

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

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Given the bullish wheat markets, 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.

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. The APH yield is based on a minimum of four and a maximum of ten consecutive years of yield data. Producers can choose a 50%, 55%, 60%, 65%, 70% or 75% coverage level of their APH yield for wheat.

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. The base price for wheat is the average of the closing prices of the Chicago Board of Trade July contract from August 15 to September 14. The 2009 base price for wheat is \$8.58.

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 wheat is the average of the closing prices of the CBOT July wheat futures contract during June. The maximum increase or decrease in the harvest price for CRC is \$2.00/bu. This means that the harvest price can range from \$6.58 to \$10.58/bu.

Table 1 lists the CRC Base and Harvest prices for wheat from 1997 – 2009. Since the base and harvest prices are determined by the commodity futures market, the increase in commodity prices over the last three years have greatly increased the risk management coverage provided by crop revenue coverage insurance.

Table 1. CRC Base and Harvest Prices for Wheat from 1997 – 2009.

	Base Price	Harvest Price	Change from Base to Harvest Price		Base Price	Harvest Price	Change from Base to Harvest Price
1997	\$3.79	\$3.29	-\$0.50	2003	\$3.53	\$3.15	-\$0.38
1998	\$3.66	\$2.68	-\$0.98	2004	\$3.36	\$3.54	+\$0.18
1999	\$2.99	\$2.55	-0.44	2005	\$3.40	\$3.25	-0.15
2000	\$3.18	\$2.69	-\$0.49	2006	\$3.50	\$3.74	+\$0.24
2001	\$2.97	\$2.57	-\$0.40	2007	\$4.35	\$5.74	+\$1.39
2002	\$3.04	\$2.89	-\$0.15	2008	\$5.93	\$7.93	\$2.00
				2009	\$8.58		

Table 1 shows that wheat commodity prices have decreased from the base to harvest 8 out of 12 years (Table 1). The average price decrease is \$0.44/bu (Table 1). Commodity prices have increased 4 out of the 12 years with an average price increase of \$0.95/bu (Table 1). When the harvest price is less than the base price, the probability of triggering an indemnity is increased.

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 wheat producer.

Example 1. A wheat producer has an APH yield of 50 bu./acre and chooses to insure the crop at 65% of the APH yield with a base price of \$8.58/bu. The harvest price is \$8.65/bu. and the harvested yield is 28 bu./acre.

$$\begin{aligned} \text{Minimum Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Base Price} \\ &= 50 \times 65\% \times \$8.58 = \$278.85/\text{acre} \end{aligned}$$

$$\begin{aligned} \text{Harvest Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Harvest Price} \\ &= 50 \times 65\% \times \$8.65 = \$281.13/\text{acre} \end{aligned}$$

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 \$281.13/acre.

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

$$\text{Calculated Revenue} = \text{Harvested Yield} \times \text{Harvest Price} = 28 \times \$8.65 = \$242.20/\text{acre}$$

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

$$\text{Indemnity Payment} = \$281.13 - \$242.20 = \$38.93/\text{acre}$$

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 wheat producer has an APH yield of 50 bu./acre and chooses to insure the crop at 65% of the APH yield with a base price of \$8.58/bu. The harvest price is \$6.58/bu. and the harvested yield is 40 bu./acre.

$$\begin{aligned} \text{Minimum Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Base Price} \\ &= 50 \times 65\% \times \$8.58 = \$278.85/\text{acre} \end{aligned}$$

$$\begin{aligned} \text{Harvest Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Harvest Price} \\ &= 50 \times 65\% \times \$6.58 = \$213.85/\text{acre} \end{aligned}$$

$$\text{Final Guaranteed Revenue} = \text{Larger of } \$278.85 \text{ or } \$213.85 = \$278.85$$

$$\text{Calculated Revenue} = \text{Harvested Yield} \times \text{Harvest Price} = 40 \times \$6.58 = \$263.20/\text{acre}$$

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

$$\text{Indemnity Payment} = \$278.85 - \$263.20 = \$15.65/\text{acre}$$

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 wheat producer has an APH yield of 50 bu./acre and chooses to insure the crop at 65% of the APH yield with a base price of \$8.58/bu. The harvest price is \$6.58/bu. and the harvested yield is 28 bu./acre.

$$\begin{aligned} \text{Minimum Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Base Price} \\ &= 50 \times 65\% \times \$8.58 = \$278.85/\text{acre} \end{aligned}$$

$$\begin{aligned} \text{Harvest Guaranteed Revenue} &= \text{APH Yield} \times \text{Yield Coverage Level} \times \text{Harvest Price} \\ &= 50 \times 65\% \times \$6.58 = \$213.85/\text{acre} \end{aligned}$$

$$\text{Final Guaranteed Revenue} = \text{Larger of } \$278.85 \text{ or } \$213.85 = \$278.85$$

$$\text{Calculated Revenue} = \text{Harvested Yield} \times \text{Harvest Price} = 28 \times \$6.58 = \$184.24/\text{acre}$$

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

$$\text{Indemnity Payment} = \$278.85 - \$184.24 = \$94.61/\text{acre}$$

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 some type of crop insurance to be eligible to participate in the disaster programs defined by the 2008 Farm Bill.

The deadline for purchasing CRC insurance for wheat is September 30, 2008. Contact your local insurance agent for more information on the insurance products available for your farm business.