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Management Marketing Memo 475 - Should I be Using Revenue Risk Management Products for my 2008 Corn Crop?

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Should I be Using Revenue Risk Management Products for my 2008 Corn Crop?

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The December 2008 corn futures contract has been trading near historic levels. At these price levels, managers should be asking themselves if the market is providing an opportunity to market the 2008 corn crop. While it may be difficult to market a crop that is still in the seed bag, managers need to understand how revenue risk management products can be used to reduce the risk of not covering production costs due to low prices and/or reduced yields. While you have several risk management alternatives available, this memo will focus on two price risk management products and two insurance products that you can purchase to reduce revenue risk. The price risk management strategies are to use cash forward contracts (CFC) or to purchase a put option on the December 2008 corn futures. The insurance products provide protection against reduced yields through APH insurance or provide protection against price and yield risk through Crop Revenue Coverage (CRC) insurance. This memo discusses these risk management products and how they can be used to manage risk for your corn crop.

What are my Price Risk Management Alternatives?

Figure 1 compares the cash price received by using a cash forward contract at \$5.05, a put option at a \$4.20 strike price, and a ‘do-nothing’ strategy of selling at harvest for the expected yield of 120 bu/acre. The per bushel variable cost, which is the total variable costs per acre divided by the expected yield per acre, is included in Figure 1 to indicate the expected ability to cover production costs for the marketing alternatives.

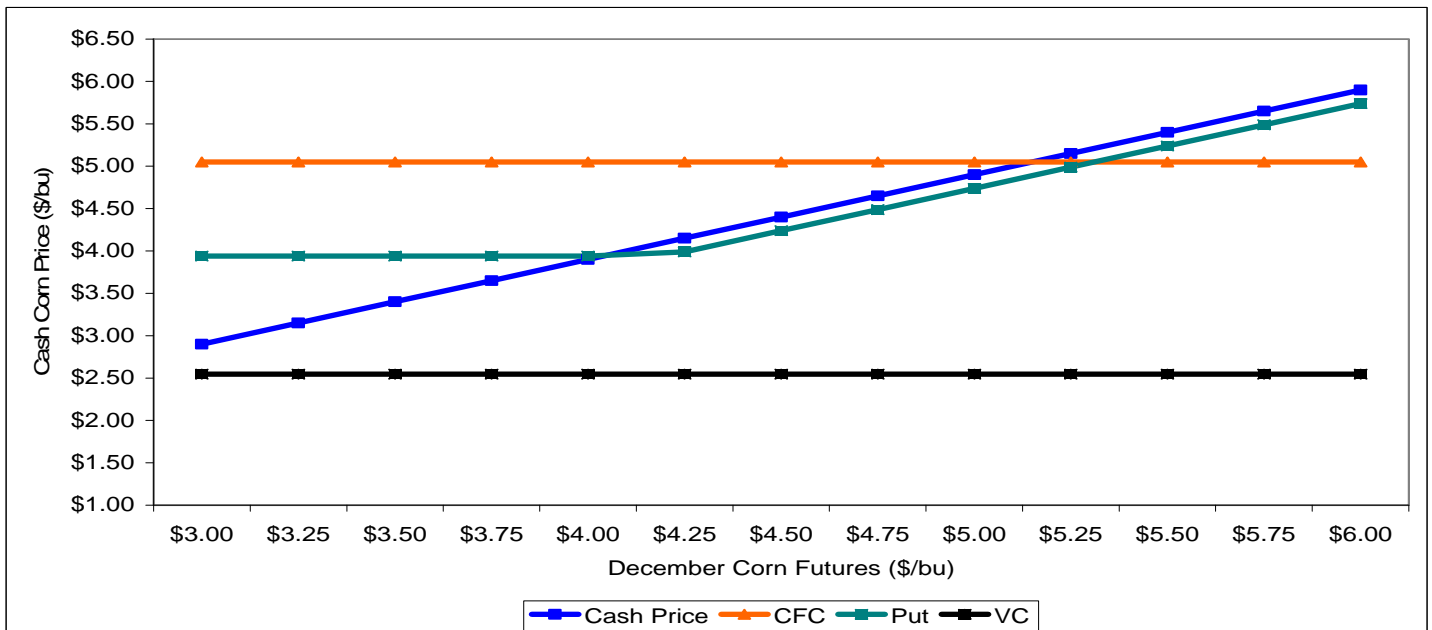


Figure 1. Comparison of a Cash Forward Contract and a Put Option in Reducing the Risk of Covering Variable Costs for 120 bu/acre non-irrigated corn (Based on 2008 December Corn Futures settlement prices on 1/31/08).

A cash forward contract (CFC) allows producers to “lock-in” a price before harvest (Figure 1). This usually has very little expense and allows for certainty of the harvest-time price. An advantage of a CFC is that price risk is removed. The disadvantage of a CFC is that you are contractually obligated to deliver grain even if you do not produce enough bushels to fulfill the contract. As a result, corn will have to be purchased to fulfill the contract at prices potentially above the contract price. Another disadvantage of a cash forward contract is that you will not benefit from higher prices as you have already “locked-in” a price.

A put option allows you to place a floor on the price you will receive while maintaining the ability to benefit from higher prices. If prices increase, the option does not have any value and you sell your crop at the higher market price. If prices decrease below the price floor, the option has value and any loss in the cash market is offset by the value of the put option. The cost of purchasing a put option is called the premium and must be paid when purchasing the put option.

