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Livestock Risk Protection Insurance Policies: Overview and Comparison to Using Put Options

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Volatile prices over the past two years have left many livestock producers wondering how to best manage the downside price risk they face. As of October 1, 2004, USDA has introduced a new price risk management tool available to hog producers, feedlot operators, back grounders, and cow-calf operators: a livestock revenue insurance policy called Livestock Risk Protection (LRP). Originally piloted in Iowa over the past couple of years, the program operates on a simple premise: you insure against downward movement in hog or cattle prices that might occur after you have committed to growing them. For those familiar with futures and options lingo, this is a lot like a put option. While the general concept behind LRP is similar to put options, operational details are different. The purpose of this article is to outline the general concepts of LRP, highlight differences between LRP and options, and provide an example that compares LRP to put options.

Livestock Risk Protection

Livestock Risk Protection policies are sold by licensed insurance agents to livestock owners to cover downward price movements for livestock that will be sold by the owner when the growing phase is complete. A contract, which covers the total expected weight of the finished livestock (live weight for cattle and lean weight for hogs), can be purchased any time after livestock are obtained. There are paperwork requirements when first signing up, e.g., establishing that you are actually an owner of the livestock and documenting percent of livestock you own. Premiums, which include all commissions, are paid in full up front. Also, if you take out an insurance policy, you are not allowed to take offsetting positions in the futures market.

The producer has several options when it comes to buying the insurance contract, both with respect to percent of market price insured and with respect to the length of the contract. With regard to length of time, fed cattle and feeder cattle policies can last 13, 17, 21, 26, 30, 34, 39, 43, 47 or 52 weeks, while hog policies can last 13, 17, 21, or 26 weeks. There should be enough flexibility with these lengths to have the insurance policy expire within 30 days of actual sales date.

With regard to amount of coverage, producers can choose coverage prices that typically range from 70% to 95% of the prevailing market price on the day the insurance policy is written. That is, if the prevailing market price on the last day of the insurance policy falls below coverage price established when the policy was written, then the livestock owner gets an indemnity payment that makes up the difference between the prevailing market price and the coverage price. Suppose the prevailing market price on the day the insurance policy was written was $100 and the producer chose a coverage price of $90. If on the last day of the insurance contract the prevailing market price was $75, the owner receives an indemnity payment of $15 ($90 coverage price - $75 prevailing market price).

The prevailing price used for fed cattle is the 5-area weighted weekly weighted average 35 to 65 % choice steer price (live weight). For feeder cattle and hog policies, the prevailing price used is the CME cash price index for feeder cattle and lean hogs, which are used by the CME to settle unclosed futures positions at the time of expiration (live cattle still allows delivery of cattle, while feeder cattle and lean hogs switched to cash settlement several years ago). Hence, local basis for livestock insurance contracts may be a little different than most producers are used to seeing. Because the insurance contracts rely upon CME data, all policies are written after the CME closes in the early afternoon and before it reopens the following workday.

Put Options

Put options are sold by licensed commodity brokers to livestock owners or anyone with speculative interest in livestock markets. Put options give the owner the right to sell a futures contract with a specified maturity date for a given price (known as the strike price). Because put options revolve around futures contracts, the amount of livestock product covered by a single option is fixed to 40,000 pounds of live cattle (about 31 head averaging 1300 pounds), 50,000 pounds of feeder cattle (about 62 800-pounders) and 40,000 pounds of lean hog (about 204 265-pounders). A contract can be purchased at any time regardless of when cattle are placed on feed. There are paperwork requirements as well, e.g., to establish a brokerage account. Premiums and a commission must be paid up front and, if one needs to exercise the option (or resell it for a profit), another commission is incurred at that time.

Put options also allow flexibility when it comes to the percent of market price ‘insured’ and with respect to the length of the contract. Options are written on all futures contracts traded on the CME starting approximately 6 months prior to expiration, which should also allow most cash sales to occur within about 30 days of option expiration dates.

With regard to amount of coverage (or, in options parlance, the strike price), producers can choose put options from an even wider range, including at prices at or above the prevailing futures price. Unlike the insurance policies, put options can be exercised at any point, not just on one agreed upon date. Also, the relevant local basis is the difference between local cash price and CME futures price.

LRP and Put Options – Pros and Cons

One advantage of options is that they provide more flexibility with regard to the timing of purchase and sale, i.e., the dates during which coverage begins and ends. Insurance contracts are quite inflexible, particularly with regard to the date which indemnities are determined. In a sense, a put option allows the producer to pick the day when the indemnity will be determined. Such freedom can be a mixed blessing, however, and make the put option a more speculative instrument than a hedging instrument.

Another advantage of put options is that, in the event of an adverse price movement, the proceeds of selling the put are paid immediately. For insurance, indemnities are paid merely within 60 days of filing the necessary paperwork. So, in reality, in low price scenarios, those covered by insurance may have to wait up to two months longer to receive their benefits than would put option holders.

One clear advantage of the insurance policy is that it covers exactly the number of animals you own, ranging from a single animal up to 1,000 head of feeder cattle, 2,000 head of fed cattle or 10,000 head of hogs. Put options have fixed contract sizes, and your particular marketing level may fall between common contract sizes. For example, if you plan to market 300 hogs and want to use put options, you can either cover about 200 hogs with one put option contract and leave 100 unprotected or you can cover 400 hogs with two put options and, in a sense, be speculating about the performance of the lean hog futures price with the extra 100 hogs' worth of option contract you own. However, if you are a big operator, you may exceed LRP's coverage levels, leaving put options to be the method that allows for adequate coverage.

