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# BRIEFING

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

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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.

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.

This briefing paper describes and discusses Revenue Assurance (RA) contracts.

### Revenue Assurance

Revenue Assurance (RA), was approved by FCIC to be eligible for federal subsidies and first offered as a pilot project for the 1997 crop year. It is only available for a limited number of crops in a limited number of counties. In the 2000 crop year, these crops include barley, canola/rapeseed, soybeans, sunflowers, and spring wheat. The basic RA contract provides protection against reductions in expected revenues, based on price and yield expectations: at the time of planting. Under the RA contract, the producer may also purchase protection based on an FCIC determined price at harvest time, called the harvest price. The harvest price insurance RA option carries a higher premium than the basic RA option.

### Insurable Areas:

A producer must insure all acres of a crop in a county in which they have an interest. Producers, however, may purchase separate RA contracts for optional units, or combine optional units and insure the combined optional units as a basic unit, or combine basic units into an enterprise unit which includes all

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.

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.

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 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

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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 65 percent and 75 percent of their APH approved yield as the basis for their RA revenue insurance and yield elections can be specified in 1 percent point increments. Producers can choose up to 85 percent of their APH approved yield for choosing enterprise or whole farm units.

### The Basic RA Revenue Insurance Guarantee and the Projected Harvest 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 projected harvest price for the crop (which is similar to the base price that determines the minimum revenue guarantee in the RA revenue insurance contract).

The projected harvest 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. Typically, the projected harvest price is determined seven months to thirteen months prior to the futures contract settlement date.

For example, in 2000, for canola/rapeseed, the RA base price was the Winnipeg Grain Exchange average February settlement price for November canola futures contracts (that is, canola futures contracts expiring nine months later in November, 2000). The RA basic revenue insurance guarantee is equal to the APH approved yield multiplied by the yield election, by the projected harvest price for the crop.

#### Example:

A producer has an APH approved corn yield of 100 bushels an acre. He selects an RA yield election of 70 percent. The

projected harvest price for the crop is \$2.50 a bushel. The producer's RA minimum revenue guarantee is:

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

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

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

Under an RA contract, the producer can choose the harvest price option. Under this option, the producer can increase the revenue guarantee above the basic revenue 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 futures contract initially used to establish the base price one or two months prior to when that futures contract expires. For example, in 2000, for canola/rapeseed, the FCIC harvest price was the average September settlement price for Winnipeg Grain Exchange November canola futures contracts (that is, canola futures contracts expiring one month later in November, 2000).

The harvest price revenue insurance guarantee is equal to the producer's APH approved yield multiplied by the producer's yield election and the FCIC harvest price for the crop.

#### Example (continued):

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

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

### The Producer's Revenue Guarantee

If the producer purchases the RA contract harvest price option, then the producer's revenue guarantee is the larger of the minimum revenue guarantee and the harvest revenue guarantee. In the above example, the producer's per acre harvest revenue guarantee of \$210 is larger than the basic revenue guarantee of \$175. Thus the producer's revenue guarantee is the harvest revenue guarantee. If the producer does not purchase the RA harvest price option, then the producer's revenue guarantee is simply the basic revenue guarantee, regardless of the harvest

price.

### Calculating RA Indemnity Payments

The producer's crop value for RA 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 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 receive no indemnity.

To illustrate how the RA contract works, consider the following examples of situations that a producer might encounter.

#### Example 1:

The producer purchases only the RA basic insurance contract (the producer does not purchase the RA harvest price option). 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 \$3.00. However, because the producer has not purchased the harvest price option, the producer's revenue guarantee is the basic revenue guarantee of \$175 per acre (as shown above). The producer'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 (\$175) is greater than the measured crop value. The producer receives the following indemnity payment on each insured acre:

$$\begin{aligned} \text{Indemnity Payment} &= \text{Basic Revenue} \\ &\text{Guarantee} - \text{Crop Value} (\$175 - \$150) \\ &\text{per acre} = \$25 \text{ per acre} \end{aligned}$$

#### Example 2:

The producer purchases the RA harvest price option. The producer's actual yield is still 50 bushels (50% of the APH approved yield of 100 bushels), the per bushel base price is \$2.50, and the per bushel harvest price is \$3.00. The producer has purchased the harvest price option. Thus, the producer's revenue guarantee is the harvest price revenue guarantee of \$210 per acre (as shown

above). As in the previous example, the producer'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:

$$\begin{aligned} \text{Indemnity Payment} &= \text{Harvest Price} \\ &\text{Revenue Guarantee} - \text{Crop Value} \\ &= (\$210 - \$150) \text{ per acre} = \$60 \text{ per acre} \end{aligned}$$

Clearly, the producer receives a higher indemnity if the harvest price option had been purchased. This is because, in this example, the actual harvest price was higher than the projected harvest price at the time the producer purchased the RA contract. The following example illustrates what happens when the actual harvest price is lower than the projected harvest price.

#### Example 3:

The producer's actual yield is 70 bushels (exactly 70 percent of the APH approved yield of 100 bushels), the per bushel projected harvest price is \$2.50, and the actual per bushel harvest price is \$1.80. The producer's RA basic revenue guarantee is still \$175 per acre (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,

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

The producer's RA revenue guarantee is therefore the basic revenue guarantee of \$175.

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

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

In example 3, the producer obtains no benefit in the form of a larger indemnity payment from purchasing the RA harvest option because the actual harvest price was lower than the projected harvest price. That is, in some years, purchasing the harvest price option will increase the indemnity payments received by producers and in others it will not. Producers should evaluate whether, on average, the higher indemnities provided under the harvest price option are justified given that obtaining the harvest price option involves an increase in the producer's premium payment.

Example 3 also shows that in some circumstances RA contracts provide producers with protection against revenue losses when similar yield based insurance contracts such as MPC I may not indemnify yield losses (that is, in example 3 the producer elected a 70 percent yield guarantee and the actual yield was 70 percent of the APH approved yield). 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 RA contracts are developed under a statistical procedure that accounts for yield and price variability and correlations and are quoted to individual producers for each contract option.

### **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.

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

In some years, producers may need to replant a crop or be prevented from planting a crop. In some circumstances producer may be indemnified for replanting costs under a RA 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 RA contracts that are specific to each county for each crop.

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

Each crop year, producers with RA 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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