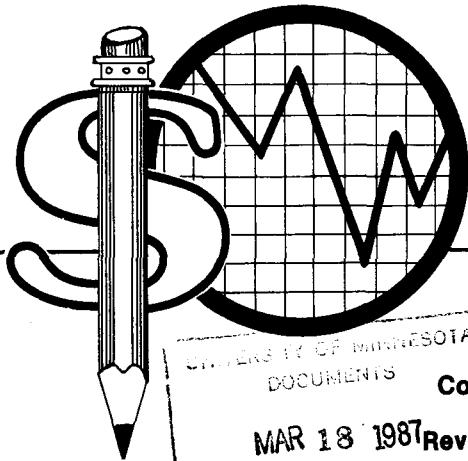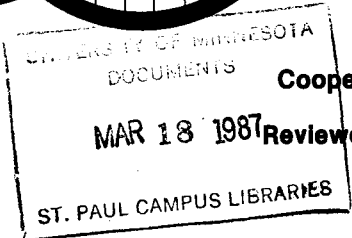# The Minimum Price Contract – A New Marketing Alternative

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A new forward pricing alternative available to help farmers manage price risk is the minimum pricing contract (min. p.c.). This cash contract is available to farmers through their local elevator and has been made possible with the introduction of trading in agricultural commodity options. This fact sheet will help the grain farmer understand how this new marketing alternative can be used and its relationship to the agricultural options market that lies behind the contract. Any farmer who has cash grain to sell should be aware of this new marketing alternative.

Farmers have traditionally had the ability to fix the price of crops ahead of delivery, and perhaps even ahead of production by the use of cash forward contracts or hedging in the futures market. Many farmers believe there is a major disadvantage in these marketing alternatives however. They are unable to benefit from higher prices that might occur after they enter into the contract while they are still obligated to deliver the commodity at the agreed upon price or pay a penalty. As a result of this feature, and the risk of production falling short of contract commitments, farmers seldom forward price all of their production at one time, even if prices are at a profitable level. The min. p.c. avoids this disadvantage.

Historically, farmers have been reluctant users of the futures market because of the possibility of additional costs associated with margin calls that may occur with adverse price movements and a general lack of understanding of the futures market and how it can be used by a farmer. As a result of this reluctance or lack of understanding, marketing firms have developed cash contracts that are closely related to the futures market. The marketing firm uses the cash contract to buy grain from the farmer and often uses the futures market to hedge the cash contract. This approach provides the farmer most of the benefits of the futures market without actually using futures.

This same reluctance by farmers is also apparent in the use of the agricultural options market. In addition, options markets are new and many people have a wait-and-see attitude toward options. As a result of this attitude and the competitiveness in the grain business, many buyers are offering sellers min. p.c.s based on the options market. The merchant makes all the necessary options market transactions and passes the

N.C.R. Extension Publication No. 217

Producer Marketing Management - Fact Sheet #9
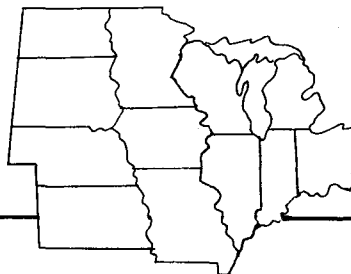
costs and benefits on to the holder of the cash contract. The options can be used as a substitute and/or supplement to the futures market in the hedging role.

The agricultural options market was made possible when Congress passed the Futures Trading Act of 1982, which authorized a pilot program for trading options on agricultural futures contracts. This pilot program began in the fall of 1984 and will continue for three years. Options trading in agricultural commodities are currently limited to futures contracts on wheat, corn, soybeans, cotton, live cattle and live hogs. If the pilot program is deemed successful by the Commodity Futures Trading Commission, and there is every reason to believe it will be, other contracts will probably be added.

In order to understand the min. p.c. and the examples that follow in this fact sheet, it is important to understand some key definitions of the options market.

