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G.A. "Art" Barnaby Jr.

Forward Contract versus Puts, Which is Better?[1]

Art,

I have attended your last 2 seminars in my county which I found very informative. I'm thinking about opening an online futures account for hedging purposes. I'm a little confused though and thought maybe you could help.

I remember when you reviewed my decisions in the case study at the last seminar you commented on how you would have bought puts instead of forward pricing the crop like I did to lock in price. When I look at the options pricing I'm wondering what the risk of losing that money might be.

For instance Dec corn is around 3.15. If I buy a 3.15 put at 6 and the price goes down, will that put necessarily go up enough to protect my crop price and lock in that 3.15 floor? Am I going to have to sell it ahead of time to get that time value out of it?

Another scenario is that if the price ends up at those levels in Dec and the put expires practically worthless. Then I have not sold my crop ahead, plus I have the cost of the put on top of that. I guess I'm just a little confused as to what my best strategy may be. With Dec prices at the levels they are currently I'd like to lock in some crop.

Thanks for any help
Corn Grower

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Dear Grower,

Most options like insurance contracts expire worthless. The reason growers buy insurance is to avoid the potential loss. Growers buy crop insurance to avoid the financial loss caused by a crop failure due to hail, drought, excess moisture, etc. In most cases growers will generate yields that are large enough not to generate any crop insurance payments and the insurance contract expires worthless and growers lose their insurance premium.

The same is true with puts. Growers pay premiums for puts to avoid financial losses caused by falling crop prices. If prices do not fall or only fall a small amount then the put will expire worthless (nearly worthless) and growers would then sell the crop for cash but they lose the premium. The option will always turn out to be second best. If prices increase then growers should have not bought the price insurance because the price did not fall and they lose their premium. The same is true for crop insurance. If growers produce a normal crop and their crop does not fail, they receive no payment and they lose their crop insurance premium.

Selling off the option before harvest to collect some of the time value normally does not work for growers. While this is often recommended by marketing "experts", there have been few producers that have made this strategy work. If growers want to reduce premium costs a better method is to sell the crop (forward contract, sell futures, or hedge to arrive) then buy an at-the-money call and sell\write an out of the money call. Producers with limited option experience probably will not want to use a call spread.

I don't remember exactly what you did with the case problem, but most likely you had sold 100% of the crop with no options. That works fine with normal yields and falling prices. However, it does not work so well with **a short crop and higher prices**.

There are 3 major variables that will affect the result for forward pricing grain that includes; (1.) change in market prices: (2.) changes in basis; and (3.) crop yields. Table 1 shows the net price results caused by changes in two of the three variables. The results in table 1 assume growers produce the yield to fill forward contracts or to sell at harvest to offset futures and option positions.

The market on April 5, 2004 for December corn closed at about $3.35. There is no $3.35 put so the analysis assumes $3.30 at-the-money put options for 32 cents on April 5, 2004. The analysis assumes a normal basis (basis varies by location) of 10 cents under and a 1 cent per bushel commission costs. The forward contract assumes the bid uses a normal basis and a 1 cent commission cost paid by the elevator (contractor). In most cases this far from harvest it is common for elevators and other contractors to make forward contract bids with a "weak" basis. The "weak" basis is the reason many growers have used the hedge to arrive (open basis) contract.

If there is no change in the market price from current levels at harvest time and a normal basis then the forward contract, futures and cash prices are about the same. In the example the cash price with a normal basis is $3.24. Futures and the forward contract were lower by the amount paid for commission (growers don't pay commission for a forward contract but it is assumed the commission cost that would be paid by the elevator are built into the forward contract bid). If the basis were to become stronger then cash sales would be the best, $3.35. If the basis weakens then the forward contract worked the best because both price and basis are set. For both scenarios the puts would provide the worst outcome because of premium lost, commission costs and the basis is at risk.

If market prices increase to $4.00 at harvest time then selling futures or forward contracting would provide the lowest price. Assuming no change in basis, futures would net $3.24 and forward contracts would pay $3.24 in the example. The cash sale would be best, paying $3.90 in the example with no change in basis. The put paid more than the futures or forward contract ($3.57) but less than cash sales. However, the put avoided the possibility that prices would fall and if the crop failed the maximum loss is the put premium. Growers with a failed crop would have margin losses or cancellation penalties and no bushels to sell at the higher prices.

