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Livestock Gross Margin Insurance for Cattle

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Details of the Livestock Gross Margin Insurance are explained in this publication.

What is Livestock Gross Margin Insurance for Cattle?

Livestock Gross Margin Insurance (LGM) for Cattle is an insurance policy first offered in January 2006 through USDA's Risk Management Agency (RMA). Prior to the release of LGM, Livestock Risk Protection Insurance (LRP) also was offered to producers as a livestock insurance product. LRP provides single-peril price risk protection for the future selling price of the insured livestock. As a separate and distinct policy, LGM provides protection against a decline in the cattle feeding margin by simultaneously hedging the input costs of corn and feeder cattle and the fed cattle selling price as a bundled option. This insurance policy is available for both calf finishing and yearling finishing operations. The launch of LGM for Cattle follows the 2002 pilot LGM for Swine program in Iowa.

Essentially, LGM pays insured producers an indemnity when the spread between fed cattle sales prices and feeder cattle and corn input prices narrows beyond their insured coverage level due to changing market conditions. As this feeding margin narrows, the corresponding indemnity payment becomes larger to offset lower revenues or increased costs. The LGM for Cattle insurance period consists of an 11-month coverage period, allowing producers to insure target marketings (i.e., number of head intended to be sold that month) for any of the 11 months except the first month. Indemnity payments are based on a gross margin guarantee (GMG) and a total actual gross margin (AGM). The GMG is the cattle feeding margin producers insure when they purchase the policy. It is based on expected fed cattle, feeder cattle and corn prices. The total AGM is the cattle feeding margin that occurs due to realized, actual prices observed in the market after the 11-month coverage period. At the end of the 11-month insurance period, an indemnity is paid to the producer if the insured GMG for the 11-month period exceeds the total AGM. The fed cattle, feeder cattle and corn prices used to compute the GMG and AGM are based on adjusted futures prices and state- and month-specific basis levels.

LGM is reinsured by the Federal Crop Insurance Corporation (FCIC). Although no producer premium subsidy is available for this insurance program, all administrative and policy expenses incurred by the crop insurance companies are paid by the federal government rather than insured producers.

While LGM is based on futures market prices and provides protection similar to a bundled option on futures contracts, producers using LGM take no futures or option positions themselves and therefore do not need a brokerage account. Because it is unique from traditional options or futures, LGM offers several advantages. By allowing producers to sign up 12 times per year and insure all of the cattle they expect to market over an 11-month period, insured producers do not need to decide on the mix of options to purchase, the strike prices of the options, or the date of entry into various option contracts. They also can purchase multiple policies and thereby insure just certain months of target marketings for additional flexibility. LGM also can be customized to fit the needs of any size operation (within policy limitations). Options cover fixed amounts of commodities. For example, one corn contract represents 5,000 bushels, one fed cattle contract is 40,000 pounds, and one feeder cattle contact covers 50,000 pounds. Many times these amounts are too large to be used effectively in the risk management portfolios of smaller operations. In addition, the difficulty in using options on futures is compounded by the ratio producers would need to equalize live cattle, feeder cattle and corn contracts according to production practices so as to not overhedge. The LGM policy basically combines the three commodities in an equivalent fashion for producers so they do not have to purchase multiple contracts to be hedged in each commodity. Because there is no minimum number of head to insure with LGM, producers with smaller-sized operations can use LGM without hedging more cattle than they plan to sell.

Availability of LGM

LGM for Cattle is available in 20 states *(Figure 1)*. To be eligible for this policy, the insured cattle must be located in one of these 20 states and be specifically intended for commercial or private slaughter. The owner of the cattle must reside in one of the 48 contiguous states and have substantial

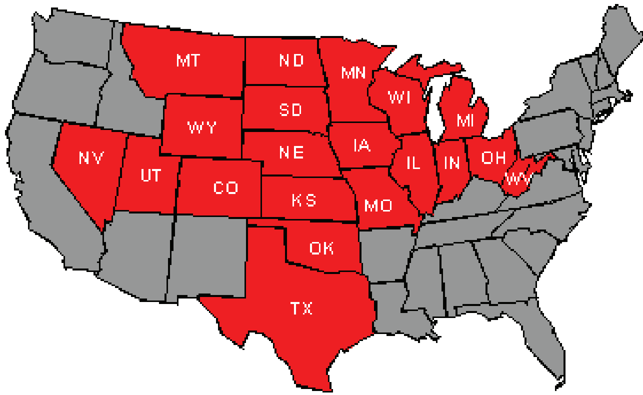

Figure 1. States with LGM Insurance for Cattle, 2006.

beneficial interest (SBI) in the insured cattle. In order to have SBI, the producer must have at least 10 percent ownership of the insured cattle. The spouse of an insured automatically will have the same substantial beneficial interest as the insured, unless the spouse proves the cattle insured are in a completely separate farming operation or the spouse derives no benefit from the insured farming operation. SBI is tracked in the LGM program because there are limits to the number of cattle any one producer can insure with LGM insurance.

