



# BRIEFING

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## Federal Crop and Crop Revenue Insurance Programs: Crop Revenue Coverage

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Federal crop insurance against individual farm yield losses in the form of multiple peril contracts has been available for some crops since 1938. Following the 1980 Federal Crop Insurance Act, the number of crops and the geographic coverage of the federal crop yield loss insurance program was greatly expanded. Beginning in the late 1980s, in addition to traditional multiple peril contracts, new policies were developed based on yield losses at the county level and offered for a limited number of crops in a limited number of counties.

either low yields, low prices, or both include Group Revenue Insurance Policy (GRIP) contracts, Crop Revenue Coverage Contracts (CRC), Revenue Assurance (RA) contracts, and Income Protection (IP) contracts. Under CRC, RA, and IP revenue insurance contracts, indemnities are triggered by low revenues for an individual producer (caused either by low yields, or low prices, or both). Under GRIP contracts, indemnity payments are triggered by low average revenue for the crop in the country.

Following the 1994 Crop Insurance Reform Act, a wider range of federally subsidized insurance contracts were introduced that provided protection against revenue losses and catastrophic losses.

This Briefing describes and discusses Crop Revenue Coverage (CRC) contracts.

### Crop Revenue Coverage (CRC)

Today, producers face a wide array of crop insurance alternatives including yield based Actual Production History (APH) insurance contracts and Revenue Insurance contracts. Not all insurance contracts are available for every crop in any given county. In some counties, Risk Management Agency (RMA) approved insurance contracts are not available for some crops. In these circumstances, producers can either utilize the Noninsured Disaster Assistance Program (NAP) or make a request for actuarial change.

Crop Revenue Coverage (CRC) was one of the first revenue insurance products to be approved by FCIC and to be eligible for federal subsidies. It is only available for a limited number of crops in a limited number of counties. In the 2000 crop year, crops with CRC coverage included winter wheat, spring wheat, durum wheat, corn, cotton, grain sorghum, and rice. CRC provides protection against reductions in expected revenues, based on price and yield expectations, by paying for losses below the revenue guarantee at the higher of an early-season price or the harvest price.

### Insurable Areas:

A producer may purchase separate CRC contracts for optional units, or combine optional units and insure the combined optional units as a basic unit, or combine

Objective

Analysis

for Informed

Decision Making

Yield based APH insurance contracts include Multiple Peril Crop Insurance (MPCI) and Group Risk Plan (GRP) contracts. Under MPCI contracts, indemnity payments are triggered by low yields on an individual producer's insured acres. Under GRP contracts, indemnity payments are triggered by low county-wide yields.

Revenue insurance contracts that provide indemnities for revenue losses caused by

basic units into an enterprise unit which includes all acreage planted to the crop in the same county (see briefing No. 6 for a detailed discussion of optional, basic and enterprise units).

### APH Approved Average Yield

For each insured unit (optional, basic or enterprise), the producer must establish an APH approved average yield (See Briefing No. 7 for a detailed description of APH approved yields).

### Yield Elections or Yield Coverage Levels

The producer elects the proportion of the APH approved average yield on each insurable unit against which insurance is to be purchased. Producers can generally select between 50 percent and 75 percent of their APH approved yield as the basis for their CRC revenue insurance and yield elections can be increased in 5 percent increments. In some counties, producers can elect up to 85 percent of their APH approved yield.

### Minimum Revenue Insurance Guarantee and the Base Price

The producer selects a yield election. The yield election is multiplied by the producer's APH approved average yield. This quantity is then multiplied by the base price for the crop.

The base price for the crop is a specified average futures contract settlement price for harvest time delivery of the crop during a specified period prior to the contract signing date. Consider an example. In 2000, for corn in counties with a March 15 sign up date (the date by which producers had to sign up for insurance of the 2000 crop), the base price was the Chicago Board of Trade (CBOT) average February settlement price for December corn futures contracts (that is, corn futures contracts expiring ten months later in December of 2000).

The minimum revenue insurance guarantee is equal to the APH approved yield multiplied by the yield election, the base price for the crop, and the price election of 100 percent.

