Risk Assessed Marketing
Dr. G.A. "Art" Barnaby, Jr.
Phone: (785) 532-1515 Fax: (785) 532-6925
E-mail: abarnaby@agecon.ksu.edu
Website: www.agmanager.info
Copyright 2003. All rights reserved by author. E-mail Art to be added to the mailing list

Disclaimer: This web page is designed to aid farmers with their marketing and risk management decisions. The risk of loss in trading futures, options, forward contracts, and hedge-to-arrive can be substantial and no warranty is given or implied by the author or any other party. Each farmer must consider whether such marketing strategies are appropriate for his or her situation. This web page does not represent the views of Kansas State University.

IS THE LRP COMPARISON A CORRECT ONE?[1]

Dear Art,

I don't think you are comparing "apples to apples" on 10/14/03 Livestock Risk Protection (LRP) contract. I think the put is cheaper than the LRP on 10/14/03.

Option Expert

Dear Option Expert,

A put contract cost based on the closing April put premium rate on 10/14/03 was $1,850 for a 50,000 pound feeder cattle contract with a $88 strike. If one were to buy a LRP contract that also covered 50,000 pounds, the premium cost on 10/14/03 was $1,802. The 50,000 pound put contract represents about 67 calves weighing 750 pounds. The LRP is cheaper by $48 before any adjustments, so the LRP is clearly cheaper.
It is also likely that the put option would have required a premium bid greater than the market "close" of $3.70 but that would have shifted the advantage to the LRP by more than $48. The analysis on AgManager does not make any adjustment for bidding a higher premium to get an order filled. However, this is likely a good argument especially on the deferred contracts.

The next adjustment was to add the commission paid for the put option. Option commissions vary widely so if a livestock producer is paying less than the $75 commission assumed in the AgManager analysis, the result would lessen the advantage for LRP. The producer pays no commission on the LRP contract. Using the $75 commission rate, the LRP is now $123 cheaper per put contract. This is the difference between $1,925 (line 16) and $1,802 (line 29) in the table below and the updated table posted at:

http://www.agmanager.info/crops/insurance/price_risk/pr_pdf03/modvol04LRP.pdf

[1]Prepared by G.A. (Art) Barnaby, Jr., Professor, Department of Agricultural Economics, K-State Research and Extension, Kansas State University, Manhattan, KS 66506, October 17, 2003, Phone 785-532-1515, e-mail – abarnaby@agecon.ksu.edu

The 26 week LRP coverage expires on 4/13/04 and has a higher strike of $88.53 on 10/14/03. The put option had a lower strike of $88 but a larger time value, expiring on 4/29/04. The Put is an American option and carries the right to exercise the option. The LRP is similar to a European put because there is no right to exercise the LRP.

Because of these differences between the LRP and a put, the analysis recalculated the put option premium assuming that the put had the same strike of $88.53 and an expiration date of 4/13/04. The higher strike increases the calculated put premium and the fewer days to expiration reduces the calculated put premium. The calculated put premium included the current volatility and interest rate. Making these adjustments to the calculated premium increased the put premium from $3.70 to $3.73.

The American versus the European put generated very little difference in the calculated put premium. The major factors that changed the calculated put premium were the strike and the days to expiration.

The other major factor that drives the calculated put and LRP premiums is volatility. The LRP premiums are based on the prior days close on 10/13/03. The volatility value on 10/13/03 was 23.02 percent and that was used to set the LRP premium on 10/14/03. If one were to calculate the adjusted put premium on 10/14/03 but use the prior day's volatility, the result would have been a much higher calculated put premium of $4.29 versus the $3.73 in the analysis. It appears the major reason the LRP was an okay buy but not a great buy was the prior day's higher volatility.

However, it appears the issue the Option Expert is raising is the fundamentals are different for cattle sold on March 26 (closing date for March feeder cattle) and April 29 (closing date for April feeder cattle). However, the LRP expires between the March and April put expiration dates so the fundamentals for the LRP are also different. It appears the Option Expert is arguing that one should use the LRP expected price when calculating the adjusted premium. But why would one use the LRP expected price that is based on yesterday's market when one already has today's market values?

KSU does not have access to the Risk Management Agency (RMA) model used to set the one day delayed LRP expected price therefore an estimate of the LRP expected price based on today's market but released by RMA tomorrow was developed. A KSU estimate of the expected price for expiration on April 13 (expiration date changes daily) was developed using a weighted average price between March and April futures closing prices. The change in the weighted average price was then subtracted from the current official LRP expected price (line 23). Effectively the KSU estimate is only the change between today's official LRP price and tomorrow's LRP price. The KSU expected price will compare with tomorrow's LRP price and the difference between the KSU estimate and the official LRP expected price is on line 24. A weighted average of the March and April implied put volatilities was also calculated.

