

During periods of high prices, farmers are often interested in forward pricing crops. However, many are concerned about using forward cash contracts, hedge-to-arrive contracts, or hedging for fear that prices may go higher. Buying put options would relieve these worries. But premiums to buy puts rise sharply as prices become more volatile.

Building a fence by using options is an alternative you might want to consider. By building a fence around your price, you set a minimum price under which the price cannot fall and a maximum price over which the price cannot rise. To build a fence you *buy* a *put option* with a strike price just below the current future price and *sell (write)* a *call option* with a relatively high strike price. The put option establishes a *floor price* for your grain. The call option establishes a *ceiling price*. For information on how to use options refer to:

- The cost you pay for the fence is the put option premium plus option trading costs. There may also be interest on margin money for the call option if price rises. However a portion of these costs are offset by the premium you receive from the call option.

Assume November soybean futures are \$10 per bu. because of severely dry conditions in the corn belt. The strike prices and option premiums on that day were:

A \$10 strike price put costs 88 cents. Selling a \$10.50 strike price call costs 78 cents. The net premium cost is 10 cents/bu. ($\$.88 - .78 = \$.10$).

The minimum selling price from the fence is the strike price of the put option, less the net premium cost, less the options trading costs, less the basis.

Assume the expected basis is 50 cents and the trading cost is 5 cents.

Put strike price	\$10.00
Put premium	- .88
Call premium	+ .78
Trading cost	- .05
Expected basis	- <u>.50</u>
Net	\$ 9.35

In the example, the minimum price from the fence is the \$10 put strike price, less 88 cents put premium, plus 78 cents call premium, less 5 cents for trading costs, less a 50 cents basis, or \$9.35.

Example.

Assume November soybean prices drop to \$7 at harvest and the actual basis is 45 cents.

Price decline—\$7.00 Nov. futures

Put strike price	\$	10.00
Nov. futures	-	<u>7.00</u>
Gain	\$	3.00

Cash sale	\$	6.55
Gain	+	3.00
Call premium	+	.78
Put premium	-	.88
Trading cost	-	<u>.05</u>
Net	\$	9.40

You exercise the put option which places you in the futures market at \$10. You buy back that position at \$7 for a \$3 futures gain. At the same time you sell your cash beans for \$6.55 (actual basis is 45 cents under November futures). Add the \$3 futures gain, and the 78 cent call premium to the \$6.55 cash price. Then subtract the 88 cent put premium and the 5 cent trading cost. The net price is \$9.40. The net price is 5 cents higher than expected price (\$9.35) because the basis is 5 cents smaller than expected.

The results would be about the same if you sold your put option to someone else rather than exercising it. The call option will expire worthless.

Maximum selling price

The maximum selling price from the fence is the strike price of the call, less the put premium, plus the call premium, less option trading costs, less the basis.

Example.

Maximum Selling Price

Call Strike Price	\$	10.50
Put Premium	-	.88
Call Premium	+	.78
Trading Cost	-	.05
Basis	-	<u>.50</u>
Net	\$	9.85

Example.

Assume at harvest November beans are \$12.50. Cash beans rise to \$11.90. The actual basis is 60 cents under November.

Price rise - \$12.50 November futures

Call strike price	\$	10.50
Nov. futures	-	<u>12.50</u>
Loss	\$	- 2.00

Cash sale	\$	11.90
Loss	-	2.00
Put premium	-	.88
Call premium	+	.78
Trading cost	-	<u>.05</u>
Net	\$	9.75

The call option for \$10.50, which you sold (wrote), is now worth \$2 to the call option buyer. So, the option may be exercised by the call option buyer. If so, you have to sell the buyer November futures for \$10.50 and buy back the position for \$12.50 for a \$2 loss. The results would be about the same if you bought the call option back for a loss.

You sell your cash beans for \$11.90. After making the adjustments the net price is \$9.75. That's 10 cents less than the maximum expected selling price because basis is 10 cents wider than projected. The put option expires worthless.

Below are minimum and maximum selling prices at various put and call strike prices.

Options fence at different strike prices

Minimum selling price

	<u>Alt 1</u>	<u>Alt 2</u>	<u>Alt 3</u>
Put strike price	\$10.00	\$ 9.75	\$10.00
Put premium	- .88	- .77	- .88
Call premium	+ .89	+ .89	+ .67
Trading Cost	- .05	- .05	- .05
Basis	<u>- .50</u>	<u>- .50</u>	<u>- .50</u>
Net	\$ 9.46	\$ 9.32	\$ 9.24

Maximum selling price

Call strike price	\$10.25	\$ 10.25	\$11.00
Put premium	- .88	- .77	- .88
Call premium	+ .89	+ .89	+ .67
Trading Cost	- .05	- .05	- .05
Basis	- .50	- .50	- .50
Net	\$ 9.71	\$ 9.82	\$ 10.24

Remember, if you're writing call options and the market goes up, you have margin calls. The increased value of the crop offsets the margin calls. However, you need to pay the margin calls before you receive cash from the sale of the grain. So you need to make arrangements with your lender to cover margin calls.