LGM is available for purchase from any authorized crop insurance agent licensed to sell LGM. A list of authorized agents is available at *http://www3.rma.usda.gov/apps/agents*. If producers own cattle in two different LGM eligible states, a separate LGM policy must be obtained in each state. As long as an insurance agent is licensed in both of the applicable states, the same agent can handle both policies.

LGM is sold on the last business day of every month. The sales period commences once RMA validates the price data that is used to calculate the GMG. This verification of data occurs after the futures market closes on the last day of the price discovery period, which is simply the last three days of prices in the corresponding commodity months (fed cattle, feeder cattle, corn) that are used to calculate gross margins for each of the target marketing months. The LGM sales period ends at 9 a.m. CST on the next business day. RMA observes the right to refuse the sale of LGM at any time. If expected gross margins are not posted on the RMA Web site on the last business day of a particular month, LGM for that insurance period is not available for purchase.

At the time of policy purchase, producers can elect to not insure a portion of their expected gross margin by selecting a deductible between $0 and $150 per head in $10 per head increments. Like any insurance policy, as deductibles increase, premiums decrease. Premiums depend on a number of factors, including the amount of coverage selected, a producer's marketing plan (the number of cattle in various target marketing months), the level of the futures prices and the amount of price volatility. The premium cost is not reduced if producers have a written or detailed marketing plan. Because the premiums are based on actual market prices, the cost of LGM insurance and available coverage levels varies daily. The premiums are determined through a statistical simulation and not by a simple step-by-step equation. Premiums and associated GMGs can be accessed from RMA's Web site at *http://www3.rma.usda.gov/apps/premcalc/*.

The premium for the initial insurance period must be paid in full at the time the application is due, otherwise the application will not be accepted. The premium for all subsequent insurance periods must be fully paid by the applicable sales closing date for each policy. Otherwise, all target marketings will be reduced to zero for each month of the insurance period (that the premium is not paid), and a producer will have no coverage for any cattle under that unpaid policy.

How Does LGM Work?

Throughout a calendar year, LGM is comprised of 12 different insurance periods, each operating on an 11-month cycle. Coverage will begin one full month after the sales closing date, provided the premium for the policy has been paid in full. No cattle sales are insurable during the first month of any insurance period. For example, if a producer purchased a policy on the sales closing date of Jan. 31, no cattle marketings will be insurable until March 1. Producers can purchase one policy to cover the entire insurance period or obtain multiple policies with sales closing dates in different months. For example, producers wanting to insure cattle from March to December could insure all 10 months with one policy (purchased at the end of January). Alternatively, they could purchase coverage for each month separately, buying March coverage in January or before, April coverage in February or before, and so on. Any combination of these two transactions also could be purchased. Insurance that is purchased on more deferred months generally receives the most protection against changing margins because future input prices are hedged in addition to cattle sales.

Target marketings represent the maximum number of slaughter-ready cattle that are expected to be marketed during the insurance period and that the producer wants to insure with LGM. A specific number of cattle are specified for each target month. Producers are not required to insure all cattle they plan to sell and can therefore insure any amount of cattle they own up to a program limit of 5,000 head for any 11-month insurance period and a limit of 10,000 head per crop year (July 1 to June 30). There is no limit to the number of LGM policies producers can purchase; only the number of head insured is limited.

Once producers have been approved for coverage, target marketings are established *(Figure 2)*. These target marketings must not exceed a producer's approved target marketings. Approved target marketings are the maximum number of cattle that can be stated as target marketings on the insurance application and are based on the lesser of farm capacity or underwriting capacity for the insurance period as determined by the insurance company. Certified by the producer, approved target marketings are subject to inspection by the insurance agent in order to verify the marketings. All records relating to the feeding, finishing and sale of the cattle, as well as an examination of the cattle themselves, are subject to inspection. Producers must retain all records for three years after the 11-month insurance period has ended. These records include but are not limited to purchase, feeding, shipment, sale or other documents of transfers of all cattle insured and not insured.

