

Dairy proposals offer effective catastrophic insurance

In moving beyond the current government-sponsored dairy safety net, margin risk insurance would consider milk prices and feed costs. That combination would offer the greatest assistance when producers need it the most.

by Marin Bozic, John Newton and Cameron Thraen

JUNE 15 will mark the 20th anniversary of when Cheddar cheese and nonfat dry milk futures were first listed on the Coffee, Sugar and Cocoa Exchange in New York. A review of the evolution of dairy futures and options contracts reveals intense innovation and a continual search for better contract designs that provide more effective risk protection.

The willingness of private risk markets to adapt and adjust stands in stark contrast to the rigidity of long-standing government-sponsored safety nets. Greater worldwide demand for grains combined with the U.S. bio-fuels policy, turned the tide in livestock feed markets starting in mid-2000s. With higher price levels and volatility of grain prices, it was quickly becoming clear that a federal policy focused exclusively on milk prices had become less relevant, and would prove ineffective in case of a major downturn. Unfortunately, those forecasts were proven correct. First in 2009 which proved devastating for many dairy farms, and then again in 2012 when a major drought reduced availability and sent prices of livestock feeds skyward.

New approach needed

The hardships experienced across the dairy sector brought about a consensus that a new risk management paradigm is needed, one focused not on milk prices, but instead on Income-Over-Feed-Cost (IOFC) margins. Private dairy risk management firms now regularly integrate advisory and brokerage services on both dairy and feed markets, thus providing IOFC margin risk management services to their clients.

Few doubt that there is also a role to be played by the federal government — not because of the absence or lack of effectiveness of private risk instruments, but due to the inability of private risk markets to facilitate wide-scale risk transfers. For example, at the end of April 2013, the total number of all

outstanding futures and put option contracts for cheese, Class III and Class IV milk corresponded to approximately 15 billion pounds of milk. That is an impressive figure until one realizes that it constitutes less than 8 percent of the annual U.S. milk volume.

In our recently published white paper, “Goodlatte-Scott versus Dairy Security Act: Shared Potential, Shared Concerns and Open Questions,” we evaluated the ability of two leading dairy policy proposals to protect participating producers against sustained financial loss induced by severe and long-lasting shortfalls in dairy margins.

Both reviewed alternatives define IOFC margins based on a formula that includes national average prices for milk, corn, soybean meal and alfalfa hay. Based on the proposed formula, the average IOFC margin over the 2000 to 2012 period was \$8.35 per hundredweight (cwt.). From our conversations with dairy lenders, we have concluded that an annual margin of \$6 to \$6.50 per cwt. marks the threshold upon which losses can be considered catastrophic — so large that they can jeopardize the entire business. As an example, in 2009, the average annual margin was \$4.53, and in 2012 it was \$5.31.

How effective are these two proposed programs in protecting against catastrophic losses? We developed a numerical experiment designed to address this question. In the table, we evaluate the financial outcome for a representative dairy producer with a herd of 360 dairy cows purchasing a \$6.50 supplemental margin protection plan and for the same producer without the margin protection. We assume the farm bill is already in effect and that the participating producer had to make a decision regarding the margin level to protect in 2013 by January 15 of the year.

Based on information derived from CME futures and options markets on that date, we calculated probabilities that 2013 would end up with an average annual IOFC margin in one of five categories:

- Below \$5
- Between \$5 and \$6
- Between \$6 and \$7
- Between \$7 and \$8
- Greater than \$8 per cwt.


To keep the analysis simple, we consider a benchmark financially supportive IOFC margin to be \$8 per cwt. Milk check shortfalls up to \$1.50 per cwt. relative to the benchmark IOFC margin (up to \$6.50/cwt.) are treated as shallow losses that the producer decided not to insure against using the federal programs, either because his equity position allows him to bear that much risk or he prefers to use market-based instruments to fine-tune his milk marketing plan. Any losses in excess of \$1.50/cwt. are regarded by this producer as inducing severe financial hardships.

Pays when you need it the most

As can be seen from the table, the proposed programs are designed to pay the most when you need it the most and would make a substantial reduction in financial losses experienced in a severe margin downturn. For example, if 2013 turns out to be as catastrophic as 2009 with average margin under \$5 per cwt., the IOFC shortfall relative to the desired \$8 per cwt. margin would be as high as -\$3.50/cwt. for a nonparticipating farm but only -\$2.12 for a participating farm. Thus, either margin insurance program would remove nearly 70 percent of the catastrophic loss (loss below a \$6.50 margin).

Must have balance

The proposed margin protection programs are indeed very effective as a catastrophic risk insurance tool. However, as the farm bill debate continues, we hope policymakers exercise restraint and heed to the old adage “less is more.” Offering margin insurance that is heavily subsidized above the \$6 to \$6.50 range could end up reducing liquidity of existing dairy risk markets that has taken 20 years to develop.

Perhaps even more importantly, the ability to make annual coverage decisions immediately before the coverage period starts encourages farmers to use the new programs strategically — transferring to the government losses that are imminent and underinsuring when risks seem remote. Not only are these features superfluous for effective catastrophic IOFC margin insurance, but they also have the potential to result in sizable financial outlays and may ultimately lead to milk oversupply and other structural problems. Such a scenario may be unintended, but would not be unforeseen. 

RUN YOUR OWN NUMBERS

If a review of your financial health indicates that you may need affordable catastrophic margin risk insurance, you should begin to examine whether or not the new federal dairy programs would work for your specific business situation. Once the farm bill is passed, our team will release an interactive online tool that will help you figure out how the new programs would work for your particular farm.

Furthermore, if you decide to use the new dairy programs as catastrophic risk insurance like in the example provided here, remember that you are still exposed to shallow margin losses, those between \$8 and \$6.50. If that is too much risk to bear, dairy and feed futures and options may be combined to custom-design your marketing plan around your financial targets.

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Catastrophic risk protection under proposed federal safety net programs using \$6.50 supplemental margin					
Average annual per cwt. simulated margin	Odds	Milk check shortfall relative to \$8/cwt. for nonparticipating farm	Premium for \$6.50 margin	Average simulated indemnity	Milk check shortfall relative to \$8/cwt. for participating farm
Less than \$5	5%	-\$3.50/cwt	-\$0.15/cwt	\$1.66/cwt	-\$2.12/cwt
\$5 to \$6	16%	-\$2.39/cwt	-\$0.15/cwt	\$0.86/cwt	-\$1.76/cwt
\$6 to \$7	34%	-\$1.48/cwt	-\$0.15/cwt	\$0.39/cwt	-\$1.28/cwt
\$7 to \$8	27%	-\$0.55/cwt	-\$0.15/cwt	\$0.17/cwt	-\$0.56/cwt
Greater than \$8	18%	\$0.77/cwt	-\$0.15/cwt	\$0.07/cwt	\$0.67/cwt

Notes: Analysis assumes that the dairy subtitle provisions of the farm bill started effective January 1, 2013. Probabilities of annual 2013 IOFC margins and anticipated indemnities are based on information available on January 15, 2013. This table was created by averaging information provided in Tables 1 and 3 in Newton et al. (2013). Full paper at: <http://aede.osu.edu/dairybriefing>