



A New Crop of Insurance

NEW WAYS TO PROTECT YOUR BOTTOM LINE

BECAUSE CROP INSURANCE MUST be purchased well before planting, making an informed decision is crucial to executing a risk management strategy. The choices producers make or don't make will affect their ability to confidently price a percentage of their crop before harvest. With crop insurance, producers can market the insured portion of their crop with confidence. They know that they will have either the crops to deliver or insurance indemnities to purchase the commodities necessary to meet delivery obligations.

For most producers, guaranteeing revenue is the bottom line of all risk management strategies. To that end, the U.S. Department of Agriculture's Risk Management Agency (RMA) has made available three forms of revenue insurance that extend the coverage to include fluctuations in price. Each type combines yield and price risk protection into a single crop insurance plan to protect crop revenue. While revenue insurance is not a substitute for a marketing plan and other risk-reducing farming techniques, the increased protection is a welcomed change for many producers.

1. Income Protection

Income Protection (IP) policies protect producers against reductions in gross income when either a crop's price or yield declines from early-season expectations. Using corn as an example, a *projected price*, using the February average of the December Chicago Board of Trade (CBOT) corn contract, is used to establish guaranteed revenue. (The revenue guarantee equals the product of the producer's historical yield, the projected price, and the coverage level selected by the producer.)

Revenue shortfall is determined by using a *harvest price*, which is the November average of the same December contract.

The price at which the crop actually sells is not used to calculate a loss payment. A producer is paid for a loss when the actual and appraised yield multiplied by the harvest price falls below the revenue guarantee. Other crops use similar pricing periods as specified in the crop insurance policy.

For example, suppose that a corn producer has an average historical yield of 115 bushels per acre, the projected price is \$2.50 per bushel, and the producer selects 75 percent coverage. The producer's revenue guarantee is \$215.63 per acre (115 bu. x \$2.50 x .75). Using the

information above, the following two scenarios illustrate conditions under which IP would pay producers:

Low yields/High prices

The producer harvests only 55 bushels per acre, but the harvest price is \$2.60 per bushel. The producer's calculated revenue is \$143 per acre (55 bushels x \$2.60 per bushel).

So, the producer is paid the difference of \$72.63 per acre (\$215.63 - \$143).

Normal yields/Low prices

The producer harvests 115 bushels per acre, but the actual harvest price falls to \$1.80 per bushel. The producer's calculated revenue is \$207 per acre (115 bushels x \$1.80 per bushel).

So, the producer is paid the difference of \$8.63 per acre (\$215.63 - \$207).


The premium for IP coverage reflects the historic yield variation and the variation in gross income due to yield and price movements during the crop year.

2. Crop Revenue Coverage

Like the Income Protection plan, Crop Revenue Coverage (CRC) provides revenue protection based on price and yield expectations. CRC, however, pays for losses below the yield guarantee at the higher of an early-season price or the harvest price. For most corn, the *early-season price* is 95 or 100 percent of the February average daily settlement price of the CBOT December corn futures contract. The *harvest price* is 95 or 100 percent of the November average daily settlement for the same December contract. The price at which the crop actually sells is not used to calculate a loss payment. Commodity exchanges, measurement periods, and contract months may vary for other crops.

The CRC revenue guarantee equals the product of the producer's historical yield, the coverage level, and the higher of the early-season price or the harvest price.

For example, suppose that a corn producer has an average historical yield of 115 bushels per acre, the early-season price is \$2.50 per



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bushel (\$2.63 x .95), and the producer selects 75 percent coverage. Using this information, the following two scenarios illustrate the conditions under which CRC would pay producers:

Low yields/Harvest-time price is higher than the early-season price
The producer harvests 55 bushels per acre, and the harvest-time price (November) increases to \$3.00 per bushel. So, the producer’s dollar amount of protection is \$245.81 per acre (115 bu. x .75 x \$2.85 [.95 x \$3.00]). The calculated revenue is \$156.75 (55 bu. x the harvest price of \$2.85). So, the loss payment to the producer is \$89.06 per acre (\$245.81 - \$156.75).

Low yields/Harvest-time price is less than the early-season price
The producer harvests 55 bushels per acre, and the harvest price falls to \$1.80 per bushel (.95 x \$1.89). The producer’s minimum amount of protection is \$215.63 per acre (115 bu. x .75 x the higher of \$2.50 or \$1.80) and the calculated revenue is \$99. (55 bu. x \$1.80 harvest price). So, the loss payment to the producer is \$116.63 per acre (\$215.63 - \$99).

On average, CRC premiums are significantly higher than IP premiums. The higher cost is due in part to the higher price used to pay losses. In addition, IP coverage is based on all of a producer’s acreage in a county, while CRC allows producers to subdivide their acreage into smaller “units,” as defined in their policies.

3. Revenue Assurance

Revenue Assurance (RA) is dollar-denominated coverage. That is, a producer selects a dollar amount of target revenue from a range defined by 65 to 75 percent of expected revenue:

**(approved APH yield x coverage level
x projected county price)**

The *projected county price* is used to calculate the revenue guarantee and premium. The county harvest price is used only to determine the value of production to subtract from the revenue guarantee. The difference is the indemnity.

The projected county price for corn is a simple average of the final closing daily settlement prices in February on the December futures contract for the current crop year, minus the county-specific adjustment factor. The county-specific adjustment factor is the historical difference between county harvest price and the simple average of the final daily settlement price in November on the CBOT December futures contract.

For soybeans, the projected county price is the simple average of the final closing daily settlement prices in February on the CBOT November futures contract for the current crop year, minus the county-specific adjustment factor. The county-specific adjustment factor is the historical difference between county harvest prices and the simple average of the final daily settlement prices in October on the November futures contract. The projected county prices will be calculated before March 5 of the current crop year.

The *county harvest price* for corn is the average of the November daily corn posted county price for the applicable crop year published by USDA. For soybeans, it is the average of the October daily soybean-posted county price. The county harvest prices will be calculated by November 5 of the current crop year for soybeans and by December 5 for corn.

4. Energizing Multiple Peril Crop Insurance Protection

Federal crop insurance products are commonly called Multiple Peril Crop Insurance (MPCI). Two MPCI insurance plans are the Actual Production History plan (APH) and the Group Risk Plan (GRP). *Both standard insurance plans can be combined with various pricing tools to provide coverage that approximates revenue insurance protection.*

For example, one cost-effective strategy might be to combine a GRP policy with maximum coverage and a put option. GRP coverage is a departure from traditional approaches to crop insurance because it uses an index the expected county yield as the basis for protection. When the *county yield* for the insured crop falls below the yield level chosen by the producer, the producer receives a loss payment. GRP buyers can insure up to 90 percent of the expected county yield at up to 150 percent of the expected price at rates generally lower than traditional APH protection.

GRP might be a good risk management tool for producers who (1) can’t or don’t want to furnish individual yield records to establish APH guarantees, (2) have individual farm yields that vary with county yields, or (3) determine that the cost of insuring crops with APH exceeds the perceived risks.

Using this strategy, a 1997 soybean loss triggered by low county yields may be paid at a high value per bushel (1997 county soybean losses could be paid in excess of \$10 per bushel). This policy provides a high level of price protection in case of county crop loss. The put option purchased before planting is likely to have increased in value if there was a large national soybean crop, thus giving the producer downside price protection.