

MMM 498

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Crop Revenue Coverage Insurance for Corn – A Way to Guarantee Revenue for 2009

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With commodity prices fluctuating daily and input costs still near record levels, crop producers will be challenged to maintain profitability in 2009 as profit margins are shrinking. Given this uncertainty, producers should be considering their risk management alternatives to protect their revenue for the 2009 crop. There are many alternatives available to manage price risk such as cash forward contracts, hedging with commodity futures or purchasing put options. Another alternative is to purchase Crop Revenue Coverage (CRC) insurance to protect revenue against low prices and/or reduced yields. This memo explains how CRC can be used to guarantee your revenue before you even start planting corn.

Crop Revenue Coverage (CRC)

Crop Revenue Coverage (CRC) insures a certain revenue level based on your actual production history (APH) and futures market prices at planting and at harvest. Producers can choose a 50%, 55%, 60%, 65%, 70% or 75% coverage level of their APH yield for corn.

An advantage of CRC is that you know the guaranteed revenue level at sign-up. The base price used in establishing the guaranteed revenue is determined by the closing futures market prices prior to planting. For corn, the base price is the average of the closing prices of the Chicago Board of Trade September contract from mid-December to mid-January. The 2009 base price for corn is \$4.27/bu.

The minimum guaranteed revenue is the APH yield multiplied by the yield coverage level and by the base price. CRC coverage does not penalize you if prices increase throughout the production year, as the revenue coverage guaranteed by CRC is increased if prices rise. However, the guaranteed revenue is not affected if the harvest price is lower than the spring base price.

CRC uses a harvest price, based on the futures market, to determine the harvest guaranteed revenue. The harvest price for corn is the average of the closing prices of the CBOT September corn futures contract during August. The harvest price for corn can vary at most by \$1.50/bu. from the base price. This means that the harvest price for CRC corn insurance in 2009 can range from \$2.77/bu to \$5.77/bu.

The harvest price is used to calculate the harvest guaranteed revenue. The harvest guaranteed revenue is the APH Yield multiplied by the yield coverage level and the harvest price. The final guaranteed revenue is the larger of the minimum guaranteed revenue or the harvest guaranteed revenue and is used in determining if an indemnity payment will be made.

The potential indemnity is based on the harvested yield and the harvest price. The calculated revenue is the harvested yield multiplied by the harvest price determined by the futures market. The indemnity is the difference between the final guaranteed revenue and the calculated revenue. Example 1 illustrates how CRC insurance would work for a corn producer.

Example 1. A corn producer has an APH yield of 120 bu./acre and chooses to insure the crop at 65% of the APH yield with a base price of \$4.27/bu. The harvest price is \$4.40/bu. and the harvested yield is 65 bu./acre.

$$\begin{aligned} \text{Minimum Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Base Price} \\ &= 120 \times 65\% \times \$4.27 = \$330.06/\text{acre} \end{aligned}$$

$$\begin{aligned} \text{Harvest Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Harvest Price} \\ &= 120 \times 65\% \times \$4.40 = \$343.20/\text{acre} \end{aligned}$$

Recall that the Final Guaranteed Revenue is the larger of the Minimum Guaranteed Revenue or the Harvest Guaranteed Revenue. In this example, the Final Guaranteed Revenue is equal to \$343.20/acre.

The Calculated Revenue, used in determining an indemnity payment, is:

$$\text{Calculated Revenue} = \text{Harvested Yield} \times \text{Harvest Price} = 65 \times \$4.40 = \$286/\text{acre}$$

The indemnity payment is the difference between the final guaranteed revenue and the calculated revenue.

$$\text{Indemnity Payment} = \$343.20 - \$286 = \$57.20/\text{acre}$$

Example 1 illustrates how CRC would pay an indemnity due to low yields. Example 2 illustrates how CRC would pay an indemnity due to low prices.

Example 2. A corn producer has an APH yield of 120 bu./acre and chooses to insure the crop at 65% of the APH yield with a base price of \$4.27/bu. The harvest price is \$3.00/bu. and the harvested yield is 100 bu./acre.

$$\begin{aligned} \text{Minimum Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Base Price} \\ &= 120 \times 65\% \times \$4.27 = \$333.06/\text{acre} \end{aligned}$$

$$\begin{aligned} \text{Harvest Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Harvest Price} \\ &= 120 \times 65\% \times \$3.00 = \$234/\text{acre} \end{aligned}$$

$$\text{Final Guaranteed Revenue} = \text{Larger of } \$333.06 \text{ or } \$234 = \$333.06$$

$$\text{Calculated Revenue} = \text{Harvested Yield} \times \text{Harvest Price} = 100 \times \$3.00 = \$300/\text{acre}$$

The indemnity payment is the difference between the final guaranteed revenue and the calculated revenue.

$$\text{Indemnity Payment} = \$333.06 - \$300 = \$33.06/\text{acre}$$

The indemnity payment for Example 2 is triggered entirely by low prices and not by low yields. CRC truly protects revenue as indemnities can be triggered by low prices regardless of the harvested yield. Example 3 illustrates how an indemnity is triggered by both low prices and low yields.

Example 3. A corn producer has an APH yield of 120 bu./acre and chooses to insure the crop at 65% of the APH yield with a base price of \$4.27/bu. The harvest price is \$3.00/bu. and the harvested yield is 65 bu./acre.

$$\begin{aligned} \text{Minimum Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Base Price} \\ &= 120 \times 65\% \times \$4.27 = \$333.06/\text{acre} \end{aligned}$$

$$\begin{aligned} \text{Harvest Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Harvest Price} \\ &= 120 \times 65\% \times \$3.00 = \$234.00/\text{acre} \end{aligned}$$

$$\text{Final Guaranteed Revenue} = \text{Larger of } \$333.06 \text{ or } \$234.00 = \$333.06$$

$$\text{Calculated Revenue} = \text{Harvested Yield} \times \text{Harvest Price} = 65 \times \$3.00 = \$195.00/\text{acre}$$

The indemnity payment is the difference between the final guaranteed revenue and the calculated revenue.

$$\text{Indemnity Payment} = \$333.06 - \$195.00 = \$138.06/\text{acre}$$

Making the Insurance Purchase Decision

Crop insurance is just one part of a comprehensive risk management program. Only protecting against low prices will not guarantee a revenue level that will cover your variable and provide a contribution towards covering your fixed costs. In commodity agriculture, the ability to produce a large quantity at a low cost is still the key to profitability and to having a successful business. In addition, producers must purchase crop insurance to be eligible for the SURE disaster program created in the 2008 Farm Bill.

The deadline for purchasing CRC insurance is February 28, 2009. Contact your local insurance agent for more information on the insurance products available for your farm business.