#### Example:

Suppose a producer has an APH approved corn yield of 100 bushels an acre, and the producer selects a CRC yield election of 70

percent and a price election of 95 percent. The futures market is used to establish a base price for the crop of \$2.50 a bushel. The producer's CRC minimum revenue guarantee is:

$$\begin{aligned} \text{Minimum Revenue Guarantee} &= \text{APH} \\ &\text{approved yield} \times \text{Yield election} \times \text{Base price} \times \\ &\text{Price Election} = (100 \text{ bushels per acre}) \times (70 \\ &\text{percent}) \times (\$2.50) \times (100 \text{ percent}) = \$ 175 \text{ per} \\ &\text{acre} \end{aligned}$$

Note that the per acre revenue guarantee is based on 70 bushels (100 bushels per acre APH multiplied by the 70 percent yield election).

### The Harvest Revenue Insurance Guarantee and the FCIC Harvest Price

Under a CRC contract, the revenue guarantee may increase above the minimum guarantee level if the FCIC harvest price rises above the base price.

The harvest price for the crop is the average futures contract settlement price for the contract used to establish the base price in the month before the contract expires. For example, in 2000, for corn in counties with a March 15 sign up date, the FCIC harvest price was the Chicago Board of Trade (CBOT) average November settlement price for December corn futures contracts (that is, corn futures contracts expiring one month later in December of 2000).

Typically, the harvest revenue insurance guarantee is equal to the producer's production multiplied by the FCIC harvest price for the crop and the producer's elected price percentage. If the harvest price is much larger than the base price then the permitted increase in the value of the guarantee is capped. For example, in 2000, if the per bushel harvest price for wheat had been \$2 more than the per bushel base price for wheat, the increase in the harvest price would have been capped at a maximum of \$2.

#### Example (continued)

Suppose the FCIC harvest price for the crop insured by the producer increases to \$3.00 as compared to the base price of \$2.50. The producer's harvest revenue guarantee is:

$$\begin{aligned} \text{Harvest Revenue Guarantee} &= \text{APH} \\ &\text{approved yield} \times \text{Yield election} \times \text{Harvest} \\ &\text{price} \times \text{Price Election} = (100 \text{ bushels per} \\ &\text{acre}) \times (70 \text{ percent}) \times (\$3.00) \times (100 \text{ percent}) \\ &= \$210 \text{ per acre} \end{aligned}$$

### The Producer's Revenue Guarantee

The producer's actual revenue guarantee is the larger of the minimum revenue guarantee and the harvest revenue guarantee. In the example, the producer's revenue guarantee is the per acre harvest revenue guarantee of \$210 as it is larger than the minimum revenue guarantee of \$175.

If the FCIC harvest price had fallen below the base price, the producer's revenue guarantee would have continued to be the minimum revenue guarantee computed using the base price.

### Calculating CRC Indemnity Payments

The producer's crop value for CRC insurance purposes is measured as the producer's actual yield for the crop multiplied by the FCIC harvest price (*not* the price that the producer can sell the crop to a local county elevator at harvest time). If the measured crop value is less than the producer's revenue guarantee then the producer receives an indemnity payment equal the difference between the revenue guarantee and the crop value. If the producer's measured crop revenue exceeds the revenue guarantee then the producer receives no indemnity.

To illustrate the CRC contract, consider two situations that the producer could encounter.

#### Example 1:

The producer's actual yield is 50 bushels (50 percent of the APH approved yield of 100 bushels), the per bushel base price is \$2.50, and the per bushel harvest price is \$3. The producer's CRC revenue guarantee is therefore \$210 (as shown above). Producer A's measured crop value for each insured acre is:

$$\begin{aligned} \text{Crop Value} &= \text{Actual yield} \times \text{Harvest price} \\ &= 50 \text{ bushels per acre} \times \$3 \text{ per bushel} = \\ &= \$150 \text{ per acre} \end{aligned}$$

The revenue guarantee (\$210) is greater than the measured crop value. The producer receives the following indemnity payment on each insured acre:

$$\begin{aligned} \text{Indemnity Payment} &= \text{Revenue} \\ \text{Guarantee} - \text{Crop Value} &= (\$210 - \$150) \end{aligned}$$

