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**Higher Prices and Crop Insurance: A Double-Edged Sword**

Base prices used to set guarantees on revenue crop insurance products likely will be considerably higher in 2007 than in 2006. Base prices are set by averaging daily settlement prices during February of Chicago Board of Trade (CBOT) contracts (December contract for corn and November contract for soybeans). In 2006, base prices were \$2.59 for corn and \$6.18 for soybeans. At the time of the writing of this article, the respective futures contracts were trading in the high \$3.00 range for corn and in the mid to high \$7.00 range for soybeans. It is likely that 2007 base prices for both corn and soybeans will be over \$1.00 higher than 2006 levels.

Higher base prices will result in higher guarantees for revenue products, a positive for farmers purchasing insurance. However, higher prices will result in higher insurance premiums, a negative for individuals purchasing insurance.

**Higher revenue guarantees**

Base prices enter into the calculation of revenue guarantees for both Crop Revenue Coverage (CRC) and Revenue Assurance (RA). CRC and RA with the harvest price option (RA-HP) have guarantees that equal:

$$\text{APH yield} \times \text{higher of base or harvest price} \times \text{coverage level.}$$

where APH yield is the Actual Production History yield set based on a history of farm yields, the harvest price is set during the fall, and the coverage level is a farmer-selection. Once the base price is determined at the end of February, a minimum guarantee can be calculated for both CRC and RA-HP. The actual guarantee will increase if the harvest price is above the base price.

A comparison of 2006 and 2007 minimum revenue guarantees is shown in Table 1. This example uses a 160 bushel APH yield in both 2006 and 2007 and an 80% coverage level. For 2006, the minimum revenue guarantee is \$332 per acre (160 bushel APH yield x \$2.59 base price x .80 coverage level). If the 2007 base price equals \$3.75, the minimum revenue guarantee will equal \$480, an increase of \$148 over the 2006 guarantee.

**Table 1. Minimum Guarantees for CRC and RA, Corn, 2006 and Projected 2007.**

	2006	2007
APH yield (bu.)	160	160
x Base price	\$2.59	\$3.75
x Coverage level	80%	80%
= Minimum revenue guarantee	\$332	\$480

The difference in revenue guarantees between 2006 and 2007 will be greater for higher coverage levels. At a 65% coverage level, the projected 2007 level is \$121 higher than the 2006 level (see Table 2). The difference between guarantees is \$130 for the 70% coverage level, \$139 for the 75% coverage level, \$148 for the 80% level, and \$158 for the 85% coverage level.

### 2007 Crop Insurance Premiums

Crop insurance premiums in 2007 will be higher than 2006 premiums for two reasons. First, base prices enter into the calculations of premiums. Higher base prices increase insurance premiums. Second, revenue products include estimates of downside price risk. Specific inputs entering premium calculation that measure price risk are called “price factors” for CRC policies and “price volatilities” for RA and Group Risk Income Plan (GRIP) policies. Generally, downside price risk is believed higher in 2007 than in previous years, as reflected by higher options premiums on CBOT contracts. Higher price risks may translate into higher measures or price risk used in calculating insurance premiums.

**Table 2. Difference Between Minimum Guarantees in 2006 and 2007 (Projected) by Coverage Level.**

Coverage Level	Guarantee <sup>1</sup>		Difference
	2006	2007	
	\$ per Acre		
65%	269	390	121
70%	290	420	130
75%	311	450	139
80%	332	480	148
85%	352	510	158

<sup>1</sup> Calculated using Table 1.

<sup>2</sup> Projected 2007 guarantee - 2006 guarantee.

**Table 3. 2006 and Estimated 2007 CRC Premiums, Champaign County, Illinois, 160 bu. APH Yield, Basic Units.**

Coverage Level	2006 Premium <sup>1</sup>	2007 Estimated Premium <sup>2</sup>	
		2006 Price Factors	2007 Estimated Factors
		\$ per Acre	
60%	2.61	3.32	3.66
65%	3.92	5.00	5.51
70%	5.32	6.81	7.51
75%	7.83	10.01	11.05
80%	12.00	15.26	16.88
85%	18.78	23.75	26.37

<sup>1</sup> Calculated using a \$2.59 base price.

<sup>2</sup> Estimated using a \$3.75 base price.

premiums range from \$3.32 for a 60% coverage level up to \$23.75 for an 85% coverage level. Overall, higher 2007 base prices will increase premiums between 25 and 30% over 2006 levels.

The second set was estimated using a \$3.75 base price and higher 2007 estimated price factors (.493 for 2007 versus .385 for 2006). These premiums range from \$3.66 for the 60% coverage level up to \$26.37 for the 85% coverage level. Overall, higher price factors could increase premiums over \$.50 per acre for lower coverage levels and \$3.00 for higher coverage levels.