1. Put option—An option which gives the buyer the right, but not the obligation, to sell (go short) the underlying futures contract at the strike or exercise price on or before the expiration date.
2. Call option—An option which gives the buyer the right, but not the obligation, to purchase (go long) the underlying futures contract at the strike or exercise price on or before the expiration date.
3. Premium—The cost an option buyer pays the

option seller for an option. This premium is determined competitively in the trading pit just as futures prices are determined.
4. Strike or Exercise Price—The price at which the option can be exercised. Exercise prices are established at regular intervals above and below the current futures price.
5. In-the-Money—A put (call) is in-the-money if its strike price is above (below) the current price of the underlying futures contract.
6. Out-of-the-Money—A put (call) is out-of-the-money if its strike price is below (above) the current price of the underlying futures contract.
7. At-the-Money—When the strike price of either the put or call is equal to the current market price of the underlying futures contract.
8. Expiration date—The date after which the option may no longer be exercised by the buyer. This date is set by exchange rules and is always about three weeks prior to the first delivery date of the underlying futures contract.

The Minimum Pricing Contract

The min. p.c. is the only cash marketing alternative available that will allow a seller of a commodity to insure against lower prices and still take advantage of higher prices if they occur.

Because of this advantage, sellers of agricultural commodities and the financial lending institutions are expressing interest in the min. p.c. as a new and innovative marketing alternative.

There are many variations in the min. p.c.'s that marketing firms offer farmers. They may use puts or calls to hedge the farmers contract depending on whether they are long or short cash grain.

The min. p.c. is a cash contract developed by marketing firms and based on the agricultural options market much like the cash forward contract is based upon and made possible by the commodity futures market.

The following examples will illustrate a few simple approaches to how the min. p.c.'s are calculated, how they are related to the options market and what the elevator must do in the options market to make use of the contract. In all the examples, the contracts are terminated on the option expiration date for simplicity. It should be understood, however, that the minimum price contract can be terminated anytime prior to expiration date at the discretion of the producers.

1. Minimum price contract for future delivery of wheat using a put.
   Assumptions:
   June 1
   – September $2.80 strike price (Assume at-the-money in this example.)
   – September wheat futures $2.80

- Terminal basis for 14% Hard Red Spring (HRS)   +.30
- Transportation and handling   −.50
- Local basis (terminal basis less transport and handling)   −.20
- September $2.80 put premium   −.10*
- Interest on premium   .00*
- Options transaction cost   .02*
- Expiration date of contract August 15.

Calculation of minimum price contract

September futures price	$2.80
Less local basis	−.20
Todays forward contract price	$2.60
Less option premium	−.10
Less interest on premium	−.00
Less option transaction cost	−.02
Minimum price	$2.48

*These are costs incurred by the elevator but paid by the farmer. The premium is the quoted price paid for the option. The interest on the premium is a relatively minor cost in most cases. In these examples it is assumed to be so small it is excluded from the example. In examples where a deep in-the-money option is used the interest on the premium could amount to several cents. The commission cost is assumed to be .02 in these examples. In reality they will vary between brokerage firms.

To eliminate the risk of change in the basis, the elevator will most likely fix the basis in the contract as well as the minimum price.

The basis fixed portion of the contract is calculated as follows.

September $2.80 strike price	$2.80
Less minimum price	2.48
Basis fixed @ the September	−.32

The contract the elevator offers the farmer will be for a minimum price of $2.48 or 32 cents under the September, whichever is higher. The contract will specify that the buyer pays the minimum price upon delivery of the grain. It specifies how premiums and discounts will be handled and when the contract expires. From this point on all the farmer has to do is watch the September futures price. He can execute the basis fixed portion of the contract anytime by fixing the futures price between the date the contract is signed and its expiration date. The contract will specify that if the seller does not execute the basis fixed portion of the contract before the expiration date, the seller will accept the minimum price as final and the contract is terminated. If futures price increases above the September $2.80 strike price with the basis fixed at .32 under the September, the farmer will receive all of the futures price increase. If futures prices decline below the September $2.80 strike price the farmer still receives the minimum price. The following examples illustrate what would happen in two extreme situations.

a. If futures price declines to $1.80 by August 15.

September future	$1.80
Local basis (including option premium and costs)	−.32
Plus put option premium (Aug. 15)	+1.00
Minimum price	$2.48

The producer still receives the $2.48 price agreed upon on June 1. Since the futures price declined, the put option premium increased in value (got deeper in-the-money) from 10 cents to $1.00. At the time the farmer delivers the grain, the elevator will offset or exercise the September $2.80 put. Most likely it will offset it by selling the option for its intrinsic value of $1.00. It is this liquidation value of $1.00 that allows the elevator to pay the farmer the minimum price of $2.48 even though current cash prices are sharply lower.