*per acre = \$60 per acre*

### Example 2:

Suppose the producer is actual yield is 70 bushels (70% of the APH approved yield of 100 bushels), the per bushel base price is \$2.50, and the per bushel harvest price is \$1.80. The producer's CRC minimum revenue guarantee is \$166.25 (as shown above). However, the producer's harvest revenue guarantee is now lower than the minimum revenue because the harvest price is lower than the base price; that is,

$$\begin{aligned} \text{Harvest Revenue Guarantee} &= \text{APH} \\ &\text{approved yield} \times \text{Yield election} \times \text{Harvest} \\ &\text{price} \times \text{Price Election} = (100 \text{ bushels per} \\ &\text{acre}) \times (70 \text{ percent}) \times (\$1.80) \times (100 \\ &\text{percent}) = \$126 \text{ per acre} \end{aligned}$$

The producer's CRC revenue guarantee is therefore the minimum guarantee of \$166.25.

The producer's measured crop value for each insured acre is now:

$$\begin{aligned} \text{Crop Value} &= \text{Actual yield} \times \text{Harvest price} \\ &= 70 \text{ bushels per acre} \times \$1.80 \text{ per bushel} \\ &= \$126 \text{ per acre} \end{aligned}$$

The CRC minimum revenue guarantee (\$175) is greater than the measured crop value. The producer, therefore, receives the following indemnity payment on each insured acre:

$$\begin{aligned} \text{Indemnity Payment} &= \text{Revenue} \\ \text{Guarantee} - \text{Crop Value} &= (\$175 - \$126) \\ \text{per acre} &= \$49 \text{ per acre} \end{aligned}$$

In this case, even though the producer's actual yield did not fall below 70 percent of the APH approved yield (the selected yield election), the producer received an indemnity payment because the harvest price fell below the base price.

Example 2 shows that in some circumstances CRC contracts provide producers with protection against revenue losses when similar yield based insurance contracts such as MPCl may not indemnify yield losses. In evaluating alternative revenue and yield insurance contracts, however, producers should compare the protection against the risk of loss provided by each contract with the cost of each contract (the premium payment).

### **Premium Rates and Premium Payments**

Premium rates for CRC contracts are defined as percentages that are applied to the amount of insurance being purchased by the producer. Three premium rate elements are involved in each contract, the CRC Base premium rate, the CRC Low Price Factor, and the CRC High Price Factor. The latter two elements account for the protection provided by CRC contracts against upward and downward movements in the price of the commodity. To determine premium payments, first, the Base Premium Rate, Low Price Factor, and High Price Factor are each applied to the producer's minimum revenue guarantee (the producer's APH approved yield multiplied by the yield election and the base price for the crop). Then the premium payment is adjusted for any options (including the enterprise option). Finally, the premium payment is reduced by the applicable federal premium subsidy.

### **Premium Subsidies**

The premium rates charged to producers for all federal crop yield and revenue insurance contracts are lower than the premium rates that would be charged if producer premium payments were required to cover all expected indemnity payments for crop and revenue losses. The dollar amounts of the premium subsidies generally do not increase in proportion to yield elections. Producers insuring against revenue losses with lower yield elections typically receive subsidies that make up a larger share of their total premium payments than producers insuring against crop losses with higher yield elections.

### **Shares**

Individuals may not have 100 percent ownership shares in the crop. Each individual with a share in the crop may insure their own share. Indemnity payments for losses and premium payments are pro-rated by the individual's share.

### Example (continued)

Suppose the producer now only has a 50 percent share in the crop. The producer can now only receive 50 percent of any indemnity payment based on a 100 percent share and has to pay 50 percent of the premium payments based on a 100 percent share.

### **Prevented Planting and Replanting Indemnity Payments**

In some years, producers may need to replant a crop or maybe prevented from planting a crop. In some circumstances producer may be indemnified for replanting costs under a CRC

contract. Unless limited by the provisions of the policy, indemnity payments will also be made when producers are prevented from planting during the planting dates prescribed in the contract because of causes covered by the insurance contract (such as severe weather or flooding).

### **Sign Up Dates**

FCIC identifies unique dates by which producers must sign up for their CRC contracts that are specific to each county for each crop.

### **Reporting of Acreage and Crop Damage**

Each crop year, producers with CRC contracts are required to submit an acreage report by unit for each insured crop. The acreage report must be signed and submitted by the producer on or before the acreage reporting date for the county for the insured crop. In the event of crop damage, producers should immediately notify their insurance provider of the damage.

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