



## Weekly Farm Economics: The 75 to 85% Coverage Level Choice for RP Crop Insurance

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The most popular crop insurance choice is Revenue Protection (RP), with coverage levels of 75%, 80%, and 85% being the most used. Often the choice of coverage level with RP is difficult. Comparisons of premiums and guarantees across coverage levels with production costs provide useful information in making coverage level choices. Those comparisons are made in this article for a Sangamon County farm example.

### Sangamon County Example

Comparisons for the Sangamon County farm example make use of premiums for an enterprise unit having 200 acres. Quotes are given for corn using the Trend Adjustment (TA) endorsement given a 170 bushel Actual Production History (APH) yield and a 180 bushel TA-APH yield. Last year's projected price (\$5.68) and volatility (.22) are used in generating premiums. Currently, last year's \$5.68 projected price is below the prices of the Chicago Mercantile Exchange (CME) December contract. This December contract is currently around \$5.90 per bushel.

### Guarantees

Once the projected price is set, a minimum revenue guarantee for RP can be calculated. If the harvest price is above the projected price, RP's guarantee will be above the minimum guarantee. Calculation of the RP minimum guarantee is illustrated for an 80% coverage level given a \$5.68 projected price and an 180 bushel TA yield. In this case the minimum guarantee is \$818 (180 bushel TA-APH yield x \$5.68 projected price x 80% coverage level).

RP's guarantee and revenue is calculated using prices based on CME futures prices. Often, cash prices farmers receive are lower than futures prices. To place the guarantee more closely to the revenue farmers receive, a "cash" guarantee is calculated. This cash guarantee accounts for basis, or the difference between the cash and futures prices. In the example below, the cash price is assumed to be \$.30 below the futures price. Currently, the basis is not this low; harvest cash bids are about \$.20 below futures prices. The \$.30 basis is close to the historical average and adds conservatism to the estimates of cash guarantee.

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In addition to the basis, the premium farmer's pay for the product is subtracted in arriving at cash guarantee. This takes into consideration the impact that higher premiums effectively reduce the guarantee offered by the insurance product.

Given a  $-\$.30$  basis and a  $\$13.64$  per acre premium, the cash guarantee for the 80% coverage level is  $\$761$  per acre ( $180$  bushel TA-APH  $\times$  ( $\$5.86$  projected price  $-$   $\$.30$  basis)  $\times$  80% coverage level  $-$   $\$13.64$  premium).

### Coverage Level Comparisons

For the Sangamon County example, premiums are  $\$6.55$  per acre for the 75% coverage level,  $\$13.64$  per acres for the 80% coverage level, and  $\$27.04$  per acre for the 85% coverage level (see Table 1). Roughly, the premium doubles with a move from 75% to the 80% coverage level, and doubles again from the 80% to 85% coverage level.

**Table 1. Premiums and "Cash" Guarantees for Revenue Protection in Sangamon County.<sup>1</sup>**

	Coverage Level		
	75%	80%	85%
	\$ per acre		
Premium <sup>1</sup>	6.55	13.64	27.04
RP minimum guarantee <sup>3</sup>	767	818	869
Cash guarantee <sup>4</sup>	720	761	796

<sup>1</sup> The example is for corn given a  $\$5.68$  projected price.

<sup>2</sup> Given for Sangamon County, corn,  $\$5.68$  projected price, .22 volatility, and an enterprise unit (200 acres).

<sup>3</sup> Equals a 180 bushel TA yield times  $\$5.68$  projected price times coverage level.

<sup>4</sup> Equals a 180 TA yield  $\times$  ( $\$5.68$  projected price  $-$   $\$.30$  basis) times coverage level  $-$  premium.

Cash guarantees are  $\$720$  for the 75% coverage level,  $\$761$  for the 80% coverage level, and  $\$796$  for the 85% coverage level. The cash guarantee increases  $\$41$  per acre from the 75% coverage level to the 80% coverage level, and increases  $\$35$  per acre from the 80% coverage level to the 85% coverage level.

It is useful to compare cash guarantees to total costs. Non-land costs for corn in 2013 are estimated at about  $\$500$  per acre. For cash rent farmland, adding cash rent to non-land costs would arrive at total cost of production. A  $\$350$  per acre cash rent would result in total cost of  $\$850$  per acre. An 85% coverage level has a  $\$796$  cash guarantee, meaning that a  $\$54$  per acre short fall is possible if an 85% coverage level is chosen.

Differences in cash rents and rental arrangements would change the above costs. Farms with higher percent of acres of their land in cash rent at higher cash rents will have higher risks than those farms with lower percent of acres in cash rent and with lower cash rents.

### Summary

Increases in coverage level will increase both the premiums farmer pay and the guarantees offered by

crop insurance products. In most situations, use of high coverage levels is needed to come close to covering crop production. In many situations, the highest coverage level will not provide a guarantee above the total costs of production.