

Evaluating Your Farmland Rental “Options”

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Gross revenues for most Indiana corn and soybean farms reached unprecedented levels during 2006 through 2013, but declined sharply in 2014 and 2015. The revenue decline, which will be exacerbated on many Indiana farms by yield reductions caused by this spring and summer’s excessive rainfall, is putting tremendous pressure on operating margins. To see the picture more clearly, let’s examine a typical west central Indiana farm following a corn-soybean crop rotation.

Gross revenue per corn acre on our representative farm in 2005 was just \$350 per acre. Revenues increased sharply over the next six years, peaking in 2011 at over \$1,000 per acre before declining in 2014-2015 by approximately \$300 per acre compared to the peak. Looking ahead, per acre corn revenues on this same representative farm are expected to average less than \$750 per acre during 2016-2018.

Unfortunately, the decline in revenues has not been matched by a decline in costs. Variable production costs on our representative farm climbed sharply from 2005, when they totaled approximately \$260 per corn acre, to reach \$440 per acre in 2011 the same year revenues peaked. Although variable production costs did moderate in 2015, the decline was much smaller than the fall in revenue with variable costs declining just \$30 to \$40 per acre compared to peak production costs. Current forecasts suggest further reductions in variable production costs will be modest over the next several years, implying that farmers will have to look elsewhere for significant cost reductions.

The combination of declining revenues and stubbornly high variable production costs has squeezed the “contribution margin” on corn and soybean farms. The contribution margin equals the gross revenue minus the variable production costs on a per acre basis. In essence, the contribution margin is the combined return to labor and management, machinery services, land resources, and risk. In 2005 the contribution margin on our representative west central Indiana farm was just over \$100 per acre. By 2011 the contribution margin climbed to over \$600 per acre. The sharp climb in the contribution margin was a key factor in driving cash rental rates up to unprecedented levels as farmers competed to expand their crop operations in this profitable environment.

But times have changed dramatically. Contribution margins in west central Indiana the next several years could fall in a range of \$325 to about \$350 per acre. This means that, if cash rental rates remain at their 2015 level (\$281 per acre on the 2015 *Purdue Land Values Survey*), most farms will fail to cover their costs. Given this more difficult business climate, crop producers will face tough decisions concerning their land rental

arrangements. Farm operators will be attempting to reduce all costs, and land costs are one of the largest expenditures. But many landowners will be reluctant to accept sizable reductions to their rental payments. Past history suggests land rental rates will adjust downward in response to reductions in contribution margins, but continued strong competition for land resources means the adjustment will be slow and take place over a period of several years.

What should farmers do in this challenging operating environment? Should a farmer continue to rent the land if he or she fully expects to lose money? One reason farmers continue to rent land, even if they expect it to be unprofitable in a given year, is to retain control of the land in the expectation that profitability will return in the future. But how much of a premium should a farmer pay to hold on to a property until profit prospects improve? Alternatively, should farmers possibly try to "reposition" their operation by giving up a rental property that doesn't fit the business very well (for example, a farm that is 20 miles from the base unit or has rocks, obstructions, etc... and is difficult to farm) and pursue rental property that better fits the operation? Importantly, what happens to the financial resiliency and staying capacity of the farm business if you choose to continue renting farmland that has a high potential of a loss for one or more years?

One way to analyze these questions is to use options thinking--to determine how much you must pay to maintain control of the land--and then assess the implications of farming this property at a loss on the working capital, defined as current assets minus current liabilities, of the business. The process is relatively straightforward.

- 1) First, determine an economic or "breakeven" rent based on the profit potential given expected future commodity prices, costs and yields.
- 2) Second, calculate the "option" premium as the difference between the expected market rent minus the economic "breakeven" rent. This premium will depend on the willingness of the landowner to adjust rents, the competitiveness of the local rental market, and the length of the downturn or speed of recovery in profit prospects for the grain sector. Think of this option premium as being similar to paying someone for an option to purchase a farm or other real estate except, in this case, you are effectively making a payment for the right to continue renting the property.
- 3) Third, determine the "burn rate" in working capital that will occur if the property continues to be farmed at a loss. Burn rate, defined as working capital/net income loss, is the length of time in which a firm's working capital will be exhausted by ongoing losses.
- 4) Fourth, assess whether the premium (the losses incurred) being paid to maintain control of the property will be recovered in future years when margins improve, and whether or not the working capital burn rate is too high for the business to absorb the expected losses without threatening the viability of the business.