If you expect December futures prices to increase above \$5.15 from now to harvest, then the highest cash price is obtained by doing nothing (Figure 1). However, Figure 1 shows that if the December corn futures price decreases below \$5.15, then the cash forward contract will provide a greater price than the ‘do-nothing’ strategy. When the December corn futures price decreases below \$4.04, a put option provides a greater price than the ‘do-nothing’ strategy (Figure 1). Figure 1 also illustrates that the market is currently providing pricing opportunities for managers to market their 2008 corn crop and provide a positive return over variable costs. For this example, the do-nothing strategy will not cover variable costs when the futures price is less than \$2.65bu.

What are my Yield Risk Management Alternatives?

A reason many producers are hesitant to use pre-harvest price risk management products is uncertainty about yields and the risk of not producing enough to fulfill cash forward contracts. However, managers can use APH or CRC insurance products to protect against this yield risk.

APH insurance protects against reduced yields with the risk protection based on your farm’s yield history. This insurance can be purchased at coverage levels ranging from 50%, 55%, 60%, 65%, 70% or 75% of your farm’s actual production history. An indemnity is paid whenever the amount produced is less than the amount insured and this production loss is valued at the insured price. For 2008, the insured price for corn is \$4.75/bu. Management Marketing Memo 472 explains APH insurance in greater detail.

Table 1 describes the indemnity received per acre after paying the APH insurance premium for non-irrigated corn with an actual production history yield of 120 bu/acre. For this example, APH insurance purchased at the 65% coverage level will pay an indemnity whenever the actual yield is less than 78 bu/acre (Table 1). The production loss is valued at the APH insured price of \$4.75 (Table 1). The premium for APH insurance, after the government subsidy, is \$16.42/acre. As shown in Table 1, APH insurance provides assistance during years with severe yield loss.

Table 1. APH Indemnities Net of Premium (\$/acre) for a Non-Irrigated Corn Farm with a 120 bu/acre APH Yield.

Actual Yield	Guaranteed Bushels	Production Loss	APH Insured Price	APH Premium 65% Coverage Level	APH Indemnity Net of Premium
30	78	48	\$4.75	\$16.42	\$211.58
40	78	38	\$4.75	\$16.42	\$164.08
50	78	28	\$4.75	\$16.42	\$116.58
60	78	18	\$4.75	\$16.42	\$69.08
70	78	8	\$4.75	\$16.42	\$21.58
80	78	0	\$4.75	\$16.42	-\$16.42
90	78	0	\$4.75	\$16.42	-\$16.42
100	78	0	\$4.75	\$16.42	-\$16.42
110	78	0	\$4.75	\$16.42	-\$16.42
120	78	0	\$4.75	\$16.42	-\$16.42
130	78	0	\$4.75	\$16.42	-\$16.42

^{1/} APH insurance at the 65% Coverage Level and 100% Price Election.

In contrast, CRC insurance guarantees a specific revenue level and provides protection against low prices and/or low yields. CRC insurance can be purchased at coverage levels ranging from 50%, 55%, 60%, 65%, 70% or 75% of your farm's actual production history. An indemnity is paid whenever the actual harvest revenue, based on harvest-time prices and the actual yield, is less than the guaranteed revenue. The base price used in guaranteeing your revenue for 2008 is \$4.78/bu. For example, the guaranteed revenue for a farm with an APH yield of 120 bu/acre at the 65% coverage level is \$372.84/acre. Management Marketing Memo 473 explains CRC insurance for corn in greater detail.

Table 2 describes the per acre indemnities net of the premium for CRC insurance at the 65% coverage level for non-irrigated corn. Since CRC provides protection against low prices and low yields, indemnities may be paid even with high prices or good yields. For the example described in Table 2, indemnities will be paid for a production loss whenever yields are less than 70 bu/acre regardless of the harvest-time price. Similarly, low harvest-time prices may trigger an indemnity regardless of a production loss (Table 2). In addition, the net indemnities will be larger whenever there is both a production loss and low prices. As illustrated in Table 2, CRC provides revenue protection for both yield and price risk.

Table 2. CRC Indemnities Net of Premium (\$/acre) for a Non-Irrigated Corn Farm with a 120 bu/acre APH Yield at the 65% Coverage Level ^{1/}.

Yield	Harvest Price								
	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50
50	\$176.28	\$163.78	\$151.28	\$138.78	\$126.28	\$113.78	\$118.44	\$125.44	\$132.44
60	\$141.28	\$126.28	\$111.28	\$96.28	\$81.28	\$66.28	\$68.44	\$72.94	\$77.44
70	\$106.28	\$88.78	\$71.28	\$53.78	\$36.28	\$18.78	\$18.44	\$20.44	\$22.44
80	\$71.28	\$51.28	\$31.28	\$11.28	(\$8.72)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)
90	\$36.28	\$13.78	(\$8.72)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)
100	\$1.28	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)
110	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)
120	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)	(\$21.56)

^{1/}The base price is \$4.78/bu. and the CRC insurance premium is \$21.56

There are many tools available to help you take advantage of the current market and to limit your risk of not covering variable costs. It is important to remember that the best pricing opportunities historically occur prior to planting. In addition, the deadline to sign-up for insurance is February 28, 2008.

Where do I go for More Information?

Clemson University Extension has developed educational materials to help you understand how to use price risk management and crop insurance products to manage risk in your farm business. Your local extension office will be able to help you understand your alternatives and to help you make an informed decision for your farm business.