This policy does not protect against death loss, poor performance or any physical damage or loss. Any death loss that does occur does not need to be reported to the insurance

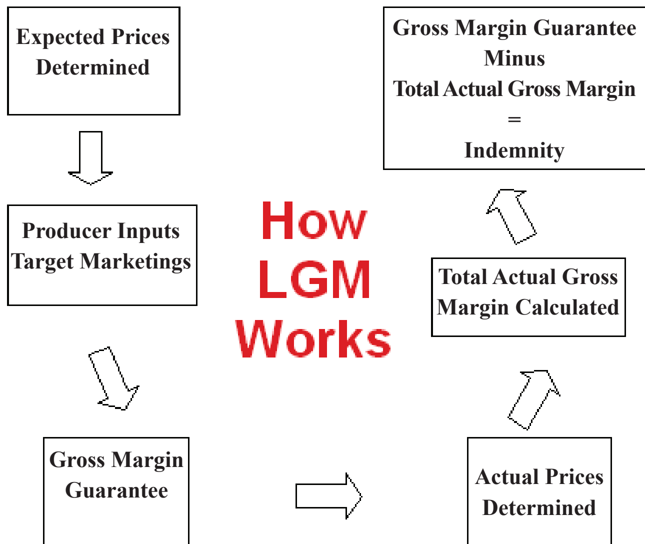

Figure 2. The Process of LGM for Cattle.

agent, however, it might be a good management practice to do so. If total actual marketings are less than 75 percent of total target marketings for the 11-month insurance period, a producer's indemnity will be reduced by the percentage by which the total actual marketings for the insurance period fall below the total target marketings for the period (the premium will not be reduced). For example, if 500 head of cattle are to be marketed during the 11-month insurance period, but producers only report sale receipts for 350 head due to a large death loss, only 70 percent of the slated target marketings were sold. This in turn reduces the producer's indemnity by 30 percent. This adjustment to the indemnity is for the entire 11-month insurance period, not individual target marketing months. On the other hand, as long as producers market at least 75 percent of the marketings during the 11-month insurance period (even though some death loss does occur), the insurance coverage remains unchanged and indemnities are not reduced. Returning to the previous example with 500 head being marketed, if producers actually sold 400 head (80 percent of target marketings), the insurance coverage and any payments are still determined as though the producers marketed 500 head in the target marketing months they originally assigned cattle. Adjustments are made only if the producers market less than 75 percent of the total head during the insurance period.

As mentioned earlier, two different types of operations are insurable with LGM. A yearling finishing operation assumes a cattle placement weight of 750 lbs. and a finished weight of 1,250 lbs. Yearling cattle are assumed to be on feed for five months and consume 57.5 bushels of corn during that time. A calf-finishing operation assumes a placement weight of 550 lbs. and a finished weight of 1,150 lbs. This type of operation is assumed to feed calves for eight months and assumes that they will consume 54.5 bushels of corn. The weights and quantities used to establish the type of operation are based on averages. These are used to determine LGM's GMG and total AGM. However, it generally does not matter if actual placement weights, days on feed and feed consumption differ from the averages. However, to the extent these factors can change marketing dates, consideration should be given to whether actual marketings for an insurance period would drop below the 75 percent threshold.

At the time of coverage purchase, an expected gross margin (EGM) per head is calculated for each target marketing month. The EGM per head for month t is calculated using one of the following equations:

Calf Finishing

EGM_t = [11.5 (cwt) * Live Cattle $Price_t$ (\$/cwt)] – [5.5 (cwt) * Feeder Cattle $Price_{t-8}$ (\$/cwt)] – [54.5 (bu) * Corn $Price_{t-4}$ (\$/bu)]

Yearling Finishing

EGM_t = [12.5 (cwt) * Live Cattle $Price_t$ (\$/cwt)] – [7.5 (cwt) * Feeder Cattle $Price_{t-5}$ (\$/cwt)] – [57.5 bu * Corn $Price_{t-2}$ (\$/bu)]

The EGM for either type of operation is calculated and available on RMA's Web site at *http://www3.rma.usda.gov/apps/livestock_reports/*. Upon entering the calculation Web site, the year and state in which cattle will be insured as well as the commodity (cattle) must be selected. The report will then be created, stating the EGM for all target marketing months in available insurance periods as of the date the report was created. The actual gross margin (AGM) will also be shown for past target marketing months in which actual live cattle, feeder cattle and corn prices are known. The AGM per head is based on the three respective commodity prices and is calculated with the same equation used to calculate EGM. It is important to remember that the live cattle, feeder cattle, and corn prices include a fixed basis that does not differ between the EGM and AGM calculation. State- and month-specific basis for each commodity can be obtained at *http://www.rma.usda.gov/FTP/Policies/2006/lgm/pdf/LGM_Commodity_Exchange.pdf*.

Once all EGMs are calculated for each of the 11 target months, all monthly EGMs are multiplied by their respective target marketings. These monthly totals (some of which may be zero if no target marketings were specified for the month) are then summed to create the total EGM. The GMG then is calculated by subtracting the total deductible (per head deductible times the total number of cattle to be marketed) from the total EGM. Once the total AGM has been calculated (which occurs at the end of the 11-month insurance period), an indemnity will be paid if the GMG is higher than the total AGM. Indemnities are not paid until the end of the 11-month insurance period. In the event that an indemnity is due, the insurance company will issue a notice of probable loss. Within 15 days of receipt of this notice, the producer must then submit a marketings report and sales receipts to document that the cattle actually were marketed and sold in order to receive the indemnity payment.