If market prices decrease to $2.50 at harvest time then selling futures or forward contracting would provide the best price. Assuming no change in basis, futures would net $3.24 and forward contracts would pay $3.24 in the example. The cash sale would only pay $2.40 in the example with no change in basis. This is the scenario of why growers make preharvest sales. The put paid ($2.87) more than cash sales but less than futures or forward contract sales. However, the put avoided the possibility that prices would increase and the futures or forward contract sale prices would not have increased.

Puts will always be second best. If market prices increase then growers should have held the crop for cash sales and saved the premium. If market prices fall then growers should have forward contracted or sold futures and saved the premium. The problem is that producers do not know their yields or market price direction at this time of year. Therefore, growers that are going to forward price their crop may want to sell about 1/3 of the crop with forward contracts, 1/3 of the crop with futures or hedge to arrive, and the final 1/3 with puts. The last 1/3 of the crop in most cases is not insured and the share of the crop most likely to be lost. Therefore pricing the most risky bushels with an option limits the **marketing cost** exposure to the option premium. Growers still have the loss of production expenses when a crop fails.

Options are "too expensive"? That depends on if one is the seller or the buyer. If growers think the option seller has a better deal, then this is the only insurance market where growers can be the "insurance company" and guarantee their neighbors a minimum price and collect that outrageous, price gouging Chicago set premium! However, if prices fall growers who have sold the put option will lose the premium and then they start making margin calls until they get out of the position.

All of these alternatives assumed production. The worst outcome for growers who forward price their crop is a yield equal to the crop insurance guaranteed yield and increasing prices. However with new crop soybeans at $7.82 and corn at $3.35 there is clearly a lot of downside price risk. Kansas City and Minneapolis wheat prices are also higher than recent crops.

Growers may also want to start thinking about 2005 crop sales. The December 2005 corn contract hit $2.82 today and that is above the long run average price. The November 2005 soybean contract hit $6.49.

ART

Table 1. Net Price Results from Selected Marketing Tools for Corn[1]

Current Market Offers for New Crop Corn

	Futures	Put	Forward Contract	Harvest Cash Sale
December CBOT Corn Futures (4/05/04)	3.35			
Basis	-0.10			
Put Strike\ Guarantee		3.30		
Put Premium		0.32		
Commissions	-0.01	-0.01		
Minimum Expected Net	3.24	2.87		
Forward Contract			3.24	

No Change in Market Prices for Corn

	Futures	Put	Forward Contract	Harvest Cash Sale
Dec Futures at Harvest	3.35			
No change in Basis	-0.10			
Net Price	3.24	2.92	3.24	3.25
Dec Futures at Harvest	3.35			
Strong Basis	0.00			
Net Price	3.34	3.02	3.24	3.35
Dec Futures at Harvest	3.35			
Weak Basis	-0.20			
Net Price	3.14	2.82	3.24	3.15

Increase in Market Prices for Corn

	Futures	Put	Forward Contract	Harvest Cash Sale
Dec Futures at Harvest	4.00			
No change in Basis	-0.10			
Net Price	3.24	3.57	3.24	3.90
Dec Futures at Harvest	4.00			
Strong Basis	0.00			
Net Price	3.34	3.67	3.24	4.00
Dec Futures at Harvest	4.00			
Weak Basis	-0.20			
Net Price	3.14	3.47	3.24	3.80

Decrease in Market Prices for Corn

	Futures	Put	Forward Contract	Harvest Cash Sale
Dec Futures at Harvest	2.50			
No change in Basis	-0.10			
Net Price	3.24	2.87	3.24	2.40
Dec Futures at Harvest	2.50			
Strong Basis	0.00			
Net Price	3.34	2.97	3.24	2.50
Dec Futures at Harvest	2.50			
Weak Basis	-0.20			
Net Price	3.14	2.77	3.24	2.30

[1]Net prices assume normal production. If there are margin losses the net price assumes there would be production to sell at the higher cash prices and offset the margin or put premium losses. If the crop were to fail, then some these net prices would be negative.