To assure that there is no basis risk, the elevator would most likely have forward priced the wheat on June 1 on a terminal basis contract at 30 over the September. A farmer selling cash grain on August 15 would receive only $1.60 ($1.80 − .20 = $1.60).

b. If futures price increases to $3.80 by August 15.

September futures	$3.80
Local basis (including option premium and costs)	−.32
Option premium (Aug. 15)	−.00
Producer price	$3.48

The producer received $3.48 for his wheat instead

of the minimum price of $2.48. Why? The underlying September futures contract increased $1.00 to $3.80 per bushel and the basis was fixed at − .32 the September ($3.80 − .32 = $3.48). As the futures price increased, the value of the September $2.80 put became less and less. Thus, the right to sell (go short) wheat at $2.80 when the current price is $3.80 is of no value, so the elevator would let it expire worthless. By having the wheat forward priced at the terminal for .30 over, the elevator protects its margin and is still able to pass on the current higher price on to the farmer. Therefore, the farmer received $3.48 rather than $2.48. A farmer selling cash grain on August 15 in this case would receive $3.60 per bushel ($3.80 − .20 = $3.60).

One advantage of the min. p.c. is that the elevator can offer a range of min. p.c.'s depending on how much price protection the farmer wants simply by using different strike prices.

Assume on March 7 December put corn strike prices and premiums are as follows:

Strike price	Put premium
$2.10	.14
2.20	.19
2.30	.26
2.40	.34

What minimum price contracts could an elevator offer a farmer for harvest delivery?

Assumptions:
- The elevators estimates its harvest basis at 35¢ under the December futures.

- Interest on option premium @ 12 percent for 9 months.
- Option transaction cost @ 1¢.

Minimum Price Contracts for Future Delivery

Use the put option
Delivery period: __harvest__

	$2.10	$2.20	$2.30	$2.40
1. Strike price (December) month				
2. Option premium	− .14	− .19	− .26	− .34
3. Interest	− .01	− .02	− .02	− .03
4. Option transaction cost	− .01	− .01	− .01	− .01
5. Local basis	− .35	− .35	− .35	− .35
6. Minimum price contract	1.59	1.63	1.66	1.67
7. Basis fixed @ (1-6)	− .51	− .57	− .64	− .73

In this illustration, the elevator could offer the farmer minimum price contracts ranging from $1.59 or .51 under the December, whichever is higher, to $1.67 or .73 under the December, whichever is higher.

Minimum Price Contract for Wheat Using the Call Option

A common way the min. p.c.'s are being used is for the farmer to deliver the grain, sell it at a minimum price but retain the right to benefit from any increase that may occur in the futures price. In this example the elevator will sell the cash grain at the current market price and basis and hedge its short cash grain position by buying a call. The elevator will be protected from basis risk by fixing the basis in the min. p.c. with the farmer. The following examples illustrate how the min. p.c. works using a call option.

August 1
Assumptions:

- March $2.80 strike price
- September futures $2.60
- March futures 2.82
- Terminal basis for 14% HRS + .30
- Transportation and hauling − .50
- Local basis (terminal basis less transportation and handling) − .20
- March $2.80 call premium .10
- Interest on premium @ 12% .01
- Options transaction cost .02
- Expiration date of contract February 12

Calculation of minimum price contract

September futures	$2.60
Less local basis	− .20
Local cash price	$2.40

Less March $2.80
call premium   − .10
Less interest   − .01
Less options
transactions cost   − .02
Minimum price $2.27

The basis fixed portion of
the contract is:

March strike price $2.80
Less minimum
price   2.27
Basis fixed @   − .53

In this example the contract will be for a minimum price of $2.27 or .53 under the March, whichever is higher. The farmer is paid the minimum price upon delivery of the grain. As in the previous example, specifics of premiums, discounts and date of expiration will all be contained in the contract.