The current LRP strike, current LRP expiration date, KSU estimated expected price, and weighted volatility based on the current market was then used to calculate the adjusted put premium that will compare with the LRP premium.

ART

WRITE ABOUT RISK MANAGEMENT NOT SPECULATION

Dear Art,

Don't forget to mention the risk management aspect of these products. You are spending too much time teaching producers to be marginally better speculators, when the real issue is risk management.

Insurance Specialist

Dear Insurance Specialist,

Thanks for the comment. I agree the major issue is risk management. However, livestock producers now have two choices for “price insurance.”

The question being answered in the analysis is should I buy puts or LRP? The analysis assumes livestock producers have already made the decision to buy price protection. Because both puts and LRP provide similar protection, then the question becomes which is the better buy.

Should one buy “price insurance” will depend on if the producer thinks the market is headed down, the amount of risk the producer is willing to bear, and probably more important if the lender is asking for coverage to protect the equity in the cattle. Once producers decide to buy “feeder cattle price insurance”, then the updated analysis in the table will help producers to decide on the purchase of a put or LRP. Both the put and LRP provide price risk insurance. The table does not tell one if they should buy “price insurance.”

ART

LRP PREMIUMS ARE TOO EXPENSIVE?

Dear Art,

I think the LRP premiums are too expensive!

Livestock Producer

Dear Livestock Producer,

LRP premiums are too expensive compared to what? Compared to put premiums LRP premiums on many days are less expensive. However, the premiums have become more expensive as the market has become more volatile. As an example this past week, the deferred feeder cattle futures contracts were up the limit on one day and down the limit on the next day. That is volatility!

The major advantage for the LRP contract is the ability to buy price risk protection for a single calf. The CME options and futures are very “lumpy” because they are only available in 50,000 pound contracts. The result is livestock producers, especially smaller producers, will either be over “hedged” or under “hedged.” The other major LRP advantage is the contract will be filled at the stated premium costs, assuming the insurance company has not reached its livestock insurance liability limit. Purchase orders for puts, especially on deferred contracts are often not filled unless the buyer bids a higher premium.

One way to reduce premium costs is to use the LRP as part of a “window” or “fence” strategy. This approach is similar to a hedge and the producer is locking in the price within the “window” range. To follow this strategy one would buy the LRP and establish a price floor (does NOT lock in the basis and depending on the change in basis the real price floor may be higher or lower). The producer would then write\sell an out of-the-money call. The strike on the out-of-the money call establishes the maximum price on the cattle. If price falls, the producer retains the call premium, net LRP indemnity payments, and the cash sale of the calves. However, if price increases producers lose the LRP premium and must pay margin calls on the sold call but they sell their calves at a higher price. **<u>In all cases producers are still</u>**

exposed to basis risk, which can be large for feeder cattle. There is a significant amount of basis risk in feeder cattle, so the results will often vary from the results presented in many examples.

Should livestock producers follow this strategy? That will depend on a livestock producer's market forecast. If a producer thinks the market is still going up, then one would not want to do a window. If a producer thinks the market is going down, then this strategy would fit. If a producer has no clue on market direction, then one could scale in the purchase of several LRP guarantees. As the cattle get closer to their sale date, producers could then write covered calls as the second step in the window strategy.

This approach to a window strategy (combining the purchase of LRP with the writing\sale of a call) compared to traditional window strategy (combining the purchase of a put with the writing\sale of a call) allows producers to take advantage of no brokerage commission and RMA rate subsidies on the LRP. It also allows for a higher price than a hedge, depending on how far out-of-the money one writes\sells the call.

The fact is the LRP premiums are "high" is because the risk is high. Cattle are selling at prices that have not held up over the long run.