Another advantage of the insurance contract with regard to feeder cattle is that separate contracts exist by the sex (heifers and steers), weight (less and more than 600 pounds), and breed (Brahma, Holstein and other breeds) of the animal. Put options, which work off of the CME feeder cattle contract, are based upon beef breeds weighing 700 to 850 pounds.

A practical advantage of the insurance policy versus put option is that all expenses are incurred up front; recall that options may have commissions that occur near the time livestock are sold in low-price situations. Furthermore, there is no ambiguity concerning whether these expenses are tax deductible (some more entangled options positions might be construed as speculating by adamant IRS agents and, hence, not deductible).

Finally, the federal government subsidizes 13% of cost of the insurance premiums, which make insurance quite cost competitive with options with respect to providing similar downside risk protection.

An Example of LRP and Put Options

To illustrate the bottom line differences between I will give an example comparing the two forms of price protection. I am using an example of 3 different size operators who put both forms of price protection into position on October 4, 2004. All operators have cattle with a planned finishing weight of 1300 and a planned sale date of January 31, 2004. Operator 1 has 15 head,

Operator 2 has 30 head and Operator 3 has 45 head; recall, it takes about 30 head at that weight to fill a single options contract.

The LRP rates and costs are taken from USDA's website, while option premiums are the settlement prices posted on the CME website at close of business for October 4, 2004. The February live cattle futures contract closed that day at $89.62/cwt. The put option strategy involves buying a single put option with a strike price of $84/cwt. (roughly a 94% coverage rate); the premium was $1.80/cwt, plus the operator incurs a $75 commission paid to the broker to transact the deal.

The LRP strategy involves buying a policy to cover exactly the number of cattle each farmer has. The coverage price was $83.07/cwt (roughly a 93% coverage rate) and the insurance premium was $1.86 after factoring in the 13% subsidy from USDA.

Consider three possible price scenarios: good ($92), bad ($82), and very bad ($75). These prices represent the price of the 5-area weighted cattle price for 35 to 65% choice steers reported on January 31 of 2005. (For simplicity, we will assume that the local cash price will be identical to both the CME futures price, used to settle options, and the 5-area cattle price, used to settle the insurance contract indemnity rate). Also, consider the three different sizes of operator. The effective cash sales price, assuming local basis is zero, is listed for each scenario in Table 1. These are the prices per cwt. obtained after factoring in all expenses associated with both the option strategy and LRP, including all commissions and interest lost from cash tied up in executing the strategy.

Table 1. Effective Cash Price with Local Basis of $0 under Put Option and LRP Strategies.

# Marketed	Price on Sales Date					
	$92		$82		$75	
	Option	LRP	Option	LRP	Option	LRP
15 Head	$87.97	$90.12	$81.60	$81.19	$88.60	$81.19
30 Head	$89.99	$90.12	$81.80	$81.19	$81.80	$81.19
45 Head	$90.66	$90.12	$81.87	$81.19	$79.53	$81.19

There are two scenarios in which the LRP is yields a noticeably larger effective price. The first is for the 15-head operator when the futures price is good ($92). Under this Options Strategy, this operator was forced to purchase coverage for 30 head when only 15 head were on hand, essentially leaving a speculative position in the put options market for the other 15 head covered by the put. When the futures market did well, the value of the put was zero, meaning the operator essentially had speculative – money was spent on a put for cattle the operator never owned and the put never gained any value. Of course, if the futures market plunges to $75, that value of the put option skyrockets, handing the 15-head operator a speculative gain, which appears as a much larger effective price for the Option Strategy than the LRP Strategy.

The second scenario in which the LRP Strategy outperforms the Option Strategy is for the 45-head operator when the futures market only reaches $75. Here, again, the operator has 15 head of cattle that are essentially not hedged. Hence, when the futures market does poorly, it is not surprising that the effective price is lower because 1/3 of the cattle were not protected from

downside risk protection. However, when the market is strong ($92), those put options have no value and the fact that the 45-head operator did not protect 15 head is now a benefit. In this case, the Option Strategy yields a higher effective price.

For the 30-head operator, both strategies fully cover all animals marketed. In this case the two strategies yield essentially the same prices. The Option Strategy does slightly better in the 'bad' and 'very bad' price scenario, while the LRP does better in the 'good' price scenario. These modest differences are driven by the slightly different coverage levels available on the day the two contracts were initiated, i.e., the Option Strategy protected for prices below $84 while the LRP policy protected for prices below $83.07.

A key outcome to notice is that, as you scan down a column of effective LRP prices, the price is not affected by the size of the operation. This stems from the fact that LRP covers exactly the number of animals the operator has while the options strategy covers a fixed number of cattle regardless of the operator's true size. This means that LRP has a greater ability to truly hedge the price position while the Option Strategy only provides an exact hedge for operators with exactly the correct number of head.

Summary

The Livestock Risk Protection (LRP) Insurance Policy offers a flexible method for achieving downside price risk protection. The program provides greater ability to place a true hedge for any size producer than do strategies relying on options because options are sold to cover a fixed amount of livestock output, while the insurance policies are written to cover exactly the amount of livestock held by the operator. Some operators not familiar with futures and options markets may also find it easier buy an insurance policy than to buy put options.

Options programs do offer greater flexibility with regard to the time when downside price protection is removed, allowing astute operators familiar with futures markets to (potentially) close out options positions for greater return. Also, there exist annual limits to the number of fed cattle (4,000), feeder cattle (2,000) and hogs (32,000) covered by LRP. Therefore, some large operations may not be able to access complete coverage via LRP.

One final point is that neither program can guarantee that the operator will cover costs of production because both programs are tied to the futures market, which may simply be trading in a range below costs of production.