

**August 8, 2007****FEFO 07-13****FLEXIBLE CASH LEASES BASED ON CROP INSURANCE PARAMETERS**

Commodity prices likely will be more variable over the next several years than in previous years. Variable commodity prices cause difficulties in setting cash rents as farmland returns will vary because of commodity price changes. Flexible cash rent leases may aid in setting rents in a variable commodity price environment.

In this article, a flexible cash lease is proposed that bases its payments on parameters used in setting revenue guarantees on Group Risk Income Plan (GRIP) crop insurance policies. As structured, this flexible lease causes landlords and farmers to share in commodity price changes that occur between years. Generally, hedging is not effective at reducing risks associated with between year price changes. As structured, the lease causes farmers to bear all risks associated with yield shortfalls and price changes within the year. If desired, farmers can use crop insurance and hedging to offset some of the risks associated with yield shortfalls and price changes within the year.

The simplest form of the payment mechanism for this lease is first described. Advantages and disadvantages then are discussed. Finally, modifications to the payment mechanism are described.

**Example of Setting Cash Rent Payments**

In its simplest form, the payment mechanism based on corn is:

Expected county corn yield x base corn price x rent factor.

The variables in this formula are:

1. The **expected county yield** is set by the Risk Management Agency (RMA) for each crop in each county. This parameter represents an estimate of the most likely county corn yield. In most years, RMA revises expected yields based on histories of county yields.
2. The **base price** is released by RMA at the beginning of March. The base price equals the average of the February settlement prices on the December corn contract traded on the Chicago Board of Trade (CBOT). The base price is used in setting revenue guarantees on GRIP, Crop Revenue Coverage (CRC) and Revenue Assurance (RA).
3. The **rent factor** is a percentage negotiated between the landlord and farmer. It represents the share of county revenue received by the landlord.

As an example, take a farm in Macon County in 2007. In 2007, the expected county corn yield in Macon County is 178.8 bushels and the base price is \$4.06 per bushel. If the landlord and farmer negotiate a .35 rent factor, the cash rent is \$254 per acre (178.8 bushel county yield x \$4.06 base price x .35 rent factor).

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A history of cash rents for Macon County is shown in Table 1 for rent factors of .3, .35, and .4. For a rent factor of .35, cash rents vary from a low of \$133 in 2001 up to a high of \$254 in 2007. Cash rents would have averaged \$158 per acre for a .35 rent factor.

**Table 1. Flexible Cash Rent Example for Macon County, Illinois.**

Year	Corn			Rents for Different Factors <sup>1</sup>		
	Expected Yield	Base Price	Expected County Revenue	Rent Factor		
				0.3	0.35	0.4
1999	162.5	\$2.44	\$397	\$119	\$139	\$159
2000	164.3	2.54	417	125	146	167
2001	165.3	2.30	380	114	133	152
2002	168.8	2.30	388	116	136	155
2003	168.8	2.38	402	121	141	161
2004	167.0	2.93	489	147	171	196
2005	170.4	2.38	406	122	142	162
2006	179.4	2.59	465	139	163	186
2007	178.8	4.06	726	218	254	290
	1999-2006 average		\$418	\$125	\$146	\$167
	1999-2007 average		\$452	\$136	\$158	\$181

<sup>1</sup> Rent equals expected yield x base price x rent factor.

### Advantages of Flexible Cash Rents Based on Crop Insurance Parameters

1. Cash rents will vary as prices change between years. Higher base prices will result in higher cash rents and vice versa.
2. Cash rents are determined when crop insurance decisions are made. Farmers can use crop insurance and hedging to protect against yield shortfalls and within year price declines.
3. Information needed to determine cash rents is available from the RMA website ([www.rma.usda.gov](http://www.rma.usda.gov)) in either the actuarial document section or from the RMA premium calculator. In addition, expected county yields and base prices are available from the *Premium Calculator* in the crop insurance section of *farmdoc*. Because information is readily available, chances of disputes between landlords and farmers over variables are minimized.
4. The lease does not require any data from the farm being leased. Nor does the lease require keeping track of prices. Hence, administrative costs associated with determining cash rents are low.
5. The level of the cash rent will be known relatively early in the production year.
6. The Farm Service Agency will regard this lease as a cash lease. Hence, direct and counter-cyclical payments do not have to be shared between the landlord and tenant.