To make this process more clear, let's examine some sample calculations and results for our west central Indiana case farm. Since this is a multi-year analysis, our crop budget

includes expected costs and revenues for both corn and soybeans over the next five years (2016 through 2020) based upon the 2015 *Purdue Crop Cost and Return Guide*. Gross revenue estimates were obtained using trend adjusted yields and crop price forecasts from the University of Missouri's Food and Agricultural Policy Research Institute (FAPRI). The budgeted costs and revenue estimates were used to calculate an expected "breakeven" cash rent, which provided a net return of \$0 per acre to the farm operation, after depreciation and operator labor charges were covered. If the actual cash rental rate is above this amount, it means that the farm is effectively paying an "option premium" to the landowner for the right to keep renting the farm in the future.

The goal of this analysis is to 1) identify the size of the option premium being paid (if any) to continue renting farmland, and 2) assess the impact paying an option premium to continue renting land over a period of several years will have on a farm's working capital and, ultimately, the farm's long-run viability. Addressing the impact on a farm's long-run viability requires that we make an assumption about the farm's financial position at the beginning of 2016. We assume that our representative farm, like many Indiana farm operations, was able to build up its working capital over the last several years and entered the downturn in crop agriculture with a healthy working capital that, on January 1, 2016, will be \$400 per acre.

Table 1 summarizes results from our analysis, based in part on long-range corn and soybean prices from FAPRI and estimated payments from the ARC-County government program. Based on our assumptions, the breakeven cash rent on our representative farm ranges from \$225 per acre in 2016 to a high of \$243 per acre in 2020. The difference between the market cash rent and breakeven cash rent is, effectively, the premium paid for the opportunity to continue farming the land. If we hold the market cash rental rate constant at \$281 per acre (the 2015 level), the option premium to retain the land in 2016 would be \$56 per acre. But notice that keeping the cash rent at this level starts to draw down the farm's working capital position.

Like many Indiana farms, our representative farm will enter 2016 with a very strong working capital position, in this case equal to \$400 per acre (e.g., on a 3,000 acre farm, this implies working capital of \$1.2 million). But the loss incurred during 2016 draws the farms working capital down to \$344 per acre at the end of 2016. And if the cash rental rate remains at \$281 per acre, the farm's working capital per acre drops from \$400 at the beginning of 2016 to \$146 per acre by the end of 2020, a decline of nearly 60 percent.

What happens on this farm if corn and soybean prices are significantly weaker than currently projected? Table 2 examines what happens to this farm's financial situation under a bearish price scenario where corn prices average just \$3.75 per bushel, and soybean prices average \$9.50 per bushel, from 2016 through 2020. Revenue estimates in this analysis also include estimated payments from the ARC-County program. Under this low-price scenario, the farm's strong working capital position declines precipitously and the farm ceases to be viable by 2020.

In this article, we just examined two scenarios for a representative west central Indiana corn and soybean farm. But we encourage you to do the analysis for your farm using your own financial information and price scenarios. To make this easier, we've built a spreadsheet decision tool that you can download from either the University of Illinois farmdoc website (www.farmdoc.illinois.edu/fasttools/) or the Purdue Center for Commercial Agriculture website (www.ag.purdue.edu/commercialag). Using the spreadsheet, you can estimate potential option premiums you might be paying to retain control of farmland and the impact it will have on your working capital and financial position.

Table 1. Working Capital Analysis with Current Cash Rent for West Central Indiana Under FAPRI Price Projections.

Item	2016	2017	2018	2019	2020
Corn Price	3.97	4.02	4.15	4.20	4.20
Soybean Price	9.58	10.00	10.36	10.50	10.50
Cash Rent	281	281	281	281	281
Farmer Net Return	-56	-67	-51	-42	-38
Working Capital per Acre - All Costs Included	344	277	226	184	146
Working Capital to Total Expense Ratio	49%	40%	32%	26%	21%
Rent Analysis					
Market Cash Rent	281	281	281	281	281
Breakeven Cash Rent	225	214	230	239	243
"Option" Premium	56	67	51	42	38

Table 2. Working Capital Analysis with Current Cash Rent for West Central Indiana Under Low Price Scenario.

Item	2016	2017	2018	2019	2020
Corn Price	3.75	3.75	3.75	3.75	3.75
Soybean Price	9.50	9.50	9.50	9.50	9.50
Cash Rent	281	281	281	281	281
Farmer Net Return	-57	-94	-90	-87	-83
Working Capital per Acre - All Costs Included	343	249	159	72	-11
Working Capital to Total Expense Ratio	49%	36%	23%	10%	-2%
Rent Analysis					
Market Cash Rent	281	281	281	281	281
Breakeven Cash Rent	224	187	191	194	198
"Option" Premium	57	94	90	87	83