From this point until the expiration date of the contract or the date the farmer decides to price the basis fixed portion of the contract, all the farmer has to do is watch the March futures. He knows he can price out the contract at .53 under the March anytime before the expiration date. If the futures price increases above the strike price, he will benefit. If futures prices stay the same or decline below the strike price he will be no worse off.

The following examples illustrate what would happen in two extreme situations.

a. If March futures price declines to $2.30 by February 1.
   March future $2.30
   Basis (including option
   premium and costs)   − .53
                          1.77

March $2.80 call
premium   .00
Minimum price $2.27

In this example, the futures declined so the producer received nothing in addition to the minimum price of $2.27 which was greater than .53 under the March. The contract expired without the producer taking any action. The elevator does nothing because it had already sold the grain back in August and the March future had declined in value leaving the $2.80 March call out of the money (worthless).

A farmer selling cash grain on February 1 would have received $2.10 ($2.30 − .20 = $2.10).

b. If futures price increases to $3.50 by February 1.
   March futures $3.50
   Less basis   − .53
   (including option
   premium and costs)
   Minimum price $2.97

If the producer prices the basis fixed portion of the contract on February 1 he will receive 70 cents ($3.50 − $2.80 = $.70) in addition to the minimum price received when the grain was delivered to the elevator on August 1.

In this example, when the farmer decides to price the basis fixed portion of the contract, the elevator will most likely sell the March $2.80 call for about 70 cents because it is 70 cents in-the-money ($3.50 − $2.80 = $.70). This 70 cents gain in the option premium is passed back to the farmer.

A farmer selling cash grain on February 1 in this case would have received $3.30 ($3.50 − .20 = $3.30).

This example is equivalent to the farmer selling cash grain and replacing it with a futures contract. The difference is that the risk is limited to the amount of the premium for the call option while with the futures contract there is the risk of lower prices and margin calls. This is a strategy to consider for the farmer who sells cash grain but is optimistic about futures price increases and there are no forward pricing alternatives that provide a better return. Remember, it is a speculative position, but the risk is limited to the amount of premium. Elevators who offer this alternative are simply providing a brokerage service to their customers that they could otherwise do for themselves by dealing directly with a brokerage firm.

Example of a Minimum Price Contract

The following is an example of a minimum price contract. It sets forth in simple terms the obligations of the buyer and seller and the terms of the contract. Most grain firms have their own contracts. They may not look exactly like this example but they will include all the pertinent contract terms and obligations.

Minimum Price-Basis Fixed Purchase Contract

Buyer_____ of _____
(address)

Seller_____ of _____
(address)

    Buyer agrees to purchase from seller _____ bushels of _____ to grade _____ or better.

    Seller will be subject to discounts in effect at time of delivery for lower grades delivered.

    Seller agrees to deliver the grain to the buyers elevator between the dates of _____, 19____ and _____, 19____.

    Market discounts for late delivery will prevail.

    The final purchase paid to the seller will be _____ or
        over
_____   the _____ market _____ month
        under
_____ year futures market whichever is greater.

    Buyer will pay seller the minimum price upon completion of delivery of grain to buyer.

    Seller of the grain can execute the basis fixed portion of this contract any time after grain has been delivered until final date of pricing.

Final date for executing the basis fixed portion of contract is _____, 19____.

    In the event seller does not execute the basis fixed portion of the contract by the final day of pricing, the buyer will assume the seller accepts the price of $_____ per bushel as final, and the contract is terminated.

This is a cash grain contract-delivery required.

Signed this _____ day of _____, 19____

Seller _____   Buyer _____

                       By _____

Advantages of min. p.c.

1. Never receive less than minimum price stated in contract.
2. Will always receive more than the cash market in a falling market.
3. Will always receive more than the hedger in a rising market.
4. Can take advantage of higher futures prices if they occur.
5. Can contract any quantity. (Some elevators may have a minimum.)
6. Can use with immediate or future delivery.
7. The basis portion of the contract can be terminated before expiration date at the discretion of the seller.

Disadvantages of min. p.c.

1. Premium may be expensive.
2. Can never receive as much as the cash marketer in a rising market.
3. Can never receive as much as the hedger in a falling market.
4. In a stable market buying options will be more costly than either hedging or holding cash grain.
5. Must rely on integrity of seller to perform on the contract.

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