Up Coming Workshop. A workshop scheduled for November 18, 2003, Highland Hotel & Convention Center (formerly the Holiday Inn), Great Bend, Kansas, will address these complex risk management issues. Dr. Peter Griffin who developed LRP will be the featured presenter. This will be a great opportunity for livestock producers, insurance agents, ag lenders and other interested parties to ask questions and discuss the LRP contract with **the expert**, the author of LRP. The same workshop will also be presented in Nebraska and Colorado. A program brochure and registration form is posted on AgManager.Info at: http://www.agmanager.info/crops/insurance/workshops/filespdf/ciwks.pdf

ART

Compare Livestock Risk Protection (LRP) Contract with Chicago Mercantile Exchange (CME) Put Option Premiums for Similar Coverage

	Current			History
1 Coverage Date	10/16/2003	10/15/2003	10/14/2003	10/13/2003
2 Option Expires	4/29/2004	4/29/2004	4/29/2004	4/29/2004
3 April Futures Price				
4 Futures Increase/Decrease	**($1.500)**	**($1.500)**	**($1.500)**	**$1.500**
5 April Feeder Cattle Futures Close	$88.900	$90.400	$91.900	$93.400
6 April Feeder Cattle Put Strike	**$84.00**	**$86.00**	**$88.00**	**$88.00**
7 Calculated Implied Put Volatility	21.04	23.57	20.69	23.02
8 Weeks to Expiration	**28.000**	**28.100**	**28.300**	**28.400**
9 Short-term Interest Rate	1.68%	1.55%	1.44%	1.44%
10 April Put Premium	$3.200	$4.100	$3.700	$3.800
11 KSU Extimated Price[1]	$89.239	$90.800	$93.597	$93.400
12 Mar/Apr Wt KSU Est.Volatility[2]	21.72	24.06	21.25	
13 Ajusted Put Premium[3]	$3.224	$3.790	$3.730	
14 Total Contract Premium	$1,600.00	$2,050.00	$1,850.00	$1,900.00
15 Commission[4]	$75	$75	$75	$75
16 Total Producer Costs	**$1,675.00**	**$2,125.00**	**$1,925.00**	**$1,975.00**
17 Premium Adjusted for Strike Price				
18 and LRP Expiration Date[5]	$3.224	$3.790	$3.730	
19 Comparison Premium	**$1,687.00**	**$1,970.00**	**$1,940.00**	
20 LRP Expires	4/15/2004	4/14/2004	4/13/2004	**No Offer**
21 LRP Weeks Covered[6]	**26.000**	**26.000**	**26.000**	
22 Coverage Level	92.9500%	93.6100%	94.2500%	
23 LRP Expected Price	$90.812	$92.373	$93.931	
24 KSU Estimate vs. Offical LRP Pric	-$0.013	$1.224	-$0.531	
25 LRP Expected Price Change	**($1.560)**	**($1.558)**	**$93.931**	
26 LRP Guarantee "Put Strike"[7]	**$84.41**	**$86.47**	**$88.53**	
27 Premium/head/750 lbs calf[8]	**$23.36**	**$28.41**	**$27.03**	
28 LRP Adj. to CME Contract Size[9]	$1,557.33	$1,894.00	$1,802.00	
29 Total Producer Costs	**$1,557.33**	**$1,894.00**	**$1,802.00**	
30 Adjusted Premium Difference	**($129.67)**	**($76.00)**	**($138.00)**	
31 % LRP Discount vs Adj. Put	**(7.69%)**	**(3.86%)**	**(7.11%)**	

[1]Because the LRP expires between the March and April put expiration dates, a weighted average price between March and April futures closing prices were calculated to estimate the expected ending market price based on today's market. The change in the weighted average price was then subtracted from the current LRP expected price to forecast tomorrow's LRP expected price. The KSU expected price will compare with tomorrow's LRP expected price that is reported on line 23. KSU does not have access to the RMA model used to set the one day delayed LRP expected price.

[2]A weighted average of the March and April implied put volatilities was calculated.

[3]The current LRP strike, current LRP expiration date, KSU estimated expected price, and weighted volatility based on the current market was then used to calculate the adjusted put premium that will compare with the LRP premium.

[4]Commissions vary and some brokers charge a flat commission for options that includes the sale of the option, if it is in-the-money.

[5]The strike price and time value left in the option do not match the LRP guarantee on most days. Therefore, the put premium was adjusted to reflect the LRP strike and remaining time value so the two products could be compared.

[6]The LRP contract based on the April Put declines in time coverage daily. For example the coverage weeks declined from 30 weeks on 10/2/03 to 26 weeks on 10/3/03.

[7]The LRP strike varies daily and is based on the expected market price and can not exceed 95% of the expected market price.

[8]LRP premiums are based on the previous day's close of CME option market.

[9]LRP premiums were adjusted to cover 66.67 head of 750 pound calves or 50,000 pounds that is equivalent to a CME option. Unlike the futures and options, LRP does not have a fixed size contract. For example a producer could purchase an LRP contract on 10 head of 750 pound calves for a total of 7,500 pounds.