A new risk management tool became available to milk producers starting in August 2008. Livestock Gross Margin for Dairy Cattle (LGM-Dairy) is a livestock insurance product that protects against the loss of gross margin in milk production rather than a drop in the selling price of milk. LGM-Dairy allows small and medium sized operations to manage risk even if they do not have the volume or expertise necessary to use Chicago Mercantile Exchange (CME) Group futures and options contracts. LGM-Dairy allows for milk production to be protected that does not match the specifications of the CME Group contracts, thus eliminating over or under coverage. Coverage can be purchased on the last Friday of the month that is a business day and the next day until 8 p.m. Central time.

**Insurance periods and coverage level**
Each insurance period for LGM-Dairy is eleven months long. No milk can be insured during the first month of any insurance period. A producer must prepare a Target Marketing Report showing the number of hundredweight of milk, i.e., expected sales, and the amount of corn and soybean meal, i.e., expected feed to be covered in each month of the insurance period. The target marketing for a month can range from zero to the amount of milk actually produced that month. The maximum number of hundredweight of milk that can be covered is 240,000 hundredweight in any one insurance period or any insurance year (July 1 through June 30). This maximum would be reached if all of the milk from 1000 cows producing 24,000 pounds each were covered. A producer’s target marketings may not be more than the capacity of the producer’s dairy operation for the eleven month insurance period or the underwriting capacity limit.

**How is expected gross margin calculated?**
Gross margin is the difference between gross revenue and variable costs. Gross revenue is the revenue from selling milk. Variable costs include feed and other costs that occur when producing milk. Class III milk futures represent the price used to calculate expected gross revenue for milk production. Corn futures and soybean meal futures represent the prices used to determine the expected cost of feed needed to produce a hundredweight of milk. LGM-Dairy does not include a factor to represent non-feed variable costs. The Expected Gross Margin (EGM) per hundredweight is then calculated using the appropriate contract month prices for Class III milk futures, corn futures and soybean meal futures. The EGM formula for LGM-Dairy is Expected Milk Price – Expected Cost of Feed. While corn and soybean meal are used to determine the expected cost of feed for LGM-Dairy, many other ingredients are used in dairy rations. Other ingredients used can be converted to corn and soybean meal equivalents using the suggested conversion rates for dairy feeds, based on protein and energy content per ton contained in Table 2 of the Commodity Exchange Endorsement for Livestock Gross Margin for Dairy Cattle. For example, 1000 pounds of cottonseed meal (41 percent CP) would be equivalent to 905 pounds of soybean meal and 36 pounds of corn according to the Table.

The expected cost of feed equals the target amount of corn (or corn equivalent) to be fed times the expected corn price for that month plus the target amount of soybean meal (or soybean meal equivalent) to be fed times the expected soybean meal price for that month. Producers can choose to convert the actual ration fed to corn and soybean meal equivalents or use default values for the feed inputs. The
number of tons of corn per month is restricted to be between 0.00364 tons (.13 bushels) and 0.02912 tons (1.04 bushels) per hundredweight of milk. The number of tons of soybean meal per month is restricted to be between 0.000805 tons (1.61 pounds) and 0.006425 tons (12.85 pounds) per hundredweight of milk. The default values for feed equivalents are 0.014 tons (0.5 bushels) of corn and 0.002 tons (4 pounds) of soybean meal per hundredweight of milk.

The EGM varies from month to month in an insurance period due to the varying prices in the futures contracts and thus the potential gross margin. A producer can choose a $0 to $1.50 per hundredweight deductible amount in $.10 increments. The deductible value is the portion of the EGM not insured, similar to the deductible value on car insurance. A producer can lower the premium cost of LGM-Dairy by choosing a higher deductible amount and will pay a higher premium if a low or zero deductible amount is chosen. Since other non-feed variable costs are not covered, it is important to remember that the EGM has to cover the non-feed variable costs and hopefully provide some profit! The Expected Total Gross Margin for an insurance period is the sum of the EGM for each month.

Is there an indemnity to be paid?
The Actual Gross Margin (AGM) (Actual Revenue – Actual Cost of Feed) is calculated for each month in the insurance period using the actual prices that occur on the futures markets for Class III milk, corn, and soybean meal. The Actual Gross Margins are totaled for the insurance period to arrive at the Actual Total Gross Margin (ATGM).