## Disadvantages of Flexible Cash Rents Based on Crop Insurance Parameters

1. Under this lease, farmers still bear considerable yield and price risk. The lease only adjusts for risks associated with between year price changes. Farmers face all the risk of within year price changes and yield shortfalls. Similar to all flexible cash leases, this lease is not as good at sharing returns as is a crop share lease.
2. Over time, the rent factor may have to be adjusted to account for changes in costs and risks. This lease only adjusts rent payments based on price changes and expected yield changes. Also impacting returns are costs. As costs increase, the rent factor would need to be adjusted down. In addition, risk levels should impact the rent factor. As risk increases, the rent factor should be adjusted down.
3. The actual cash rent will not be known until the spring in the year of production. Many cash rents are negotiated prior to this point. Hence, rent determination may be later than from other leases.

## Determining the Rent Factor

Rent factors will need to be negotiated between the landlord and tenant. In general, farms with lower productivity relative to the county average should have lower rent factors and vice versa.

## Modifications to the Lease

Several modifications could be included in the leasing arrangement:

1. The minimum cash rent can be specified. For example, a lease could have a minimum cash rent of \$140 per acre. If the formula gives a cash rent below \$140 per acre, the cash rent would be \$140.
2. The maximum cash rent can be specified. The maximum cash rent could be set at \$250 per acre. If the formula results in a cash rent above \$250, the cash rent would be \$250
3. All crops grown on the farm can be used in calculating the gross revenue. The above formula bases rent only on corn. Soybean and wheat revenue could also be used in calculating the rent. The rent could be based on the proportion of crops typically grown on the farm. The following formula shows an example for corn and soybeans grown in a 50-50 rotation:

$$\begin{aligned} & (\text{Expected county corn yield} \times \text{base corn price} \times .5 \\ & + \text{expected county soybean yield} \times \text{base soybean price} \times .5) \times \text{rent factor.} \end{aligned}$$

Table 2 shows an example of rent payments for Macon County based on both corn and soybean revenue.

4. Rent payments can be based on harvest prices and actual county yields which are used to calculate revenue for GRIP. Harvest prices are based on settlement prices of CBOT contracts in the fall. Using harvest prices and actual yields will shift some of the within year price and yield risk to the landlord. Several caveats relative to using harvest prices and actual county yields are:
  - a. Actual county yields are not released until February or March in the year following production. Hence, the lease payment will not be known until the year following production. For example, the cash rent for the 2007 cropping year will not be known until February or March in 2008.
  - b. RMA releases two harvest prices. One is used for GRIP and Crop Revenue Coverage (CRC) while the other is used for Revenue Assurance (RA). The lease contract needs to specify which harvest price should be used in determining cash rents.

- c. For crops in Illinois, RMA uses a different county yields in calculating GRIP payments than is commonly reported by the National Agricultural Statistical Service (NASS). RMA uses a county yield equal to total crop production in the county divided by planted acres. NASS typically reports crop production in a county divided by harvested acres. The lease contract needs to specify which county yield should be used in determining cash rents.

**Table 2. Flexible Cash Rents for Macon County Based on Corn and Soybean Expected Revenue.<sup>1</sup>**

Year	Corn			Soybeans			Rents for Different Factors <sup>1</sup>		
	Expected Yield	Base Price	Expected County Revenue	Expected Yield	Base Price	Expected County Revenue	Rent Factor		
							0.3	0.35	0.4
1999	162.5	\$2.44	\$397	47.1	\$4.95	\$233	\$94	\$110	\$126
2000	164.3	2.54	417	47.5	5.36	255	101	118	134
2001	165.3	2.30	380	48.0	4.59	220	90	105	120
2002	168.8	2.30	388	48.5	4.53	220	91	106	122
2003	168.8	2.38	402	48.9	5.23	256	99	115	131
2004	167.0	2.93	489	49.0	7.27	356	127	148	169
2005	170.4	2.38	406	49.2	5.99	295	105	123	140
2006	179.4	2.59	465	51.5	6.18	318	117	137	157
2007	178.8	4.06	726	49.8	8.09	403	169	198	226
						1999-2006 average	\$103	\$120	\$137
						1999-2007 average	\$110	\$129	\$147

<sup>1</sup> Rents equal (expected corn county revenue x .5 + expected soybeans county revenue x .5) x rent factor.

### Examples for Other Illinois Counties

A Microsoft Excel spreadsheet that calculates yearly cash rents for different rent factors is available from the *farmdoc* website: [click here to download](#).

Tables similar to those presented above are available all counties in Illinois with GRIP insurance.

### Summary

Flexible cash leases based on GRIP parameters shifts some of the risks associated with between year price changes to the landlord. Risks associated with within year price changes and yield shortfalls are born by the farmer. This lease is appropriate for cases in which only the transfer of between year price changes are desired. If risk shifting associated with within year price changes and yield shortfalls is desired, cash rents based on a farm's revenue likely would be more appropriate.

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