The principle behind LGM is to protect producers from a narrowing cattle feeding margin caused by lower revenues and/or increased costs. If, for example, producers purchased this policy in January, they would receive an indemnity if fed cattle prices decreased in later months or corn and/or feeder cattle prices increased (or some combination thereof). Sometimes the corn and feeder cattle prices will not be a factor in determining a margin change due to the way they are determined in the gross margin calculation. Because the futures contracts these prices are based on sometimes are expired

when determining EGM, the corn and feeder cattle prices may be the same for both the EGM and AGM calculation. For example, the fed cattle price on Jan. 31, 2006 was $92.54/cwt (for a March target marketing month). The feeder cattle price on the same date was $111.09/cwt (based on the expired May and August 2005 futures contracts), and the average corn price was $1.95/bu (based on the expired September and December 2005 futures contracts). After including each commodity's state- and month-specific basis, the GMG is calculated to be $341.82/cwt for one head (assume $0 deductible). Suppose that the fed cattle price subsequently dropped to $84.96/cwt in March when cattle are to be marketed (based on the expired February and April 2006 futures contracts). Since the feeder cattle and corn contracts already were expired, those prices remain unchanged for the GMG and AGM calculations, giving an AGM of $254.65/cwt. The AGM then is subtracted from the GMG to give an indemnity of $87.17 per head. This is the indemnity that would be paid to the producer.

As mentioned earlier, in some instances feeder cattle and corn prices will change from the EGM calculation to the AGM calculation. Consider a yearling finishing operation policy with a sales closing date of Jan. 31, 2006. The EGM for a September target marketing month would use the same futures contract but different prices for the AGM calculations associated with this month due to a lapse in time. In the AGM calculation, the live cattle price would be based from the expired August and October live cattle futures contracts, instead of the August and October live cattle futures prices on the last three days in January. Feeder cattle prices would be based from the expired April futures contract and corn prices from the expired July contract rather than those respective futures contract prices on thee last three days of January. Basically, the EGM uses prices from each respective contract as of the last three days of January because all three commodity contracts have not expired. The last three days prior to the last day of contract expiration were used to calculate the AGM at the completion of the target marketing month since all three commodity contracts had expired at that time.

What Does LGM Mean for Cattle Producers?

Research has shown the largest risks associated with feeding cattle are fed cattle, feeder cattle and corn price risk. Because of this, producers should implement risk management strategies in order to reduce price risk associated with these markets. Although LGM does not create a marketing opportunity or a positive margin other than what the market actually offers, LGM does offer useful protection by protecting the gross feeding margin. This policy acts as a bundled set of options protecting live cattle, feeder cattle and corn price changes. Even though price risk is reduced with this coverage, it is not completely eliminated nor are other risks associated with feeding cattle insured with LGM.

Often producers choose not to hedge fed cattle, feeder cattle and corn because of a lack of understanding in the futures and options market. The contracts offered in these markets sometimes are difficult to utilize effectively because of their fixed contract sizes not adapting to operations' sizes or needs. By not using futures and options, producers can be unprotected from price risk. LGM is a product that combines all three commodities into one and addresses these reasons why producers do not prefer to use futures and options hedges. Although LGM works to minimize price risk, it still has limitations as it does not protect against basis risk or production and performance risk.

Although some basis risk is reduced by insuring with LGM, the risk of changes between actual basis levels and the fixed basis in LGM leaves cattle feeders still partially exposed to cash margin price risk. The prices used to calculate the expected and actual gross margins are not the same as the cash prices producers will realize in their own local fed cattle, feeder cattle and corn markets. Even though each policy uses a state- and month-specific basis, LGM basis is based on the historical difference between the adjusted futures price (including the policy's fixed basis) and the local cash selling price producers actually receive (using local basis).

Producers cannot use any other sort of offsetting transaction in combination with LGM to further mitigate price risk. Although not specifically defined by RMA, the use of short feeder cattle and corn calls and short fed cattle puts may be considered an offsetting transaction. Further, insuring cattle with both Livestock Risk Protection Insurance and LGM is prohibited.

Conclusion

LGM works to provide cattle feeders with a price risk management tool by protecting against declines in the cattle feeding margin. Expected and actual gross margins combine to provide producers with an indemnity if fed cattle sale prices drop or input costs rise. LGM offers an opportunity to combine the risk protection needed for fed cattle, feeder cattle, and corn commodities into one policy, so it is more convenient and more easily customized to individual operations. Although this program doesn't completely eliminate price and production risk, it offers producers an opportunity to manage price risk and implement LGM as part of a risk management program.

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