It is reasonable to expect premiums to be much higher in 2007 than in 2006. For CRC policies, 2007 premiums will be around 40% higher than 2006 premiums.

Exact base prices and price factors will not be known until the beginning of March. However, insurance premiums can be estimated using projected base prices and price factors. Table 3 shows 2006 premiums for a Champaign county, Illinois farm for corn having a 160 bushel APH yield. Premiums are shown for a CRC policy having basic units. In 2006, CRC premiums were \$2.61 for a 60% coverage level increasing up to \$18.78 for an 85% coverage level (see Table 3).

Two sets of premium estimates are shown for 2007. The first uses a base price of \$3.75 and price factors at 2006 levels. Estimates of these

## Weighing Higher Coverage Levels and Higher Premiums

Even with higher premiums, a high base price allows high levels of revenue to be insured this year. A feel for the revenue guaranteed by CRC and RA policies can be obtained by adjusting guarantees calculated using Table 1 by the basis and then subtracting the premium to arrive at a per acre “cash guarantee”. The basis adjustment is needed because base prices are calculated using CBOT futures prices and futures prices overstate cash prices received by farmers in Illinois.

An example of this adjustment process is shown in Table 4 for 65%, 75%, and 85% coverage levels. In this example, the base price is adjusted down by the basis when calculating the revenue guarantee. The guarantee is calculated using a price of \$3.45, which equals a \$3.75 base price minus a \$.30 basis. From the basis-adjusted guarantee, the premium is subtracted to arrive at the per acre cash guarantee.

In this example, the cash guarantee is \$353 per acre for a 65% coverage level, \$403 per acre for the 75% coverage level, and \$443 for the 85% coverage level. By way of comparison, the cash guarantees in 2006 equal \$232 for the 65% coverage level, \$264 for the 75% coverage level, and \$285 for the 85% coverage level. In recent years, cash guarantees have rarely exceeded \$300 per acre for any coverage level. This year, purchase of 75% and higher coverage level can result in cash guarantees above \$400 per acre. This year is one of the few times that positive net incomes can be assured using crop insurance.

**Table 4. Cash Guarantees for CRC and RA.**

	Coverage Level		
	65%	75%	85%
APH yield (bu.)	160	160	160
x Base price less basis <sup>1</sup>	\$3.45	\$3.45	\$3.45
x Coverage level	65%	75%	85%
= Guarantee adjusted by basis	\$359	\$414	\$469
- Premium	\$6	\$11	\$26
= Cash guarantee	\$353	\$403	\$443

### RA and GRIP premiums

RA and GRIP insurance premiums will increase. My estimates would put the increases higher for RA and GRIP policies than for CRC policies. Table 5 shows estimated premiums for RA and GRIP policies for Champaign County, Illinois. Premiums on these policies are projected to increase over 60% between 2006 and 2007.

<sup>1</sup> Estimated using a \$3.75 a base price and a \$.30 basis.

Both CRC and RA-HP policies are revenue policies that allow the guaranteed to increase if the harvest price is above the base price. While there are differences between the two policies, CRC and RA are similar and the choice comes down to premiums. It is likely that CRC premiums will have considerably lower than RA premiums. Most will find using CRC less costly than RA if an individual desires an individual farm policy with a guarantee increase.

Some may question the use of GRIP given a large increase in premiums. A future *Farm Economics: Facts and Opinions* article will cover the advisability of purchasing GRIP.

**Table 5. RA and GRIP Insurance Premiums for Champaign County,  
2006 and 2007 Estimated Premiums.**

Coverage Level	RA-HP Policies <sup>1</sup>			GRIP-HR Policies <sup>2</sup>		
	2006	Estimated 2007	Increase	2006	Estimated 2007	Increase
65%	3.20	5.39	68%	2.75	5.01	82%
70%	5.43	9.03	66%	5.12	8.73	71%
75%	9.14	15.06	65%	9.64	16.45	71%
80%	15.19	24.89	64%	14.60	24.62	69%
85%	24.96	40.70	63%	23.25	37.61	62%

<sup>1</sup> Estimated using a 160 bu. APH yield, basic units. Estimates for 2007 are made using a \$3.75 base price and a .26 volatility.

<sup>2</sup> Estimated at maximum protection level. Estimates for 2007 are made using a \$3.75 base price and a .26 volatility.

### Summary

Premiums for revenue insurance products will be 40% or more higher in 2007 than in 2006. At the same time, coverage offered by revenue products will be considerably higher than in previous years. On many farms, it will be possible to insure revenues at levels assuring profits, a situation that occurring rarely when using crop insurance.

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