**	**$88**	**$75**
Hired labor	$8	$8	$9	$8	$9	$8
Building repair and rent	4	2	4	2	4	2
Building depreciation	4	2	4	3	4	3
Insurance	8	8	10	10	10	10
Misc.	6	6	7	7	7	7
Interest (non-land)	15	13	18	17	22	20
Total overhead costs	**$45**	**$39**	**$52**	**$47**	**$56**	**$50**
Total non-land costs	**$286**	**$180**	**$396**	**$235**	**$568**	**$315**
Operator and land return	**$291**	**$236**	**$385**	**$300**	**$258**	**$222**

[1] Averages for the years 2003 through 2007 for grain farms enrolled in Illinois Farm Business Farm Management.

Appendix Table 3. Historical and Estimated (2008 - 2009) Crop Returns and Costs, Central Illinois Low Productivity Farmland.

	2003-2007 Averages[1]		2008 Budgets		2009 Budgets	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Yield per acre	167	49	170	48	171	50
Price per bushel[2]	2.74	7.24	$4.20	$10.20	*$4.20*	*$9.50*
LDP per bushel	0.14	0.03	0.00	0.00	0.00	0.00
Crop revenue	$458	$355	$714	$490	$718	$475
LDP revenue	23	1	0	0	0	0
Other government payments	30	30	24	24	24	24
Crop insurance proceeds	4	3	0	0	0	0
Gross revenue	**$515**	**$389**	**$738**	**$514**	**$742**	**$499**
Fertilizers	$75	$24	$115	$45	$210	$85
Pesticides	39	27	40	26	50	33
Seed	44	30	62	41	115	55
Drying	8	2	17	2	14	2
Storage	6	2	6	4	6	4
Crop insurance	10	6	20	8	27	12
Total direct costs	**$182**	**$91**	**$260**	**$126**	**$422**	**$191**
Machine hire/lease	$7	$6	$9	$8	9	$8
Utilities	4	3	5	3	5	5
Machine repair	15	13	19	17	22	20
Fuel and oil	13	11	20	19	27	24
Light vehicle	1	1	2	1	1	1
Mach. depreciation	20	17	24	21	29	25
Total power costs	**$60**	**$51**	**$79**	**$69**	**$93**	**$83**
Hired labor	$9	$9	$10	$10	$12	$12
Building repair and rent	4	3	4	3	5	3
Building depreciation	4	2	5	3	6	4
Insurance	8	8	9	9	9	9
Misc.	5	5	7	7	7	7
Interest (non-land)	15	13	20	17	23	19
Total overhead costs	**$45**	**$40**	**$55**	**$49**	**$62**	**$54**
Total non-land costs	**$287**	**$182**	**$394**	**$244**	**$577**	**$328**
Operator and land return	**$228**	**$207**	**$344**	**$270**	**$165**	**$171**

[1] Averages for the years 2003 through 2007 for grain farms enrolled in Illinois Farm Business Farm Management.

AppendixTable 4. Historical and Estimated (2008 - 2009) Crop Returns and Costs, Southern Illinois.

	2003-2007 Averages[1]		2008 Budgets		2009 Budgets	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Yield per acre	146	45	150	46	151	47
Price per bushel[2]	$2.82	$7.32	$4.20	$10.20	*$4.20*	*$9.50*
LDP per bushel	$0.14	$0.02	$0.00	$0.00	$0.00	$0.00
Crop revenue	$412	$329	$630	$469	$634	$447
LDP revenue	20	1	0	0	0	0
Other government payments	25	22	21	21	21	21
Crop insurance proceeds	8	3	0	0	0	0
Gross revenue	**$465**	**$355**	**$651**	**$490**	**$655**	**$468**
Fertilizers	$75	$24	$115	$36	$210	$78
Pesticides	37	28	42	30	50	33
Seed	44	29	58	41	103	43
Drying	5	2	12	1	9	1
Storage	2	1	4	2	4	2
Crop insurance	10	6	20	8	27	12
Total direct costs	**$173**	**$90**	**$251**	**$118**	**$403**	**$169**
Machine hire/lease	$6	$6	$7	$8	$8	$9
Utilities	4	3	4	3	5	4
Machine repair	16	15	21	19	22	20
Fuel and oil	13	13	20	20	27	24
Light vehicle	1	1	1	1	1	1
Mach. depreciation	22	19	27	23	29	25
Total power costs	**$62**	**$57**	**$80**	**$74**	**$92**	**$83**
Hired labor	$11	$11	$12	$12	$12	$12
Building repair and rent	4	2	5	3	5	3
Building depreciation	5	3	6	2	6	3
Insurance	5	5	7	7	7	7
Misc.	5	5	7	7	7	7
Interest (non-land)	14	12	19	16	23	19
Total overhead costs	**$44**	**$38**	**$56**	**$47**	**$60**	**$51**
Total non-land costs	**$279**	**$185**	**$387**	**$239**	**$555**	**$303**
Operator and land return	**$186**	**$170**	**$264**	**$251**	**$100**	**$165**

[1] Averages for the years 2003 through 2007 for grain farms enrolled in Illinois Farm Business Farm Management.