The differences between the Expected Gross Margins and the Actual Gross Margins for each month are totaled and if the ATGM is less than the insured amount for the entire insurance period an indemnity will be paid. It is possible that within an insurance period there will be months where positive differences will offset negative differences when the indemnity for the whole period is calculated. The LGM-Dairy policy provides insurance for the difference between the Gross Margin Guarantee (Expected Gross Margin less deductible) and the Actual Total Gross Margin based on the producer’s target marketings.

Although LGM can only be purchased during the short window allowed each month, it is possible to get an estimate of the premiums at the University of Wisconsin’s “Understanding Dairy Markets” website: http://future.aae.wisc.edu/lgm_dairy.html

An example
Let’s look at a typical dairy producer who wants to purchase LGM-Dairy coverage on milk produced during the insurance period beginning on November 1, which runs from November through September. LGM does not allow any milk to be insured in the first month of an insurance period, so no milk could be insured in November in this case. If milk were to be insured in November the producer would have had to purchase insurance prior to October 1 in order for coverage to be in place.

In our example, the first month for which we could insure milk production is December. There is a Class III milk futures contract for each month so the Expected Milk Price would be the December Class III milk futures price. The expected corn price would be the December corn futures price and the expected soybean meal price would be the December soybean meal futures price. The relevant futures prices are the simple average of the three trading days prior to and including the last Friday of the month that is a business day.

The second month for which we could insure milk production is January. The expected milk price is the January Class III milk futures price. Since there is no January corn futures contract, the expected corn price for January is the weighted average of settlement prices for the CME Group corn futures contracts for December and March. There is a January soybean meal futures contract so the expected soybean meal price would be the January soybean meal futures price.
The third month for which we could insure milk production is February. The expected milk price is the February Class III milk futures price. Since there is no February corn futures contract, the expected corn price for February is the weighted average of settlement prices for the CME Group corn futures contracts for December and March. Likewise, there is no February soybean meal futures contract so the expected soybean meal price would be the simple average of settlement prices for the CME Group soybean meal futures contracts for January and March.

Suppose our typical dairy farmer wanted to purchase coverage on 3,000 hundredweights of milk for each month in the November-September insurance period. If he/she chose a zero deductible and used the default values for feed, the Gross Margin Guarantee would be $368,053 and the estimated premium $21,858. If he/she chose the $1.50 deductible the Gross Margin Guarantee would drop to $323,053 and the estimated premium to $5,285. The covered production would be 30,000 hundredweight of milk. The covered corn equivalents would be 420 tons or 15,000 bushels and the covered soybean meal equivalents would be 60 tons.

If the Actual Total Gross Margin for the insurance period totaled $320,000, our dairy producer would receive an indemnity of $48,053 if a zero deductible was chosen and an indemnity of $3,053 if a $1.50 deductible was chosen.

Let’s assume that our dairy farmer decides to insure only the last five months of production (May-September). If he/she chooses a zero deductible and the default values for feed, the GMG would be $188,152 and the estimated premium $14,692. With a $1.50 deductible the GMG drops to $165,652 and the premium to $5,389. Obviously insuring production further into the future increases the cost of the insurance. These estimates were determined using the “Understanding Dairy Markets” premium calculator in mid-October 2009.

Livestock Gross Margin insurance is sold by many crop insurance agents; check with yours for more details. More information is also available at: http://www.rma.usda.gov/livestock/.

The LGM Dairy Insurance Process
1. Producer contacts crop insurance agent authorized to handle LGM-Dairy Insurance.
2. Producer fills out application specifying the insured, the approved marketings amount, the target marketings and feed, and the deductible amount for an insurance period.
3. The application is submitted to RMA for consideration.
4. Producer receives a summary of insurance based on the application submitted specifying the insured, the target marketings, gross margin guarantee, and the premium for an insurance period, or the producer receives notice that the application has been rejected.
5. Producer must pay the premium by the sales closing date for that insurance period in order to have the insurance in force.
6. Producer will receive a Notice of Probable Loss if there is to be an indemnity.
7. Producer submits a marketing report showing the actual marketings for each month of the insurance period within 15 days of receiving the Notice of Probable Loss.
8. Producer receives indemnity after the last month milk is covered during the insurance period.